United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
http://www.blm.gov

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
UT-060-1610-016J

Dear Reader:

Enclosed is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Moab Field Office. The Bureau of Land Management (BLM) prepared the PRMP/FEIS in consultation with cooperating agencies, taking into account public comments received during this planning effort. This PRMP/FEIS provides a framework for the future management direction and appropriate use of BLM-administered lands and resources located in Grand and San Juan counties, Utah. The document contains both land use planning decisions and implementation decisions to guide the BLM's management of the Moab Field Office. The PRMP/FEIS is open for a 30-day review and protest period beginning the date the U.S. Environmental Protection Agency (EPA) publishes the Notice of Availability of the FEIS in the *Federal Register*.

This PRMP/FEIS has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976 (FLPMA). The PRMP/FEIS is largely based on Alternative C, the Preferred Alternative in the Draft RMP and EIS, which was released in August 2007. This PRMP/FEIS contains the proposed plan and potential impacts of the proposed plan. The alternatives presented in the Draft RMP/EIS are also provided for comparative purposes. Major comments received during the public review period of the Draft RMP/EIS and responses to these comments are provided on an attached CD. To aid the reader, substantive changes made between the Draft RMP/EIS and the PRMP/FEIS are described in Chapter 1 and are gray-shaded throughout the document. In addition, every change is detailed in Appendix U.

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this PRMP and has an interest which is or may be adversely affected by the planning decisions may protest approval of the planning decisions within 30 days from date the Environmental Protection Agency publishes the Notice of Availability in the *Federal Register*. For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (labeled as Attachment 1). The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g. meeting minutes or summaries, correspondence, etc.). To aid in ensuring the completeness of your protest, a protest check list is attached to this letter (labeled as Attachment 2). If your protest does not include all of the elements outlined in 43 CFR 1610.5-2 the BLM will not respond to your protest.

E-mailed and faxed protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, the BLM will consider the e-mailed or faxed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct faxed protests to the attention of Brenda Hudgens-Williams- BLM protest coordinator at 202-452-5112, and e-mailed protests to: Brenda_Hudgens-Williams@blm.gov.

All protests, including the follow-up letter (if e-mailing or faxing) must be in writing and mailed to the following address:

Regular Mail:	Overnight Mail:
Director (210)	Director (210)
Attention: Brenda Williams	Attention: Brenda Williams
P.O. Box 66538	1620 L Street, N.W., Suite 1075
Washington, D.C. 20035	Washington, D.C. 20036

Before including your address, phone number, e-mail address, or other personal identifying information in your protest, be advised that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The BLM Director will make every attempt to promptly render a decision on each protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior.

Upon resolution of all land use plan protests, the BLM will issue an Approved RMP and Record of Decision (ROD). The Approved RMP and ROD will be mailed or made available electronically to all who participated in the planning process and will be available to all parties through the "Planning" page of the BLM national website (*http://www.blm.gov/planning*), or by mail upon request.

Unlike land use planning decisions, implementation decisions are not subject to protest under the BLM planning regulations, but are subject to an administrative review process, through appeals to the Office of Hearings and Appeals (OHA), Interior Board of Land Appeals (IBLA) pursuant to 43 CFR, Part 4 Subpart E. Implementation decisions generally constitute the BLM's final approval allowing on-the ground actions to proceed. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations once the BLM resolves the protests to land use planning decisions and issues an Approved RMP and ROD. Implementation-level decisions in the PRMP/FEIS are indicated by *italic text* and an asterisk (*) in Chapter 2. The Approved RMP and ROD will also clearly identify the implementation decisions made in the plan that may be appealed to the Office of Hearing and Appeals.

Sincerely,

Selma Sierra
Utah State Director

Attachment 1

[Code of Federal Regulations]
[Title 43, Volume 2]
[Revised as of October 1, 2002]
From the U.S. Government Printing Office via GPO Access
[CITE: 43CFR1610.5-2]

[Page 20]

TITLE 43--PUBLIC LANDS: INTERIOR

CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents

Subpart 1610--Resource Management Planning

Sec. 1610.5-2 Protest procedures.

(a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.

(1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the Federal Register. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.

(2) The protest shall contain:

(i) The name, mailing address, telephone number and interest of the person filing the protest;

(ii) A statement of the issue or issues being protested;

(iii) A statement of the part or parts of the plan or amendment being protested;

(iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and

(v) A concise statement explaining why the State Director's decision is believed to be wrong.

(3) The Director shall promptly render a decision on the protest. The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested.

(b) The decision of the Director shall be the final decision of the Department of the Interior.

Attachment 2

Resource Management Plan Protest
Critical Item Checklist

The following items *must* be included to constitute a valid protest whether using this optional format, or a narrative letter. (43 CFR 1610.5-2)

Before including your address, phone number, e-mail address, or other personal identifying information in your **protest**, be advised that your entire **protest**--including your personal identifying information--may be made publicly available at any time. While you can ask us in your **protest** to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

Resource Management Plan (RMP) or Amendment (RMPA) being protested:

Name:
Address:
Phone Number: ( )

Your interest in filing this protest (how will you be adversely affected by the approval or amendment of this plan?):

Issue or issues being protested:

Statement of the part or parts of the plan being protested:

Chapter:
Section:
Page:
(or) Map:

Attach copies of all documents addressing the issue(s) that were submitted during the planning process by the protesting party, <u>OR an indication of the date the issue(s) were discussed for the record</u>.
Date(s):

A concise statement explaining why the State Director's decisions is believed to be wrong:

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

THE MOAB FIELD OFFICE PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Bureau of Land Management
Utah State Office
Salt Lake City, Utah

Prepared by the
Moab Field Office
August 2008

Selma Sierra
Utah State Director

Moab Field Office Planning Area
Proposed Resource Management Plan and
Final Environmental Impact Statement

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Type of Action:	Draft ( )	Final (X)
	Administrative (X)	Legislative ( )

Jurisdiction: All of Grand and the northern one-third of San Juan Counties, Utah.

Abstract: This Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement (EIS) describes and analyzes the Proposed Plan and draft alternatives for the planning and management of public lands and resources administered by the Bureau of Land Management (BLM), Moab Field Office. The Moab planning area is located in southeastern Utah and includes approximately 2.5-million acres of land in Grand and San Juan Counties. Within the Moab planning area, the BLM manages approximately 1.8-million acres of BLM-administered public land surface as well as about 29,000 acres of federal mineral estate.

Alternatives A through D were presented in the Draft RMP and EIS. **Alternative A** is a continuation of the existing management (No Action Alternative). Under this alternative, use of the public lands and resources continue to be managed under the 1985 Grand Resource Area RMP as amended. **Alternative B** emphasizes the protection/preservation of natural resources and minimizes human activities, over commodity production and extraction and motorized recreation access. **Alternative C** provides for a balanced approach of protection/preservation of natural resources while providing for commodity production and extraction. **Alternative D** emphasizes commodity production and extraction as well as motorized recreation access over the protection/preservation of natural resources. After careful consideration of both public and internal comments received on the Draft RMP/EIS, adjustments and clarifications have been made to Alternative C. As modified, Alternative C is now presented as the Moab Proposed RMP in the Final EIS. The major issues addressed include: 1) travel management, 2) recreation, 3) mineral development, 4) special designations, and 5) non-WSA lands with wilderness characteristics.

Protests: Protests on the Proposed Resource Management Plan and Final Environmental Impact Statement must be postmarked or received no later than 30 days after publication of the Notice of Availability by the Environmental Protection Action in the *Federal Register*. The 30-day protest period (identified above) will not be extended. The close of the protest and period will be announced in news releases, newsletters, and on the Moab RMP website at:
http://www.blm.gov/ut/st/en/fo/moab/planning.html

For further information, contact:

Brent Northrup, Moab RMP Project Manager
Bureau of Land Management
Moab Field Office
82 E. Dogwood
Moab, UT 84532
(435) 259-2100
Brent_Northrup@blm.gov

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The BLM Moab (Utah) Field Office (Moab FO) has prepared this Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS) to provide direction for managing public lands within the Moab Field Office and to analyze the environmental effects. A Draft RMP/EIS with four alternatives was presented to the public on August 25, 2007, which initiated a 90-day public comment period. The comments submitted by the public were considered in formulating the Proposed RMP, also referred to as the Proposed Plan.

The Proposed RMP will replace the Grand Resource Area Resource Management Plan (RMP), which was signed in 1985. The Proposed RMP covers the same area as that covered by the 1985 RMP, which is all of Grand County and the northern one-third of San Juan County (BLM 1985). The Moab planning area (MPA) comprises approximately 2,756,065 acres of land, of which approximately 1,822,562 acres is public land administered by the BLM. Due to its easier access, the BLM Vernal FO presently manages a small amount of public land at the top of the Book Cliffs along the northern portion of the MPA.

The MPA is situated in the canyon, plateau, and desert areas of the Colorado Plateau Physiographic Province. Geographically, the Moab FO is bounded by the Bookcliffs to the north, the Utah-Colorado state line to the east, Harts Point and Lisbon Valley to the south, and the Green River to the west. Major waterways within the planning area include the Colorado River, the Dolores River, and the Green River. Elevations within the planning area range from approximately 13,000 feet above mean sea level in the La Sal Mountains to approximately 3,900 feet above mean sea level at Mineral Bottom along the Green River.

The planning area encompasses Arches National Park, Dead Horse Point State Park, and the La Sal Mountains of the Manti-La Sal National Forest. The Moab FO shares boundaries with lands administered by the BLM Vernal, Monticello, Grand Junction, Uncompahgre, Dolores, and Price FOs, as well as with the Uintah/Ouray Indian Reservation and Canyonlands National Park.

The Proposed RMP was prepared using the BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976. An Environmental Impact Statement (EIS) is incorporated into this document to meet the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508) and requirements of BLM's NEPA Handbook 1790-1.

ES.2 PURPOSE AND NEED

ES.2.1 PURPOSE

FLPMA requires that the BLM "develop, maintain, and when appropriate, revise land-use plans" (43 United States Code [U.S.C.] 1712 [a]). The BLM has determined it is necessary to revise existing land-use plans (LUP) and prepare a new RMP for the MPA based on a number of new issues that have arisen since preparation of the existing land-use plan (1985). The purpose of this Proposed RMP is to provide a comprehensive framework for BLM's management of the public

lands within the MPA and its allocation of resources pursuant to the multiple-use and sustained yield mandate of FLPMA.

ES.2.2 NEED

The Proposed Plan as presented in this document is necessary because there have been significant changes within the MPA since the time of the 1985 RMP.

ES.3 PUBLIC INVOLVEMENT

Public involvement has been an integral part of BLM's RMP effort.

The scoping period for the Moab RMP began on June 4, 2003 and ended on January 31, 2004. Comments obtained from the public during the scoping period were used to define the relevant issues that would be resolved by presenting a broad range of alternative management actions.

The Draft RMP/EIS was released to the public on August 25, 2007, with publication of the Notice of Availability by the Environmental Protection Agency. A 90-day public comment period ended on November 30, 2007. The BLM hosted four open houses during the public comment period to provide information to the public on the content of the Draft RMP/EIS and how to provide comments. The preferred alternative (Alternative C) in the Draft RMP/EIS was adjusted based on public comment to formulate the Proposed Plan which is presented in this document. See Chapter 5, Consultation and Coordination, for additional information on public involvement in the RMP process.

ES.4 PROPOSED PLAN AND DRAFT ALTERNATIVES

The Proposed Plan and three alternatives from the Draft RMP/EIS are presented in the Proposed RMP/Final EIS. Alternative C has been adjusted based on public comment and review of the Draft RMP/EIS and now represents the BLM's Proposed Plan.

ES.4.1 ALTERNATIVE A - NO ACTION

Alternative A would be a continuation of existing management under the current Grand Resource Area RMP (1985), as amended.

ES.4.2 ALTERNATIVE B

Alternative B would offer more protection for wildlife and other natural resources, and favor natural systems over commodities development. It would emphasize the protection of natural resources and landscapes as well as non-motorized recreation.

ES.4.3 PROPOSED PLAN

The Proposed Plan would protect important environmental values and sensitive resources while allowing for commodities development. It would provide a balance between protection of important natural resources and commodity production, as well as offer a full range of recreation opportunities.

Under the Proposed Plan, 1,866 acres would be open to cross country OHV use, 339,298 acres would be closed, and OHV use would be limited to designated routes in the remainder of the

planning area (Table ES1). Approximately 2,642 miles of travel routes (including motorcycle trails) would be designated (Table ES2). Under the Proposed Plan, ten Special Recreation Management Areas (SRMAs) would be designated, and 30 Focus Areas which emphasize a particular recreation activity would be established (Table ES3).

Five Areas of Critical Environmental Concern (ACECs) would be designated under the Proposed Plan, and 10 segments of 3 eligible rivers would be recommended as suitable for Wild and Scenic River (WSR) designation (Table ES4). Approximately 47,761 acres of non-Wilderness Study Area (WSA) lands (in 3 areas) would be managed to protect, preserve, and maintain their wilderness characteristics (Table ES5). All BLM lands within the MPA are classified for oil and gas leasing stipulations. About 370,250 acres would be closed to oil and gas leasing. About 217,480 acres would be managed with No Surface Occupancy (NSO) stipulations, and 427,273 acres would be open with standard stipulations (Table ES6). The remaining 806,994 acres would be managed with timing limitation or controlled surface use stipulations.

ES.5.4 ALTERNATIVE D

Alternative D would emphasize commodity development over the protection of natural resources, and would emphasize motorized recreation.

The following Tables present a summary of decisions, comparing the Proposed Plan to the No Action alternative. Table ES1 provides the acreage open, limited and closed to OHVs; Table ES2 provides the miles of designated routes; Table ES3 shows the SRMAs and Focus Areas; Table ES4 gives the Special Designations; Table ES5 provides the acreage of lands managed to protect, preserve and maintain their wilderness characteristics, and Table ES6 compares the oil and gas stipulations in the Proposed Plan and the No Action alternative.

Table ES1. OHV Categories (acres) in No Action Alternative vs. Proposed Plan

Category	Alt A No Action	PROPOSED PLAN
Closed	5,062	339,298
Limited to Existing	1,196,920[1]	0
Limited to Designated	0	1,481,334
Open	620,212	1,866

[1] 48,169 acres would be limited to designated roads and trails; and 309,749 acres would be limited to inventoried routes in WSAs.

Table ES2. Designated Routes (miles) In Inventory vs. Proposed Plan

Item	Inventory	PROPOSED PLAN
D and B routes	6,199	3,693
D Routes[1] only	4,673	2,519
Singletrack Motocycle Routes	129	150
Motorcycle Routes on Existing D Routes	142	163

[1] At time of publication.

Table ES3. SRMAs and Focus Areas In No Action Alternative vs. Proposed Plan

Category	Alt A (ac) No Action	PROPOSED PLAN
SRMAs	3 (141,234)	10 (658,642)
Focus Areas	0	30

Table ES4. Special Designations In No Action Alternative vs. Proposed Plan

		Alt A No Action	PROPOSED PLAN
Areas of Critical Environmental Concern	Number	0	5
	Acres	0	63,232
Wild and Scenic Rivers	Eligible Segments	12	29
	Suitable Segments	Deferred	10

Table ES5. Non-WSA Areas Managed for Wilderness Characteristics In No Action Alternative vs. Proposed Plan

	Alt A No Action	PROPOSED PLAN
Units (#)	0	3
Acres	0	47,761

Table ES6. Oil and Gas Leasing Stipulations (acres)

Stipulation	Alt A No Action	PROPOSED PLAN
Standard	1,038,344	427,273
TL and CSU	389,605	806,994
NSO	38,912	217,480
Closed	353,293	370,250
Projected No. of wells/LOP	451	432

ES.5 ENVIRONMENTAL CONSEQUENCES

Selection of Alternative A, the No Action Alternative, would maintain the current rate of progress in meeting land health standards and protecting resource values. It would allow for use levels to mostly continue at current levels in the same places in the MPA, with adjustments required in order to meet Standards for Rangeland Health or to mitigate resource concerns in compliance with existing laws and regulations.

Alternative B would have the least potential to adversely impact physical and biological resources and would protect a variety of vegetation types and wildlife habitats. Alternative B would be the most restrictive to commodity extraction. Consequently, Alternative B would have the greatest potential for short-term adverse impacts to local economies and businesses that depend on public land for commodity extraction.

Implementation of the Proposed Plan would allow for many uses to continue but would constrain certain activities in order to maintain or protect important natural resources. This could result in some short-term adverse impacts to local economies and resource extraction businesses, but long-term economic benefits would be gained from the emphasis on a diversity of recreational activities.

Alternative D offers the greatest potential benefits to the local economy from traditional commodity extraction. Commodity extraction uses would generally be least encumbered by management decisions under this alternative. Alternative D would result in greater impacts on the physical and biological environment than actions proposed under Alternative B or the Proposed Plan.

See Table 2.2 at the end of Chapter 2, Proposed Plan and Draft Alternatives, for a summary of potential impacts of the Proposed Plan and the three alternatives brought forward from the Draft RMP/EIS. Detailed descriptions of impacts of the Proposed Plan and the draft alternatives are provided in Chapter 4.

ES.6: CHANGES FROM THE DRAFT RMP TO THE PROPOSED RMP

As a result of public comment and internal review of the Draft RMP/EIS, the Preferred Alternative has been adjusted and now represents BLM's Proposed Action in the Proposed RMP/Final EIS. Changes regarding alternatives focused on adjustments to the Preferred

Alternative in order to address public concerns while continuing to meet BLM's legal and regulatory mandates. Changes between the Draft RMP/EIS and the Proposed RMP/FEIS include clarifications in wording, changes to the Preferred Alternative (such as adding two allotments as unavailable for grazing). Additional information and changes throughout the document have been shaded in light gray (with the exception of Chapter 5). See the end of Chapter 1, Introduction, Purpose and Need, for a summary of these changes. See Appendix U for a complete listing of every change between the Draft RMP/EIS and the present document.

ES.7: NEXT STEPS

Following publication by the EPA and the BLM of a Notice of Availability of the Proposed RMP/Final EIS in the Federal Register and distribution of the Proposed RMP/Final EIS, there will be a 30 day protest period. In addition, a 60-day Governor's Consistency Review period runs concurrently with the first half of the protest period.

The State Director will approve the Proposed RMP/FEIS by issuing a public Record of Decision (ROD), which is a concise document summarizing the findings and decisions brought forward from the Proposed RMP. However, approval shall be withheld on any portion of a plan being protested until final action has been completed on such protest. Before such approval is given, there shall be public notice and opportunity for public comment on any significant change made to the proposed plan. Among other decisions, the proposed ACEC designations and OHV categories (limitations and closures) will be approved when the ROD is signed. Implementation level decisions brought forward into this planning process will be appealable for 30 days after the ROD is signed.

1.0 INTRODUCTION, PURPOSE AND NEED

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the Bureau of Land Management (BLM) to develop and periodically revise its Resource Management Plans (RMPs), which guide management of BLM-administered public lands. The BLM Moab, Utah, Field Office (MFO) is revising the Grand Resource Area RMP, which was last revised in 1985 (BLM 1985a). The new plan, which is to be called the Moab RMP, in conjunction with the accompanying Environmental Impact Statement (EIS), will provide future management direction for public lands within the boundaries of the Moab Planning Area (MPA). The Moab RMP covers all of Grand County and the northern third of San Juan County. The Proposed Plan presented in this document was crafted from the four alternatives presented in the Draft RMP/EIS that was released to the public for a 90-day comment period on August 25, 2007.

1.1 PURPOSE AND NEED FOR THE PLAN

1.1.1 PURPOSE

FLPMA requires that the BLM "develop, maintain, and when appropriate, revise land-use plans" (43 United States Code [U.S.C.] 1712 [a]). The BLM has determined it is necessary to revise existing land-use plans (LUP) and prepare a new RMP for the MPA based on a number of new issues that have arisen since preparation of the existing plans. In general, the purpose of this RMP is to provide a comprehensive framework for the BLM's management of the public lands within the MPA and its allocation of resources pursuant to the multiple-use and sustained yield mandate of FLPMA. In addition, the purpose of this plan revision is as follows:

- To consolidate the existing LUP and its amendments.
- To reevaluate, with public involvement, existing conditions, resources, and uses, and reconsider the mix of resource allocations and management decisions designed to balance uses and the protection of resources pursuant to FLPMA and applicable law.
- To resolve multiple-use conflicts or issues between resource values and resource uses. The resulting Moab RMP will establish consolidated guidance and updated goals, objectives, and management actions for the public lands in the decision area. The RMP will be comprehensive in nature and will address issues that have been identified through agency, interagency, and public scoping efforts.
- To disclose and assess the direct, indirect, and cumulative impacts of the reasonably foreseeable future actions resulting from the management actions in the Proposed Plan and draft alternatives pursuant to the requirements of the National Environmental Policy Act (NEPA), its implementing regulations, and other applicable laws.

1.1.2 NEED

A revision to the 1985 RMP is necessary because there have been significant alterations in the MPA in light of new information and changed resources, circumstances, and policies that may be relevant to the future management of public lands and allocation of resources under the multiple-

use and sustained yield mandate. This determination is further corroborated by a Special Evaluation Report, completed in 2002 by the MFO (BLM 2002a), which concluded that some of the decisions within the 1985 RMP are in need of revision.

There have been changes in the laws, policies, and regulations that direct the management of the resources on MPA public lands. There has also been an increase in the amount of new information and resource data that need to be considered to better manage the public lands. Population in and visitation to the region have grown, and population demographics have changed, as have public awareness and use of lands within the MPA. Specifically, there may be a need to evaluate management prescriptions and resource allocations to address the increases in recreation and visitor use, including scenic quality and open spaces, as well as the increased interest in oil and gas development. Land use plan decisions may be changed only through the amendment or revision process.

1.2 Description of the Moab Planning Area (MPA)

1.2.1 Overview

The MPA is situated in the canyon, plateau, and desert areas of the Colorado Plateau physiographic province (Figure 1.1). It is located in southeastern Utah and includes all of Grand County and the northern third of San Juan County. Geographically, the MPA is bounded by the Book Cliffs to the north, the Utah-Colorado state line to the east, Harts Point and Lisbon Valley to the south, and the Green River to the west. Major waterways within the MPA include the Colorado River, the Dolores River, and the Green River. Elevations within the MPA range from approximately 13,000 feet above mean sea level in the La Sal Mountains to approximately 3,900 feet above mean sea level at Mineral Bottom along the Green River.

The MPA encompasses Arches National Park, Dead Horse Point State Park, the La Sal Mountains of the Manti–La Sal National Forest, and the Uintah/Ouray Indian Reservation. The MPA shares boundaries with lands administered by the BLM Vernal, Monticello, Grand Junction, Uncompahgre, Dolores, and Price FOs, as well as with Canyonlands National Park (within the Monticello FO).

The MPA comprises approximately 2,756,065 acres of land, of which approximately 1,822,562 acres is public land administered by the BLM (Table 1.1). In addition, the MFO also manages approximately 29,680 acres of subsurface mineral estate within the MPA and manages leasable minerals on 141,240 acres under U.S. Forest Service lands on the Manti–La Sal National Forest. Due to its easier access, the BLM Vernal FO presently manages a small amount of public land (33,331 acres) at the top of the Book Cliffs along the northern portion of the MPA. Decisions for these 33,331 acres are contained in the Vernal RMP. It is important to note that the BLM may only make decisions that affect public lands and resources, but it is responsible for collaborative planning with the public and adjacent jurisdictions so as to consider the impacts of its actions on all the resources in the region. Land ownership and administration of lands within the MPA are described in Table 1.1 and Map 1-1.

Table 1.1. Land Management within the MPA (acres)

Land Management	Grand County	San Juan County	Total
BLM	1,529,390*	293,172	1,822,562*
Indian Lands	197,992	0	197,992
Department of Defense	1,631	0	1,631
National Park Service	76,396	0	76,396
Private	101,976	56,294	158,270
State Trust Lands	283,613	56,608	340,221
State Parks, County, City, Wildlife Park, and Outdoor Recreation Areas	16,339	1,068	17,407
USDA Forest Service	57,298	83,942	141,240
Acreage of Water	168	178	346
Total	**2,264,803**	**491,262**	**2,756,065**

*This total includes the 33,331 acres managed by the BLM Vernal FO.

Source: BLM 2004a.

Also contained within the MPA are several communities, diverse terrain, and scenic landscapes that figure prominently in the settlement, history, culture, and recreational enjoyment of southern Utah. Many occupational pursuits historically associated with this region of the Intermountain West—including farming, ranching, mining, tourism, retail trade, transportation, and construction—are practiced by residents within the MPA. Major communities in the MPA are Moab, La Sal, Castle Valley, Thompson, Crescent Junction, and Elgin. Major transportation routes include Interstate 70 (I-70), U.S. Highway 191, and State Routes 279 (Potash State Scenic Byway), 128 (Colorado River State Scenic Byway), and 313 (Dead Horse Mesa State Scenic Byway).

1.2.2 Land Uses

The MPA is internationally renowned for both its scenic quality and its recreational opportunities, which are the primary land uses in the MPA. Approximately 2 million visitors per year enjoy the diverse and varied recreational opportunities of the MPA and form the basis for Grand County's tourism-based economy. Recreational opportunities include scenic driving, mountain biking, hiking, rafting and boating, rock climbing, riding off-highway vehicles (OHVs), and horseback riding. The many trail-based recreational activities in the MPA are highly dependent upon route systems. Many of these route systems have been based on the network of roads and trails created originally for mineral exploration.

Mineral exploration and development are the next most prominent use of public lands in the MPA. Oil and gas exploration and production has occurred within the MPA continually for the past 100 years. Production of oil and gas is currently taking place in Greater Cisco and the eastern Book Cliffs, in Lisbon Valley, and on Big Flat. Another current mineral activity in the MPA is copper development; a large commercial copper deposit has been delineated in Lisbon Valley, and production is currently underway. Uranium deposits can be found throughout the southern half of the MPA. These deposits have been mined continually for over 90 years, first for

their radium content and later for their vanadium co-product. Other mineral deposits within the MPA include potash, coal, placer gold, limestone, building stone, travertine, humate, sand and gravel, and clay.

Another aspect of the MPA is the protection of certain natural and cultural resources from the impacts of human use. A number of federally listed endangered or threatened wildlife species inhabit the MPA, including the Mexican spotted owl, southwestern willow flycatcher, Colorado pikeminnow, humpback chub, bonytail chub, bald eagle, and peregrine falcon. The MPA also contains habitat for deer, elk, bighorn sheep (both desert and Rocky Mountain), and pronghorn. Prehistoric archaeological sites of ancestral Pueblo and Fremont cultures are also known to be in the MPA, as are later historical sites of cultural significance.

Other land uses within the MPA include rights-of-way (ROWs) for roads, pipelines, power lines, and communication sites, as well as commercial filming and livestock grazing.

1.3 BLM'S PLANNING PROCESS

FLPMA requires the BLM to use LUPs as tools by which "present and future use is projected" (43 United States Code [U.S.C.] 1701 [a][2]). FLPMA's implementing regulations for planning, 43 CFR Part 1600, state that land-use plans are a preliminary step in the overall process of managing public lands, "designed to guide and control future management actions and the development of subsequent, more detailed and limited scope plans for resources and uses" (43 CFR Part 1601.0-2). Public participation and input are important components of land-use planning.

Revision of an existing plan is a major federal action for the BLM. NEPA requires federal agencies to prepare an EIS for major federal actions; thus, this EIS accompanies the revision of the existing RMP. This EIS analyzes the impacts of the Proposed Plan and three draft alternatives for the MPA, including the No Action Alternative. The No Action Alternative reflects current management (the existing plan). NEPA requires analysis of a No Action Alternative.

1.3.1 NINE-STEP PLANNING PROCESS

The BLM uses a nine-step planning process (Figure 1.1) when developing and revising RMPs as required by 43 CFR Part 1600 and planning program guidance in the BLM Handbook H-1601-1, Land Use Planning Handbook (BLM 2005a). The planning process is designed to help the BLM identify the uses of BLM-administered lands desired by the public and to consider these uses to the extent they are consistent with the laws established by Congress and the policies of the executive branch of the federal government.

As depicted in Figure 1.1, the planning process is issue-driven (**Step 1**). The plan revision process is undertaken to resolve management issues and problems as well as to take advantage of management opportunities. The BLM utilized the public scoping process to identify planning issues to direct (drive) the revision of the existing plan. The scoping process also was used to

introduce the public to preliminary planning criteria, which set limits to the scope of the RMP revision (**Step 2**).

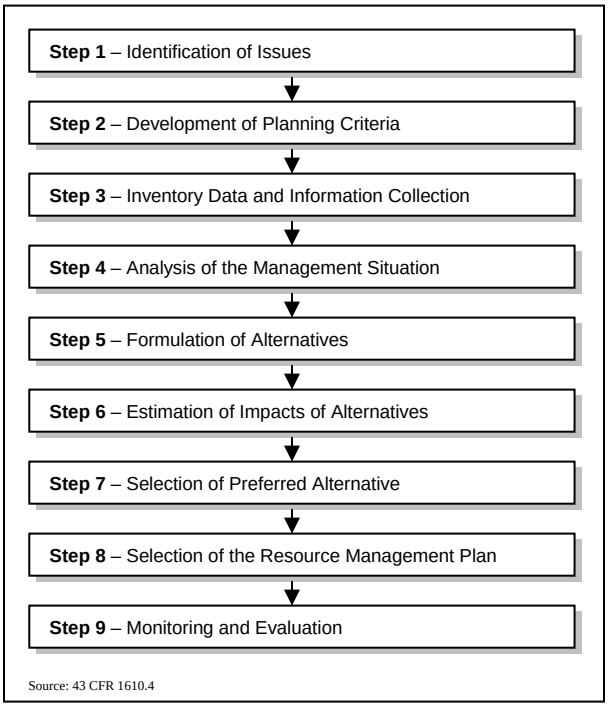

Figure 1.1. Nine-step planning process.

As appropriate, the BLM used existing data from files and other sources and collected new data necessary to update or supplement existing data in order to address planning issues and to fill data gaps identified during public scoping (**Step 3**). Using these data, information concerning the resource management programs, and the planning criteria, the BLM completed an Analysis of the Management Situation (AMS) (**Step 4**) to describe current management and to identify management opportunities for addressing the planning issues. Current management reflects management under the existing plan as well as management that would continue through selection of the No Action Alternative. The existing affected environment is summarized from the AMS into Chapter 3, Affected Environment, of the Draft RMP/EIS revision.

Results of the first four steps of the planning process clarified the purpose and need and identified key planning issues that need to be addressed by the RMP revision. Key planning issues reflect the focus of the RMP revision and are described in more detail in Section 1.3.2, below.

Alternatives constitute a range of management actions that set forth different priorities and measures to emphasize certain uses or resource values over other uses or resource values (usually representing a continuum from extraction and development to preservation/conservation) pursuant to the multiple-use and sustained yield mandates, so as to achieve certain goals or

objectives. During alternative formulation (**Step 5**), the BLM collaborated with cooperating agencies to identify goals and objectives (desired outcomes) for resources and resource uses in the MPA. These desired outcomes addressed the key planning issues, were constrained by the planning criteria, and incorporated the management opportunities identified by the BLM. The details of alternatives were filled in through the development of management actions and allowable uses anticipated to achieve the goals and objectives. The alternatives represent a reasonable range for managing resources and resource uses within the MPA. Chapter 2 of this document, Proposed Plan and Draft Alternatives, describes and summarizes the Proposed Plan and draft alternatives considered in detail.

This Proposed RMP/Final EIS also includes an analysis of the impacts of the Proposed Plan and the draft alternatives in Chapter 4, Environmental Consequences of Proposed Plan and Draft Alternatives, (**Step 6**). With input from cooperating agencies and BLM specialists, and consideration of planning issues, planning criteria, and the impacts of alternatives, the BLM identified and recommended that, at the time of the Draft RMP/EIS, Alternative C was the Preferred Alternative from among the four alternatives presented (**Step 7**). This is documented in the Draft RMP/EIS, which was distributed for a 90-day public review and comment period on August 25, 2007.

Step 8 of the land-use planning process occurred following receipt and consideration of public comments on the Draft RMP/EIS. In preparing the Proposed RMP/Final EIS, the BLM considered all comments it received during the public comment period. The Proposed Plan was crafted from the draft alternatives.

S**tep 9** is the monitoring and evaluation process. Monitoring is the repeated measurement of activities and conditions over time. Evaluation is a process in which the plan and monitoring data are reviewed to see if management goals and objectives are being met and if management direction is sound. Monitoring data gathered over time is examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why. Conclusions are then used to make recommendations on whether to continue current management or what changes need to be made in management practices to meet objectives.

The two types of monitoring that are tied to the planning process include implementation and effectiveness monitoring. Land use plan monitoring is the process of (1) tracking the implementation of land use planning decisions and (2) collecting and assessing data/information necessary to evaluate the effectiveness of land use planning decisions. The two types of monitoring are described below.

Implementation Monitoring: Implementation monitoring is the most basic type of monitoring and simply determines whether planned activities have been implemented in the manner prescribed by the plan. Some agencies call this compliance monitoring. This monitoring documents BLM's progress toward full implementation of the land use plan decision. There are no specific thresholds or indicators required for this type of monitoring.

Effectiveness Monitoring: Effectiveness monitoring is aimed at determining if the implementation of activities has achieved the desired goals and objectives. Effectiveness

monitoring asks the question: Was the specified activity successful in achieving the objective? This requires knowledge of the objectives established in the RMP as well as indicators that can be measured. Indicators are established by technical specialists in order to address specific questions, and thus avoid collection of unnecessary data. Success is measured against the benchmark of achieving desired future conditions established by the plan.

Regulations at 43 CFR 1610.4-9 require that the proposed plan establish intervals and standards, as appropriate, for monitoring and evaluation of the plan, based on the sensitivity of the resource decisions involved. Progress in meeting the plan objectives and adherence to the management framework established by the plan is reviewed periodically. CEQ regulations implementing NEPA state that agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases (40 CFR 1505.2(c)). To meet these requirements, the BLM will review the plan on a regular schedule in order to provide consistent tracking of accomplishments and provide information that can be used to develop annual budget requests to continue implementation.

Land use plan evaluations will be used by BLM to determine if the decisions in the RMP, supported by the accompanying NEPA analysis, are still valid. Evaluation of the RMP will generally be conducted every five years per BLM policy, unless unexpected actions, new information, or significant changes in other plans, legislation, or litigation triggers an evaluation. Land use plan evaluations determine if decisions are being implemented, whether mitigation measures are satisfactory, whether there are significant changes in the related plans of other entities, whether there is new data of significance to the plan, and if decisions should be changed through amendment or revision. Evaluations will follow the protocols established by the BLM Land Use Planning Handbook H-1601-1 in effect at the time the evaluation is initiated. Specific monitoring and evaluation needs are identified by resource/uses throughout Chapter 2.

1.3.2 Scoping and Identification of Issues For Development of The Proposed Plan and Draft Alternatives

1.3.2.1 The Scoping Process

Public input was generated through a formal public scoping period, which began with the publication of the Notice of Intent in the Federal Register on June 4, 2003. The scoping period included six public scoping meetings. The formal scoping period ended on January 31, 2004. The majority of comments emphasized OHV management, recreation, and areas of special designation. Other issues of high interest included non–WSA lands with wilderness characteristics, minerals, livestock grazing, wildlife resources, and cultural resources. The scoping process identified the affected public and agency concerns, defined the relevant issues and draft alternatives that were examined in detail in the Draft RMP/EIS, and eliminated those that are not significant.

For the Moab planning process, scoping comments received from the public were placed in one of three categories:

1. Issues identified for consideration in the Moab RMP;

2. Issues to be addressed through policy or administrative action (and therefore not addressed in the RMP);
3. Issues eliminated from detailed analysis because they are beyond the scope of the RMP (and therefore not addressed in the RMP).

The Final Scoping Summary (available for review on the Moab planning web page at www.blm.gov/rmp/ut/moab), prepared in conjunction with the Draft RMP/EIS, summarizes the scoping process. Other resource and use issues are identified in the BLM Planning Handbook and Manual (H1610-1). All of these issues were considered in developing the draft alternatives that were brought forward in the Draft RMP/EIS.

1.3.2.2 Issues Addressed Through Policy or Administrative Action

Policy or administrative actions include those actions that are implemented by the BLM because they are standard operating procedure, because federal law requires them, or because they are BLM policy. They are, therefore, issues that are eliminated from detailed analysis in this planning effort. Administrative actions do not require a planning decision to implement. The following issues raised during scoping are already addressed by administrative actions:

- Compliance with existing laws and policies (e.g., FLPMA, NEPA, Endangered Species Act, American Antiquities Act, Clean Air Act, Colorado River Basin Salinity Control Act, and the National Historic Preservation Act).
- Application of the BLM's Standards for Rangeland Health and Guidelines for Livestock Grazing Management addresses, among other issues, the allocation of forage for grazing animals and wildlife, the numbers of livestock, and changes in grazing management practices.
- Education, enforcement/prosecution, vandalism, and volunteer coordination.
- Consistency with existing federal, state, and local plans.
- Management of cultural resources, which includes up-to-date inventories, non-disclosure of sensitive sites, proposal of cultural sites for the National Register of Historic Places, and Native American consultation.
- Management of the MPA's 11 existing Wilderness Study Areas (WSAs; approximately 348,800 acres) under the Interim Management Policy for Lands Under Wilderness Review (IMP; H-8550-1; BLM 1995). These WSAs are statutorily required (pursuant to FLPMA Section 603[c]) to be managed to protect their suitability for Congressional designation into the National Wilderness Preservation System. There are, however, a few decisions that will be made for WSAs in this planning effort. They include applying a visual resources management (VRM) Class I objective to the WSAs and determining if the WSAs will be limited or closed to off-highway vehicle (OHV) use. Because this planning effort will also consider designating ways in the limited areas as an implementation action, specific ways available for use will be disclosed and analyzed.
- Management of the Black Ridge Canyons Wilderness Area. This wilderness area was Congressionally designated in 2000 under Public Law 106-353 and is managed by the Grand Junction Field Office through an RMP for the McInnis Canyons National Conservation Area and Black Ridge Canyons Wilderness.

- Completion of inventory of riparian and wetland areas and the use of monitoring and mitigation to help protect these resources.
- Continuing work on a comprehensive sign system and maps for recreational and other users.
- Administration of existing mineral leases, permits, and other authorized uses.
- Use of valid existing rights.
- Monitoring wildlife and biodiversity.
- Monitoring air quality.
- Mitigation measures for site-specific projects.
- Eligibility standards for specially designated areas.
- Protection of threatened, endangered, or sensitive species.
- Coordination with local, state, and federal agencies.
- Cooperation with user groups.
- The allocation of forage between livestock and wildlife and the application of specific management practices on allotments within the planning area. (This issue is provided for through the application of Utah's Standards for Rangeland Health and Guidelines for Livestock Management and supporting monitoring data. When monitoring and inventory data indicate, changes are made to livestock and wildlife numbers and their management to assure that resource objectives will be met. These allocation and management adjustments are implementation decisions according to the BLM's planning handbook and are done on an allotment or other site specific basis.)

1.3.2.3 Issues Eliminated from Detailed Analysis Because They Are Beyond the Scope of the Plan

Issues beyond the scope of the RMP planning process include all issues not related to decisions that would occur as a result of the planning process. They include decisions that are not under the jurisdiction of the MFO or that are beyond the capability of the BLM to resolve as part of the planning process. Issues identified in this category include the following:

- The State of Utah and Grand and San Juan counties may hold valid existing rights-of-way in the planning area pursuant to Revised Statute (RS) 2477, Act of July 28, 1866, Chapter 262, 8, 14 Stat. 252, 253, *codified at* 43 U.S.C. 932. On October 21, 1976, Congress repealed R.S. 2477 through passage of FLPMA. This RMP does not adjudicate, analyze, or otherwise determine the validity of claimed rights-of-way. However, nothing in the RMP extinguishes any valid right-of-way, or alters in any way the legal rights the state and counties have to assert and protect RS 2477 rights or to challenge in federal court or other appropriate venues any use restrictions imposed by the RMP that they believe are inconsistent with their rights.
- New wilderness or WSA proposals.
- Eliminating grazing, mineral development, and OHV use on all public lands.
- Activities and uses beyond the jurisdiction of the BLM.
- Changing existing laws, policies, and regulations.

- Availability of funding and personnel for managing programs.
- Considering alternative energy sources as substitutes for activities related to mineral development.

1.3.3 Development of Planning Criteria

Planning criteria are based on appropriate laws, regulations, BLM Manual sections, and policy directives, as well as on public participation and coordination with cooperating agencies, other federal agencies, state and local governments, and Indian tribes. Planning criteria are the standards, rules, and factors used to resolve issues and develop alternatives. Planning criteria are prepared to ensure decision making is tailored to the issues and to ensure that the BLM avoids unnecessary data collection and analysis.

Planning criteria have been developed to guide the development of the Proposed Plan and draft alternatives. The planning criteria to be considered in the development of the RMP are as follows:

- The planning process would recognize the existence of valid existing rights, including water rights.
- All decisions made in the planning process would apply only to public lands and, where appropriate, split-estate lands where the subsurface mineral estate is managed by the BLM.
- As described by law and policy, the BLM would strive to ensure that its management actions are as consistent as possible with other adjoining planning jurisdictions, both federal and non-federal.
- Management of existing WSAs would be guided by the IMP (BLM 1995). Should Congress release all or part of a WSA from wilderness study, resource management would be determined by preparing an amendment to the RMP. Actions inconsistent with RMP goals and objectives would be deferred until completion of requisite plan amendments. Because the management direction of the released land would continue in accordance with the goals and objectives established in the RMP, there is no separate analysis required in this land-use plan to address resource impacts if any WSAs are released. If Congress acts to designate any lands within the MPA as wilderness, they would be managed pursuant to Congress's designation and the Wilderness Act.
- The Standards for Public Land Health (BLM 1997a, 2002b) would apply to all activities and uses. The Standards, as well as the BLM guidelines for grazing and recreation management implemented to achieve the Standards, would be applicable to the Proposed Plan and the draft alternatives to the RMP analyzed in this Final EIS.
- Baseline Reasonably Foreseeable Management/Development scenarios would be developed and portrayed for oil and gas, and other uses as appropriate, based on historical, existing, and projected levels for all mineral resource programs.
- Based on consultation with Native Americans, the BLM would consider sites, areas, issues, and objects important to their cultural and religious heritage.
- The BLM would adhere to all applicable laws, including those on water rights and state and local laws where appropriate; regulations; BLM manual sections; and current policy

directives pertaining to management of public lands. For example, all management actions would comply with the Endangered Species Act and all laws concerning cultural resources.

- The socioeconomic impacts of the Proposed Plan and draft alternatives would be addressed.
- Areas potentially suitable for designation as ACECs and other special designations would be identified and, where appropriate, brought forward for analysis in the EIS.
- River segments would be considered for inclusion in the National Wild and Scenic Rivers System, and determinations of eligibility, suitability, tentative classification, and protective management would be made in accordance with Section 5(d) of the Wild and Scenic Rivers Act and BLM Manual 8351.

1.4 Relationship to Other Policies, Plans, and Programs

This RMP is a preliminary step in the overall process of managing public lands. Subsequent more detailed or limited decisions and plans may implement BLM's projections. As a result, this planning process must recognize the many ongoing programs, plans, and policies that are being implemented in the MPA by other land managers and government agencies. The BLM will seek to be consistent with or complementary to other management actions whenever possible. Plans that need to be considered during the MFO's planning effort include the following:

1.4.1 State of Utah

- Dead Horse Point State Park Resource Management Plan
- Plans of the Utah School and Institutional Trust Lands Administration (SITLA)
- Regional plans of the Utah Department of Transportation (UDOT)
- State of Utah plans relating to water management, water quality, nonpoint source pollution, watershed management, and air quality
- Utah's State Comprehensive Outdoor Recreation Plan (SCORP)

1.4.2 County Land Use Plans

- San Juan County, Utah: San Juan County Master Plan (1996)
- Grand County, Utah: Grand County General Plan Update (2004)

1.4.3 Other Federal Plans

- Canyonlands National Park Natural Resource Management Plan
- Canyonlands National Park general management plans (NPS 1974, 2003, 2006)
- Canyonlands National Park backcountry management plan (1984, 1995)
- Land and Resource Management Plan, Manti–La Sal National Forest (USDA [USFS] 1986)
- General Management Plan and Development Concept Plan: Arches National Park (NPS 1989)
- RMPs for the BLM Vernal, Grand Junction, Uncompahgre, Dolores, and Price field offices (BLM 1985b, 1985c, 1985d, 1987, 1989a, 1993a)

- Colorado Canyons National Conservation Area Management Plan (BLM 2003a)

1.4.4 Endangered Species Recovery Plans

Endangered species recovery plans are prepared by the U.S. Fish and Wildlife Service to promote the recovery of threatened and endangered species.

- Colorado Pikeminnow Recovery Plan (USFWS 1978, 1990, 1991, 2002a)
- Humpback Chub Recovery Plan (USFWS 1979, 1990a, 2002b)
- Northern States Bald Eagle Recovery Plan (USFWS 1983)
- Bonytail Chub Recovery Plan (USFWS 1984, 1990b, 2002c)
- Recovery Implementation Program EA for the Endangered Fish Species in the Upper Colorado River Basin (USFWS 1987)
- Black-footed Ferret Recovery Plan (USFWS 1988)
- Mexican Spotted Owl Recovery Plan (USFWS 1995)
- Razorback Sucker Recovery Plan (USFWS 1999, 2002d)
- Final Recovery Plan for the Southwestern Willow Flycatcher (USFWS 2002e)

1.4.5 Energy Policy and Conservation Act (EPCA)

In May 2001, the Bush administration's Comprehensive National Energy Policy was issued, which directed the Secretary of the Interior to

> examine land status and lease stipulation impediments to federal oil and gas leasing, and review and modify those where opportunities exist (consistent with the law, good environmental practice and balanced use of other resources).

Under this directive, the Assistant Secretary of the Interior for Land and Minerals Management delivered to Congress an inventory of U.S. oil and gas resources in five western basins, as well as the extent and nature of any restrictions or impediments to their development. This report was prepared at the request of Congress under the provisions of the 2000 Energy Policy and Conservation Act (EPCA).

In April 2003, the BLM specified four EPCA integration principles, as follows:

1. Environmental protection and energy production are both desirable and necessary objectives of sound land management practices and are not to be considered mutually exclusive priorities.
2. The BLM must ensure appropriate accessibility to energy resources necessary for the nation's security, while recognizing that special and unique non-energy resources can be preserved.
3. Sound planning will weigh the relative resource values, consistent with the multiple use and sustained yield mandates required by FLPMA.
4. All resource impacts, including those associated with energy development and transmission, will be mitigated to prevent unnecessary or undue degradation.

1.4.6 Energy Policy Act of 2005 and the Western Energy Corridor Programmatic EIS (PEIS)

Section 368 of the Energy Policy Act of 2005 (designation of West-wide energy corridors) is being implemented via the current development of an interagency, Programmatic EIS (PEIS). The Final PEIS could amend numerous RMPs in the western U.S., providing decisions that will address numerous energy corridor-related issues, including the utilization of existing corridors (with enhancements and upgrades), identification of new corridors, supply and demand considerations, and compatibility with other corridor and project planning efforts.

1.4.7 Memorandum of Understanding (MOU) Between the U.S. Department of the Interior; the Bureau of Land Management (BLM); and the U.S Department of Agriculture, U.S. Forest Service Concerning Oil and Gas Leasing Operations

The purpose of this Memorandum of Understanding (MOU) is to establish joint BLM and Forest Service policies and procedures for managing oil and gas leasing and operational activities pursuant to oil and gas leases on National Forest Service (NFS) lands, consistent with applicable law and policy. The MOU was signed in 2006 for the purpose of efficient, effective compliance with statutory and regulatory requirements. The MOU establishes the roles of the Forest Service and the BLM in processing Applications for Permits to Drill and review of subsequent operations.

1.4.8 Activity Plans and Amendments to the Grand Resource Area RMP (1985)

The existing Grand Resource Area RMP has undergone numerous land-use plan amendments from which decisions will either be carried forward under this new RMP or would be changed via the Proposed Plan and draft alternatives. The same is true for the activity level plans that have been completed in conformance with the Grand Resource Area RMP. The activity plans and amendments that will continue to be brought forward under the Proposed Plan and draft alternatives are noted below. Those that may be changed under the Proposed Plan and draft alternatives are also noted.

- Grazing Amendment to RMP (Livestock conversions) (1988); (changed by the Proposed Plan and draft alternatives in this planning process)
- Grand Resource Area RMP Oil and Gas Supplemental Environmental Assessment (1988); (changed by the Proposed Plan and draft alternatives in this planning process)
- Bighorn Sheep Amendment (1990, 1993b); (common to the Proposed Plan and draft alternatives)
- Colorado Riverway Recreation Area Management Plan (1992a); (common to the Proposed Plan and draft alternatives)
- Sand Flats Recreation Management Plan (1994a); (common to the Proposed Plan and draft alternatives)
- Livestock Grazing Use Adjustments (1996); (common to the Proposed Plan and draft alternatives)

- Ken's Lake Emergency Plan (1996); (common to the Proposed Plan and draft alternatives)
- Utah's Colorado Riverway Special Management Recreation Area Amendment (2001a); (common to the Proposed Plan and draft alternatives)
- Mill Creek Canyon Management Plan (2001b); (common to the Proposed Plan and draft alternatives)
- Canyon Rims Recreation Area Management Plan (2003b); (common to the Proposed Plan and draft alternatives)
- Three Rivers Withdrawal (2004b); (common to the Proposed Plan and draft alternatives)
- Cameo Cliffs Special Recreation Management Area Plan (2005b); (common to the Proposed Plan and draft alternatives)
- Normal Year Fire Rehabilitation and Stabilization Plan (2006a); (common to the Proposed Plan and draft alternatives)
- Moab District Fire Management Plan (2006b); (common to the Proposed Plan and draft alternatives)

1.4.9 Habitat Management Plans (HMP)

A Habitat Management Plan (HMP) provides guidance for the management of a defined habitat for a target wildlife species, protecting and improving habitat for that species and for other species utilizing the habitat. These plans are usually written in coordination with the Utah Division of Wildlife Resources

- Cisco Desert HMP (1985a); (common to the Proposed Plan and draft alternatives)
- Hatch Point HMP (1985b); (common to the Proposed Plan and draft alternatives)
- Dolores Triangle HMP (1985c); (common to the Proposed Plan and draft alternatives)
- The Potash-Confluence HMP (1986); (common to the Proposed Plan and draft alternatives)
- Wild and Scenic River Study Colorado and Lower Dolores Rivers EIS (NPS 1979); (changed by the Proposed Plan and draft alternatives in this planning process)
- Utah BLM Statewide Wilderness EIS (1990); (common to the Proposed Plan and draft alternatives)
- Lisbon Valley Copper Project EIS (BLM 1997b); (common to the Proposed Plan and draft alternatives)
- Questar, Williams, and Kern River Pipeline Project EIS (BLM 2001c); (common to the Proposed Plan and draft alternatives)
- Remediation of the Moab Uranium Tailings, Grand and San Juan Counties, Utah EIS (DOE 2005); (common to the Proposed Plan and draft alternatives)
- Vegetation Treatment on BLM Lands in Thirteen Western States (1991a); (common to the Proposed Plan and draft alternatives)
- Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Associated Record of Decision. USDI, Bureau of Land Management, 2007 (FES 07-21)

- Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report. USDI, Bureau of Land Management, 2007 (FES07-21)

1.5 Summary of Changes from the Draft RMP/EIS to the Proposed Plan RMP/Final EIS

The Draft RMP/EIS was released to the public on August 25, 2007, which initiated a 90-day comment period. Comments were received from the public, cooperators, and other interested parties. See Chapter 5, Consultation and Coordination, for details of the public comment process.

As a result of public comment and internal review of the Draft RMP/EIS, the BLM has formulated the Proposed Plan in the Proposed RMP/Final EIS. The Proposed Plan/FEIS does not carry forward Alternative C (the Preferred Alternative) from the Draft RMP/EIS. Rather the Proposed Plan/RMP consists of a combination of all the alternatives.

Changes regarding the Proposed Plan and draft alternatives focused on adjustments in order to address public concerns while continuing to meet the BLM's legal and regulatory mandates. Additional information and changes throughout Chapters 1 through 4 have been shaded in light gray. Changes are a result of

- adjustments to Decisions,
- clarifications to better explain the management proposed in the Draft RMP/EIS,
- updates to information,
- updates to maps, and
- minor corrections, including typographical errors.

1.5.1 Summary Of Changes To Decisions Between The Preferred Alternative (Draft EIS) And The Proposed Plan (Final EIS)

- Add six decisions clarifying the BLM's responsibilities regarding Air Quality.
- Delete the Cultural Resources decision allocating percentages of sites to various categories.
- Delete prioritization of National Register nominations.
- Add a decision to Lands and Realty that specifically grants reasonable access to SITLA lands.
- Add two grazing allotments (Pear Park and Ida Gulch) to those not available for grazing.
- Add a decision to Minerals on working with stakeholders to determine emissions mitigation strategies for future leases.
- Add a decision regarding management of the Fisher Towers Trail as a National Recreation Trail.
- Delete a decision on AUMs in the Cisco Allotment in the Riparian Resources section.
- Add exception language to the decision prohibiting new OHV routes in saline soils. New routes would be allowed in saline soils in the Utah Rims SRMA and in the Dee Pass Motorized Focus Area.

- Add "Mel's Loop" motorcycle route to the Travel Plan.
- Delete the decision regarding voluntary relinquishment of grazing in Ten Mile Wash.
- Add three decisions regarding Wild and Scenic rivers that recognize existing rights, privileges, and contracts along these rivers.
- Change the classification of Segment 1 of the Green River to "Wild," Segment 2 of the Green River to "Recreational," and Segment 5 of the Colorado River to "Scenic."
- Change the greater sage-grouse lek buffer area from 0.5 miles to 2.0 miles.
- Replace the Wildlife decision on mitigation to comply with BLM policy.
- Delete Parcel R-11 as an area available for disposal due to the presence of special status species on that parcel .

1.5.2 CLARIFICATIONS

In addition to the modifications to the Proposed Plan, information has been updated and language clarified in the Proposed RMP/Final EIS in response to questions and comments received on the Draft RMP/EIS. Major clarifications are

- Implementation-level decisions have been identified by placing them in italics and asterisking with a footnote.
- clarify the definition of a "new route" for the cultural resources inventory requirement;
- clarify the extent of the Area of Potential Effect (660 feet) for cultural actions;
- clarify "reasonable access" to SITLA lands;
- clarify the merger of two utility corridors in the Proposed Plan and Alternatives B and D (rather than the elimination of a corridor);
- clarify that SITLA has priority in land exchanges;
- clarify the Spring Creek–Buckhorn allotment's location;
- clarify the three types of Special Recreation Management Areas;
- clarify boating management numbers on Colorado and Dolores Rivers;
- clarify authority for potential recreation fee for White Wash Sand Dunes;
- clarify protection of relevant and important values for those ACECs not carried forward to the Proposed Plan;
- clarify Wild and Scenic River management by listing the oil and gas leasing category, Visual Resource Management class and OHV designation for each suitable river segment;
- clarify wording in Travel Management to fully explain actions;
- clarify that elk and deer habitat are not identical;
- clarify development of cultural model for analysis; and
- clarify motorcycle routes in the Proposed Plan and Alternatives B and D.

1.5.3 UPDATES TO DATA

- Correct acreages of non–WSA lands with wilderness characteristics in Alternative B
- Add information on global climate change
- Add air quality data from Canyonlands National Park
- Add information on SITLA lands within the Moab Field Office
- Add Utah State University social survey results
- Add wage distribution for recreation jobs
- Remove bald eagle from Threatened and Endangered Species headings
- Update socioeconomic data from the year 2000 to the year 2007
- Add data on socioeconomics, including severance taxes and property taxes
- Add mileage data on miles of routes not designated for various resource values
- Add information on fiscal impacts to SITLA from BLM restrictions
- Add data on OHV impacts to resources in Appendix G (Travel Plan)
- Update Conservation Measures from the U.S. Fish and Wildlife Service

1.5.4 MAP CHANGES

- Map 2-3: Remove parcel R-11 from Lands Identified for Disposal.
- Map 2-4: Correct confusion concerning Spring Creek allotments.
- Map 2-4-C: Add Pear Park and Ida Gulch to allotments not available for livestock grazing.
- Maps 2-5-B, C and D: Remove area in Arches National Park as erroneously shown as available for leasing.
- Map 2-9-C: Adjust acreage of White Wash Sand Dunes Open OHV Area.
- Map 2-10-C: Adjust acreage of area open to cross country OHV.
- Map 2-11-A: Add map showing designated routes.
- Map 2-11-B, C and D: Remove roads in Arches National Park; add two routes on Colorado border.
- Map 2-11-E: Add Alternatives A and B maps for motorcycle routes; add Slickrock Trail; distinguish which motorcycle routes are also available for ATV's; add Thompson-Colorado BLM Alt C route to map; add Mel's Loop to the Proposed Plan.
- Map 2-24-C: Add names of areas with wilderness characteristics.
- Map 2-25: Make correction to pronghorn kidding habitat.
- Map 2-27 A, B, and C/D: Change name to Deer and/or Elk Habitat.

In addition to the above changes, adjustments were made to correct typographical or grammatical errors, add references, and clarify wording. Changes of this nature are not listed above.

1.5.5 CRUCIAL WILDLIFE HABITAT CHANGES

In August 2005, the Utah Division of Wildlife Resources (UDWR) changed its wildlife habitat classification system. Prior to 2005, the UDWR classification system distinguished between "critical" habitat (an area that provides for biological and/or behavioral requisites necessary to sustain the existence and/or perpetuation of a wildlife population) and "high value" habitat (an area that provides for intensive use by the species). The UDWR has been criticized for using the term "critical," as the same term refers to habitat federally designated by the U.S. Fish and Wildlife Service as required by the Endangered Species Act (ESA).

In previous BLM planning efforts, mitigation decisions (usually timing stipulations) for impacts to the UDWR's "critical" habitats have been integrated into the planning process. The BLM rarely incorporated management decisions in its RMPs for "high value" habitats. The UDWR changed its classification system to include "critical" habitat with "high value" habitat, in part to accommodate the limitations of having classifications that were of no practical value to land managers. The new term "crucial" habitat is defined by the UDWR as "habitat on which the local population of a wildlife species depends for survival because there are no alternative ranges or habitats available. Crucial habitat is essential to the life-history requirements of a wildlife species. Degradation or loss of crucial habitat will lead to significant declines in the wildlife population in question."

Crucial habitat boundaries appear larger on the wildlife maps in this Proposed Plan because they are a combination of the UDWR's old "critical" habitat and "high value" habitat, with some minor modifications. Timing stipulations for each of the species now apply to the whole crucial habitat area. It is important to note, however, that the application of waivers, exceptions, and modifications, as outlined in Appendix C, will be taken into consideration and used where/when applicable for all surface-disturbing activities in these areas. The range of alternatives in the Draft RMP/Draft EIS considered both of the UDWR's old classifications of critical and high value habitat. Minor boundary modifications have been made by the UDWR prior to incorporating them into crucial habitat boundaries. Because this information was taken into consideration and analyzed in the Draft, these minor changes are not considered significant in terms of resource uses and/or analysis in this Proposed Plan, and therefore a supplement to this EIS is not necessary for this purpose.

1.5.6 SUMMARY OF CHANGES

The BLM has made numerous changes between the Draft RMP/Draft EIS and Proposed RMP/Final EIS. These changes are described above and detailed in Appendix U. The BLM has prepared this appendix to document whether changes between the Draft RMP/Draft EIS and the Proposed RMP/Final EIS resulted in a significant change in circumstances or conditions, or whether the Proposed RMP/Final EIS contains different information from that which was presented to the public in the Draft RMP/Draft EIS. Finally, the BLM wanted to confirm that all changes made to the Proposed RMP/Final EIS fall within the range of alternatives presented and analyzed in the Draft RMP/Draft EIS.

The regulation controlling whether or not a supplement is required is found at 40 CFR 1502.9(c), which provides that agencies

- shall prepare supplements to either draft or final environmental impact statements if (1) the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact;
- may also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so;
- shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists; and
- shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.

All changes to the MFO Draft RMP/Draft EIS were made in response to public comment and/or internal review. The majority of the changes were editorial changes made to add clarity to the document. In some cases, alternatives presented in the Draft RMP/Draft EIS were modified in the PRMP to reflect technical corrections and data updates. In other cases, such as in Chapter 3, Affected Environment, incorporation of updated information was necessary to refine the analysis in Chapter 4, Environmental Consequences of Proposed Plan and Draft Alternatives, that was incomplete or needed augmentation.

None of the changes described above and further detailed in Appendix U meet the regulatory definition for significance in 40 CFR 1508.27(a) and (b). These regulations require an agency preparing a NEPA document to review the changes for significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Plan or its impacts, using context and intensity as the trigger for significance. The BLM has reviewed each substantive change through this regulatory standard and has determined that none of the changes, individually or collectively, require a supplement to this Final EIS.

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2.0 PROPOSED PLAN AND DRAFT ALTERNATIVES

This chapter presents the Proposed Plan which was crafted from the four alternatives in the Draft RMP/EIS. The Proposed Plan primarily mirrors the Preferred Alternative (Alternative C) from the Draft RMP, but has been modified through public comment, internal review, and cooperating agency coordination to reflect specific decisions carried forward from the other alternatives in the Draft RMP. The Moab field office (MFO) formulated this Proposed Plan from the reasonable range of alternatives presented in the Draft RMP/EIS for managing resources within the planning areas that considered issues and concerns raised during the scoping period (see Chapter 1, Section 1.3.2), planning criteria, and the guidance applicable to the resource uses. The Proposed Plan and the draft alternatives constitute a range of management actions that set forth different priorities and measures to emphasize certain uses or resource values over other uses or resource values under the multiple-use and sustained yield mandate so as to achieve certain goals or objectives.

BLM recognizes that social, economic, and environmental issues cross land ownership lines and that extensive cooperation is needed to actively address issues of mutual concern. To the extent possible, the Proposed Plan and the draft alternatives (Alternatives A, B, and D) were crafted utilizing input from public scoping comments, Grand and San Juan County representatives, and other cooperating agencies. There are two other alternatives that were considered for detailed analysis, but did not meet the purpose and need for this plan revision or were not technically feasible or economically practical to carry forward. They were eliminated from detailed consideration and are briefly discussed in the last section of this chapter.

Chapter 2 has been organized in the following manner:

- Section 2.1 provides a brief summary of the major components of the Proposed Plan and of each draft alternative, and Table 2.1 provides the detailed alternative management strategies proposed under all four alternatives.
- Section 2.2 provides a comparative summary of the environmental impacts associated with the Proposed Plan and with each draft alternative.
- Section 2.3 outlines those alternatives the BLM initially considered but later eliminated, and the justifications for their dismissal from further evaluations.

Evaluation of a reasonable range of alternatives is required by NEPA and by the Council on Environmental Quality (CEQ) (40 CFR Part 1502.14), as well as by BLM planning regulations. As is also required in the CEQ regulations, one alternative consists of "no action," which is the same as the continuation of management under the current Grand RMP (BLM 1985a) and subsequent plan amendments.

The range of alternatives has been developed to:

- meet the Purpose and Need outlined in Chapter 1;
- respond to environmental, operational, and economic concerns raised by the public, agencies, business and other special interest groups during the scoping process; and
- address potential environmental issues identified during review of the proposed management actions.

2.1 DESCRIPTION OF ALTERNATIVES FROM THE PROPOSED RMP/EIS

The four alternatives presented in detail in Table 2.1 of this chapter are as follows:

- Alternative A is the No Action alternative and represents the continuation of existing management under the current Grand Resource Area RMP (1985a), as amended.
- Alternative B emphasizes the protection/preservation of natural resources and minimizes human activities, over commodity production and extraction and motorized recreation access.
- The Proposed Plan provides for a balanced approach of protection/preservation of natural resources while providing for commodity production and extraction.
- Alternative D emphasizes commodity production and extraction as well as motorized recreation access over the protection/preservation of natural resources.

Some of the decisions in this PRMP/FEIS are carried forward from the existing Grand RMP (BLM 1985a) because there are no impending issues associated with them, and they do not need to change. They are decisions that are common to all alternatives, thus, a range of alternative decisions are not necessary for these resources or uses. Other decisions are common to all action alternatives (Alternatives B, D and the Proposed Plan), but are different from the No Action Alternative due to a change in circumstances.

2.1.1 BRIEF SUMMARY AND HIGHLIGHTS OF THE PROPOSED PLAN AND DRAFT ALTERNATIVES IN TABLE 2.1

The major resources/uses where issues were identified during scoping were: travel management, recreation, oil and gas leasing and development, special designations (ACECs and Wild and Scenic Rivers), special status species, wildlife, and non-WSA lands with wilderness characteristics. These resources/uses, among others, are displayed under a range of management alternatives that set forth different priorities and measures to emphasize uses or resource values over other uses or resource values to achieve specific goals or objectives outlined in detail in Table 2.1. Below is a brief summary of the range of alternatives for those major resources/uses brought forward during scoping. Much more detail for each of these resources and uses, among others, and their proposed management is in Table 2.1.

2.1.1.1 TRAVEL MANAGEMENT

All public lands are required to have off-highway vehicle (OHV) area designations. Areas must be classified as open, limited, or closed to motorized travel activities. OHV designation areas, or categories, are listed by alternative. Within the "Limited" category, routes would be limited to "designated roads and trails" (43 CFR Part 8340.0-5(g)). Specific routes are being designated as open to motorized use by alternative as part of implementation level planning. Summary Table A portrays how travel and access management would be designated under each alternative.

Summary Table A. OHV Categories (acres), by Alternative

Category	Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
Closed	5,062	437,424	339,298	57,351
Limited	1,196,920	1,475,074	1,481,334	1,762,083

Summary Table A. OHV Categories (acres), by Alternative

Category	Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
Miles of D Routes Designated[1]	4,673	2,144	2,519	2,671
Open	620,212	0	1,866	3,064

[1] At time of publication

2.1.1.2 Recreation

Special Recreation Management Areas (SRMAs) are proposed to manage intensively used recreation areas, and do not restrict other uses. Focus Areas are Recreation Management Zones and are proposed in order to emphasize and provide particular types of recreation opportunities. In Alternative B, non-motorized recreation in emphasized; in Alternative D, motorized recreation is emphasized. The Proposed Plan provides opportunities for both non-motorized and motorized recreation, as depicted in Summary Table B.

Summary Table B. SRMAs (quantity and acres) and Focus Areas (quantity), by Alternative

Category	Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
SRMAs	3 (141,252 acres)	11 (976,173 acres)	10 (658,642 acres)	6 (277,471 acres)
Focus Areas	0	22	30	10

2.1.1.3 Oil and Gas Leasing and Development

One of the major decisions in a land-use plan is to determine which areas should be: 1) open to leasing subject to the terms and conditions of the standard lease form stipulations, 2) areas open to leasing subject to moderate constraints such as timing limitations (TL) or controlled surface use (CSU) restrictions, 3) areas open to leasing subject to major constraints such as no surface occupancy (NSO) stipulations, or 4) areas unavailable to leasing. All of these proposed decisions must be consistent with the goals and objectives of other resources and uses for each alternative. Summary Table C depicts how oil and gas leasing would be managed under each alterative.

Summary Table C. Oil and Gas Leasing Stipulations (acres), by Alternative

Stipulation	Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
Standard	1,038,344	264,344	427,273	797,031
TL/CSU	389,605	543,751	806,994	590,442
NSO	38,912	342,931	217,480	84,772
Closed	353,293	671,444	370,250	350,219

In addition, this planning revision has applied the same oil and gas stipulations to all other surface-disturbing activities where they are not contrary to laws, regulations, or policy under all of the action alternatives. For example, if an area has a timing stipulation on it for oil and gas development, it would also apply that same timing stipulation on a right-of-way (ROW) construction proposal or an organized recreational event.

2.1.1.4 Special Designations

2.1.1.4.1 Potential Areas of Critical Environmental Concern (ACEC)

The *Federal Register* Notice of Intent (June 2003) for this plan revision requested ACEC nominations from the public for consideration in the planning effort. In order to be considered and carried forward into the range of alternatives for planning, an ACEC must meet the relevance and importance criteria in 43 CFR 1610.7-2(a), and must require special management. The MFO received and evaluated a total of 35 ACEC nominations of which 14 were determined to meet the relevance and importance criteria. The relevance and importance criteria encompass scenery, sensitive plant species, rare plants, cultural and historic resources, wildlife, fish, natural systems, and natural hazards. Summary Table D shows that all of the 14 potential ACECs were brought forward into Alternative B for designation consideration, and 5 potential ACECs were brought forward into the Proposed Plan for designation consideration. There are no existing designated ACECs in the Moab Planning Area (MPA); thus, there are none in the No Action Alternative (Alternative A). There were no ACECs brought forward for consideration in Alternative D. Where ACECs are designated, special management attention would be directed at the relevant and important values, resources, natural systems and/or natural hazards.

Summary Table D. Potential ACECs (quantity and acres) Meeting the Relevance and Importance Criteria, by Alternative

Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
0	14 (613,077 acres)	5 (63,232 acres)	0

2.1.1.4.2 Wild and Scenic Rivers (WSRs)

During planning, the BLM must assess all eligible river segments and determine which are suitable or non-suitable per Section 5(d)(1) of the Wild and Scenic Rivers Act of 1958, as amended. The MFO reviewed all river segments for wild and scenic river eligibility and suitability as part of the RMP process. Twenty-eight river segments were found to meet the eligibility criteria. BLM Manual 8351 directs BLM to provide tentative classifications of Wild, Scenic, or Recreational to the eligible river segments. Because the No Action Alternative (Alternative A) currently has no suitable river segments designated, the 29 river segments identified for eligibility would remain in eligibility status by BLM policy. Alternative B would propose all the segments, except Salt Wash, as suitable for Congressional designation into the Wild and Scenic River System, and the Proposed Plan would propose 10 river segments as suitable for Congressional designation into the system. This information is condensed in Summary Table E. Where rivers are determined to be suitable, protection of the outstandingly remarkable values, tentative classification, and free-flowing nature would be provided.

Summary Table E. Eligible/Suitable WSR Segments (river miles) with Tentative Classifications, by Alternative

Alternative	# River Segments	River Miles	Suitable or Eligible?	Classifications
A	29	287.5	Eligible	12 Wild, 9 Scenic, 8 Recreational
B	28	287.2	Suitable	11 Wild, 9 Scenic, 8 Recreational
PROPOSED PLAN	10	127.3	Suitable	1 Wild, 4 Scenic, 4 Recreational, 1 Scenic/Recreational
D	0	NA	NA	NA

2.1.1.5 Special Status Species

Land-use plan decisions must be consistent with BLM's mandate to recover listed species and must be consistent with objectives and recommended actions in approved recovery plans, conservation agreements and strategies, MOUs, and applicable biological opinions for threatened and endangered species. The MFO has three listed bird species (and one candidate species), one listed mammal species, and one listed plant species. Species conservation measures (Appendix K) have been developed in coordination with the U.S. Fish and Wildlife Service. They will be implemented under all alternatives.

In addition, there are 43 sensitive species, including the Greater and Gunnison Sage-grouse, White-tailed and Gunnison prairie dog, where there is some discretion in management.

Timing Limitations and Controlled Surface Use stipulations are applied to the habitat for these four species and are spread by alternative.

2.1.1.6 Wildlife

In planning, BLM should identify actions and area wide use restrictions needed to achieve desired population and habitat conditions while maintaining a thriving natural ecological balance and multiple-use relationships. The range of alternatives for wildlife actions and habitats includes:

- **Pronghorn antelope** – A Timing Limitation stipulation for surface-disturbing activities, including oil and gas development, of 45 days would be applied to pronghorn habitat. The size of habitat varies by alternative.
- **Desert bighorn sheep** – Alternatives B and the Proposed Plan: A no surface occupancy stipulation would be applied to lambing/rutting grounds and migration corridors. Alternative D: a Timing Limitation stipulation would be applied to lambing habitat.
- **Deer and elk** – A Timing Limitation stipulation for surface-disturbing activities, including oil and gas development. Timing limitation and acreage vary by alternative.
- **Rocky mountain bighorn sheep** – The objective is to manage and improve habitat. Habitat size varies by alternative.

2.1.1.7 Non-WSA Lands with Wilderness Characteristics

During planning, the MFO identified decisions to protect, preserve and maintain non-WSA lands with wilderness characteristics (naturalness, outstanding opportunities for solitude, and

outstanding opportunities for primitive and unconfined recreation). In Alternative B and the Proposed Plan, there are goals and objectives to protect the resource and there are management actions presented that are necessary to achieve those goals and objections. As portrayed in Summary Table F, there are 33 areas, totaling 266,485 acres that were found to have wilderness characteristics outside of existing WSAs; all of them would be protected, preserved and maintained to preserve their wilderness characteristics values in Alternatives B. In the Proposed Plan, three of the areas totaling 47,761 acres would have decisions carried forward to protect, preserve and maintain the wilderness characteristics values. In Alternatives A and D, management of other resources values and uses would take precedent over the protection of wilderness characteristics.

Summary Table F. Non-WSA Lands Managed to Protect Wilderness Characteristics (quantity and total acres), by Alternative

Alternative A No Action	Alternative B	PROPOSED PLAN	Alternative D
0 areas	33 areas 266,485 acres	3 areas 47,761 acres	0 areas

Table 2.1 provides a comprehensive description of the alternatives carried forward for detailed environmental analysis.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

AIR QUALITY

Goals and Objectives:

Maintain existing air quality and air quality related values (e.g., visibility) by ensuring that all authorized uses on public lands comply with and support Federal, State, and local laws and regulations for protecting air quality.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- As appropriate, quantitative analysis of potential AQ impacts would be conducted for project-specific developments.
- Prescribed burns would be consistent with the State of Utah Division of Environmental Quality (UDEQ) permitting process and timed so as to minimize smoke impacts.
- Comply with Utah Air Conservation (UAC) Regulation R446-1. The best air quality control technology, as per guidance from the Utah Division of Air Quality (UDAQ), would be applied to actions on public lands as needed to meet air quality standards.
- Comply with UAC Regulation R446-1-4.5.3, which prohibits the use, maintenance, or construction of roadways without taking appropriate dust abatement measures. Compliance would be obtained through special stipulations as a requirement on new projects and through the use of dust abatement control techniques in problem areas.
- Manage all BLM and BLM-authorized activities to maintain air quality within the thresholds established by the State of Utah Ambient Air Quality Standards and to ensure that those activities continue to keep the area as attainment, meet prevention of significant deterioration (PSD) Class II standards, and protect the Class I air shed of the National Parks (e.g., Arches and Canyonlands National Parks).
- Comply with the current Smoke Management Memorandum of Agreement (MOU) between BLM, USFS, and UDAQ. The MOU, in accordance with UAC regulation R446-1-2.4.4, requires reporting size, date of burn, fuel type, and estimated air emissions from each prescribed burn.
- BLM will continue to work cooperatively with state, federal, and tribal entities in developing air quality assessment protocols to address cumulative impacts and regional air quality issues.
- BLM will continue to work cooperatively with the Utah Airshed Group to manage emissions from wildland and prescribed fire activities.
- National Ambient Air Quality Standards are enforced by the Utah Department of Environmental Quality, Division of Air Quality (UDEQ-DAQ), with EPA oversight. Special requirements to reduce potential air quality impacts will be considered on a case-by-case basis in processing land-use authorizations.
- BLM will utilize BMPs and site specific mitigation measures, when appropriate, based on-site specific conditions, to reduce emissions and enhance air quality. Examples of these types of measures can be found in the Four Corners Air Quality Task Force Report of Mitigation Options, November 1, 2007.
- Project specific analyses will consider use of quantitative air quality analysis methods (i.e. modeling), when appropriate as determined by BLM, in consultation with state, federal, and tribal entities.

CULTURAL RESOURCES

Goals and Objectives:

- Identify, preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations (FLPMA, Section 103(c), 201(a) and (c); National Historic Preservation Act, Section 110(a); Archaeological Resources Protection Act, Section 14(a)).
- Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration, or potential conflict with other resource uses (FLPMA, Section 103(c), National Historic Preservation Act, Sections 106, 110(a)(2)) by ensuring that all authorizations for land use and resource use will comply with the NHPA Section 106.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- The BLM would comply with all pertinent statutes, regulations, formal agreements, Executive Orders, and policy as it applies to cultural resource management for all actions resulting from decisions in this land-use plan.
- Protect burial sites, associated burial goods, and sacred items in accordance with the Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act.
- Native American requests to practice traditional activities on public lands would be considered on a case-by-case basis and would be allowed where practical and appropriate. Reasonable access to specific sacred sites would be allowed under the American Indian Religious Freedom Act.
- All treaty and trust responsibilities as they apply to public lands within the resource area would be honored.

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- All land-disturbing activities within Traditional Cultural Properties would be designed to avoid or minimize impacts, where reasonable. Proposed projects or actions would be modified to avoid the area or site, avoid time of use by Native American groups, or would be eliminated altogether. Cultural sites may be closed to visitation when it is determined that this visitation is endangering site integrity.
- Camping would be prohibited and posted within or on archaeological and historic sites eligible for listing on the National Register of Historic Places.
- Class III inventory is not required prior to designations that allow continued use of an existing route, impose new limitations on an existing route, close an open area or travel route, keep a closed area closed, or keep an open area open.
- Class III cultural resources inventory would be conducted on newly designated ATV, motorcycle and mountain bike routes (48" wide or less) based on potential resource conflicts. Routes identified for survey would be prioritized based on landscape level overviews, cultural resource predictive models, and available site location, environmental, and contextual information. If eligible archaeological sites along these routes are being adversely impacted by continued route use, impacts would be mitigated. "New routes" are defined as those designated in the Travel Plan accompanying this RMP.
- Where there is a reasonable expectation that a proposed route designation would shift, concentrate or expand travel into areas where historic properties are likely to be adversely affected, Class III inventory and compliance with Section 106, focused on areas where adverse effects are likely to occur, is required prior to designation.
- Proposed designations of new routes would require Class III inventory of the Area of Potential Effect (APE) and compliance with Section 106 prior to designation. Class III inventory of the APE and compliance with Section 106 would also be required prior to identifying new locations proposed as staging areas or similar areas of concentrated OHV use.
- Eligible cultural sites would *be* protected and impacts mitigated when it is determined that they are being impacted from grazing activities.
- New field inventories would be prioritized in areas of special cultural designation (e.g., ACECs, National Historic Trails, National Historic Landmarks) that have not been fully inventoried.
- Sego Rock Art Site and Wall Street/Colorado River Rock Art District, which have educational and recreational values, would be developed for public visitation and interpretation as long as such work does not contribute to the deterioration or destruction of the resources being interpreted. Work would be conducted in partnership with universities, museums, Tribes, and interested site stewards for the creation of interpretive materials on the archaeology of the Moab Planning Area (MPA).
- Specific management plans would be developed for up to seven culturally sensitive areas unless integrated into other activity plans. These plans would also include, but would not be limited to, developing a site monitoring system; identifying sites in need of stabilization, restoration, and protective measures (e.g., fences, surveillance equipment); developing research designs for selected sites/areas; and developing specific mitigation measures.
- Cooperate with counties to ensure county road and trail construction and maintenance activities avoid or minimize impacts to cultural resources.
- Cultural plants, once identified by interested tribes, would be managed to insure that ground-disturbing activities on the land do not contribute to the decline of cultural sensitive plant communities. Collection of plant resources would be considered on a case-by-case basis and would be allowed where practical and

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

appropriate.

- Cultural resource management priority for the Ten Mile Wash and Mill Creek Canyon would be scientific research of prehistoric sites and cultural landscapes. Manage the Mill Creek planning area in accordance with the Mill Creek Management Plan (2001b).
- Continue to allocate cultural sites, including ethnographic properties, to one of six management categories: a) scientific use; b) conservation for future use; c) traditional use; d) public use; e) experimental use; and f) discharged from management.
- Alternative management strategies for cultural resources are disclosed in the Special Designations sections. This section identifies areas with substantial cultural resources and alternative management prescriptions to protect these resources. These areas include the Behind the Rocks, Ten Mile Wash, and Mill Creek Canyon ACECs, and the Wall Street portion of Highway 279/Shafer Basin/Long Canyon proposed ACEC.
- Cultural use allocations would be made at the time of site documentation; allocations can be changed as new information or management direction becomes available, subject to consistency with the approved plan.
- Cultural management plans will be a component of the implementation plans for the Labyrinth Canyons, Colorado Riverway, and South Moab SRMAs. Heritage tourism may be considered in these cultural management plans.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
No priority for field inventory.	Priority for new field inventory would be a 1.00-mile vulnerability zone surrounding cities and towns. Prioritize for Class II and Class III surveys: a total of 50,000 acres within the following areas: Bookcliffs, Dolores Triangle, Hidden Canyon/Bartlett Lisbon Valley, North Fork of Mill Creek , South Fork of Mill Creek, Seven Mile Canyon with adjacent uplands, and Ten Mile Wash and its tributaries.	Priority for new field inventory would be a 0.50-mile vulnerability zone surrounding cities and towns. Prioritize for Class II and Class III surveys: a total of 30,000 acres within the following areas: Bookcliffs, Dolores Triangle, North Fork of Mill Creek, South Fork of Mill Creek, Seven Mile, and Ten Mile Wash and its tributaries.	Priority for new field inventory would be a 0.25-mile vulnerability zone surrounding cities and towns. Prioritize for Class II and Class III surveys: a total of 20,000 acres within the following areas: North Fork of Mill Creek, South Fork of Mill Creek, and Ten Mile Wash and its tributaries.
No priority for restoration of damaged cultural resources.	To prevent further degradation from occurring, target the following areas for restoration of damaged cultural resources: Kane Springs Canyon from Highway 191 downstream to the Colorado River, Seven Mile Canyon, South and North Forks of Mill Creek, Bartlett/Hidden Canyon and Hell Roaring uplands, Ten Mile Wash and Wall Street Rock Art District.	To prevent further degradation from occurring, target the following areas for restoration of damaged cultural resources: South and North Forks of Mill Creek, Bartlett/Hidden Canyon, Hell Roaring uplands, Ten Mile Wash and Wall Street Rock Art District.	To prevent further degradation from occurring, target the following areas for restoration of damaged cultural resources: South and North Forks of Mill Creek, Ten Mile Wash and Wall Street Rock Art District.
No priority for public interpretation sites.	The following sites would be hardened and interpreted for public use: 3 sites in the Wall Street Rock Art District.	The following sites would be hardened and interpreted for public use: one site in Lower Kane Springs Canyon, and 3 sites in the Wall Street Rock Art District.	The following sites would be hardened and interpreted for public use: 3 sites in Lower Kane Springs Canyon, and 4 sites in the Wall Street Rock Art District.

FIRE MANAGEMENT

Goals and Objectives:

Fire management would adopt the comprehensive Utah Land-use Plan Amendment for Fire and Fuels Management, September 2005 (LUP Amendment; BLM 2005c). This document maybe found at www.ut.blm.gov/fireplanning/index/htm. Direction and guidance approved by the LUP Amendment is carried forward under all alternatives and incorporated by reference into this PRMP/FEIS. The content and purpose of the LUP Amendment is summarized as follows:

- Establishes landscape-level, fire management goals and objectives.
- Describes Desired Wildland Fire Conditions (DWFC) and the management strategies and actions to meet DWFC goals.
- Describes areas where fire may be restored to the ecosystem through wildland fire use for resource benefit and areas where wildland fire use is not appropriate.
- Identifies Resource Protection Measures (RPMs) for fire management practices to protect natural and cultural resource values.
- Identifies criteria used to establish fire management priorities.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- The Moab Fire District Fire Management Plan (FMP) would be updated and amended to meet the direction and objectives of the RMP.
- Firefighter and public safety are the primary goals in all fire management decisions and actions.
- Wildland fire would be utilized to protect, maintain and enhance resources and, when possible, will be allowed to function in its natural ecological role.
- Hazardous fuels reduction treatments would be used to restore ecosystems; protect human, natural and cultural resources; and reduce the threat of wildfire to communities.
- Fires would be suppressed at minimum cost, taking into account firefighter and public safety as well as benefits and values to be protected that are consistent with resource objectives.
- The BLM would implement a consistent, safe and cost-effective fire management program through appropriate planning, staffing, training, and equipment.
- Fire management objectives would be established for every area with burnable vegetation, based on sound science and consideration of other resource objectives.
- Emergency stabilization, rehabilitation, and restoration efforts would be implemented to protect and sustain resources, public health and safety, and community infrastructure.
- The BLM would work together with partners and other affected groups and individuals to reduce risks to communities and to restore ecosystems.
- The Reasonable and Prudent Measures and Terms and Conditions identified in consultation with the USFWS for the LUP Amendment would be implemented in fire-related actions.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Criteria for Establishing Fire Management Priorities:

Protection of human life is the primary fire management priority. Establishing a priority among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources is based on human health and safety, the values to be protected, and the costs of protection. When firefighters and other personnel have been committed to an incident, these human resources become the highest values to be protected. Priorities for all aspects of fire management decisions and actions are based on the following:

- Protecting the Wildland-Urban Interface (WUI; including At-risk Communities and At-risk Watersheds).
- Maintaining existing healthy ecosystems.
- High priority sub-basins (HUC-4) or watersheds (HUC-5).
- Threatened, endangered, or special species.
- Cultural resources and/or cultural landscapes.

Suppression:

An "Appropriate Management Response" (AMR) procedure is required for every wildland fire that is not a prescribed fire. In all fire management decisions, strategies and actions, firefighter and public safety are the highest priority followed by consideration of benefits and values to be protected as well as suppression costs. The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). Resource goals and objectives outlined in the RMP guide the development and implementation of AMR fire management activities in regard to the accomplishment of those objectives. The FMP establishes fire suppression objectives with minimum and maximum suppression targets for each Fire Management Unit (FMU) within the MPA. While firefighter and public safety are the first priority, considerations for suppression activities also include fire intensity, acreage, and spread potential, threats to life and property, potential to impact high-value resources such as critical habitat for threatened, endangered and sensitive species, crucial wildlife habitat, cultural resources and/or riparian areas, historic fire regimes, and other special considerations such as wilderness and/or adjacent agency lands.

Wildland Fire Use for Resource Benefit:

Wildland fire is authorized as a tool, when appropriate, to allow naturally ignited wildland fire to accomplish specific resource management objectives. Due to existing resource conditions and proximity to values at risk, fire cannot be allowed to resume its natural role on all BLM lands in the MPA. Consideration of ongoing management actions and other natural changes would direct periodical reassessment of DWFC and determination of potential areas for wildland fire use. Operational management of wildland fire use is described in the Wildland Fire Implementation Plan (WFIP).

The FMP identifies areas (FMUs) that may have the potential for wildland fire use. Wildland fire use may be authorized for all areas, except when the following resources and values may be negatively impacted and there are no reasonable Resource Protection Measures to protect such resources and values:

- WUI areas.
- Areas that are known to be highly susceptible to post-fire cheatgrass or invasive weed invasion.
- Important terrestrial and aquatic habitats.
- Non-fire-adapted vegetation communities.
- Sensitive cultural resources.
- Areas of soil with high or very high erosion hazard.
- Class I air attainment areas and PM-10 non-attainment areas.
- Administrative sites.
- Developed recreation sites.
- Communication sites.
- Oil, gas and mining facilities.
- Above-ground utility corridors.
- High-use travel corridors, such as interstates, railroads, and/or highways.

Fuels Treatment:

Fuels management activities outlined in the FMP would be consistent with the resource goals and objectives contained in the RMP. To reduce hazards and to restore ecosystems, authorized fuels management actions include wildland fire use, prescribed fire, and mechanical, manual, chemical, biological, and seeding treatments. The FMP describes fuels management goals and objectives and the full range of fuels management strategies and actions authorized for fuels reduction. Fuels treatments are focused on the DWFC of restoring historic fire regimes to ecosystems when feasible, so that future wildland fire use actions can be more easily implemented.

- Fuels management actions may include but are not limited to the following activities:
  - Mechanical treatments such as mowing, chopping, or chipping/grinding (brush cutter), chaining, tilling, or cutting.
  - Manual treatments such as hand-cutting (chainsaw or handsaw) and hand-piling.
  - Prescribed fire including broadcast, underburn, and hand-pile burning.
  - Chemical spraying or biological treatments such as insects or goats/sheep.
  - Seeding including aerial or ground application (manual or mechanical).
- Targeted areas may be treated in phases over a period of several years and may involve multiple and varied treatments.
- Estimated fuels reduction treatments of 5,000 to 10,000 acres/year are targeted dependent on budgetary and time constraints. These treatments are in addition to those to be accomplished under the Utah Watershed Restoration Initiative and the National Healthy Lands Initiative.
- Implementation of fuels management actions would be prioritized using the following criteria:
  - WUI areas.
  - Areas with fuel loading that could potentially result in the loss of ecosystem components following wildland fire.
  - Resource management goals and objectives.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Prevention and Mitigation:

- Prevention and mitigation goals target a reduction in unauthorized wildland fire ignitions. Goals include coordination with partners and affected groups and individuals, and a wide range of prevention and mitigation activities such as personal contacts, mass media, signing, and defensible space education.
- Implementation of fire prevention activities would be prioritized using the following criteria:
  - WUI areas.
  - Major travel corridors.
  - Recreation sites.
  - Public lands as a whole.

Emergency Stabilization and Rehabilitation (ESR):

A Normal Year Fire Stabilization and Rehabilitation Plan (NFRP) is in place to meet emergency stabilization and rehabilitation (ESR) needs and to comply with up-to-date ESR policy and guidance. The NFRP is a programmatic implementation plan authorizing treatment options specific to vegetative communities and dependent upon post-wildland fire conditions and other site-specific considerations. Treatment actions are designed according to the type and severity of wildfire impacts and priorities include, but are not limited to, areas where the following criteria apply:

- It is necessary to protect human life and safety as well as property.
- Unique or critical cultural and/or historical resources are at risk.
- It is determined soils are highly susceptible to accelerated erosion.
- Perennial grasses and forbs (fire-tolerant plants) are not expected to provide soil and watershed protection within two years.
- There is a need to establish a vegetative fuel break of less flammable species (greenstrips).
- Unacceptable vegetation, such as noxious weeds, may readily invade and become established.
- Shrubs and forbs are a crucial habitat component for wintering mule deer, pronghorn, sage-grouse, or other special status species.
- Stabilization and rehabilitation are necessary to meet RMP resource objectives, including rangeland seedings.
- It is necessary to protect water quality.
- It is necessary to quickly restore threatened, endangered, or special species habitat populations to prevent adverse impacts.

HEALTH AND SAFETY

Goals and Objectives:

BLM would strive to ensure that human health and safety concerns on public lands remain a major priority.

Management Common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

Comply with all applicable Abandoned Mine Lands (AML) policies.

In conformance with BLM's long-term strategies and national policies regarding Abandoned Mine Lands (AML), this RMP recognizes the need to work with our partners toward identifying and addressing physical safety and environmental hazards at all AML sites on public lands. In order to achieve this goal, a State strategy has been written. National program criteria for determining site priorities were used to develop the work plan. This State strategy is entitled "Utah's Abandoned Mine Land Multi Year Work Plan."

The criteria that would be used to establish physical safety hazard program priorities are:

- The AML physical safety program's highest priority would be the cleaning up of those AML sites where (a) a death or injury has occurred, (b) the site is situated on or in immediate proximity to developed recreation sites and areas with high visitor use, and (c) upon formal risk assessment, a high or extremely high risk level is indicated.
- AML would be factored into future recreation management area designations, land-use planning assessments, and all applicable use authorizations.
- The site is presently listed or is eligible for listing in the Abandoned Mines Module of Protection and Response Information System.
- AML hazards should be, to the extent practicable, mitigated or remediated on the ground during site development.

The criteria used to establish water quality-based AML program priorities are:

- The State has identified the watershed as a priority based on (a) one or more water laws or regulations; (b) threat to public health or safety; and (c) threat to the environment.
- The project reflects a collaborative effort with other land managing agencies.
- The site is presently listed or is eligible for listing in the Abandoned Mines Site Cleanup Module of Protection and Response Information System.
- The project would be funded by contributions from collaborating agencies.

Identify and clean up unauthorized dumping sites and hazardous materials spills in the MPA as required to comply with applicable State, local, and Federal regulations.

The State Multi Year Work Plan will be maintained and updated as needed to reflect current policy for identifying program physical safety and water quality AML sites priorities for reclamation and remediation.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

LANDS AND REALTY

Goals and Objectives:

- Retain lands within its administration except where necessary to accomplish resource goals and objectives outlined in the Plan. BLM would transfer lands out of Federal ownership or acquire non-Federal lands where needed to accomplish resource goals and objectives, improve administration of public lands, or meet essential community needs.
- Meet public needs for use authorizations such as rights-of-way (ROWs), alternative energy sources, and permits while minimizing adverse impacts to resource values.
- Using the Visual Resource Management (VRM) system, maintain generally undeveloped landscapes in the backgrounds of popular filming locations.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Under IMP and Congressional action, Wilderness Study Areas and Wilderness Areas would be exclusion areas for any ROWs (Section 501(a) FLPMA).
- Continue the withdrawal of lands along the Colorado, Dolores and Green Rivers (totaling 65,037 acres within the MPA) from mineral entry (Three Rivers Withdrawal, October 6, 2004). In addition, continue the Westwater (8,096 acres) and Black Ridge Wilderness (5,200 acres) withdrawals (see Map 2-1).
- Give land exchanges with the State of Utah priority consideration to resolve inholding issues.

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- Areas of Critical Environmental Concern (ACECs) would be avoidance areas for any new ROWs (including communication sites and wind and solar sites).
- Decisions on LTAs and withdrawals would be made in accordance with the criteria contained in Appendix A.
- Determinations on authorizing commercial filming in the MPA would be made in accordance with the criteria outlined in Appendix B.
- Right-of-way (ROW) avoidance and exclusion areas would be consistent with the stipulations identified in Appendix C for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values.
- As per the State of Utah v. Andrus, Oct. 1, 1979 (Cotter Decision), BLM would grant the State of Utah reasonable access to State lands for economic purposes, on a case-by-case basis.
- To reduce surface use conflicts along the U.S. Highway 191 utility corridor within Moab Canyon, apply a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C), except those associated with utility ROWs.
- Authorization of any ROW for wind or solar energy development would incorporate best management practices including the USFWS's "Guidelines for Wind Power" and provisions contained in the Final Wind Energy Programmatic EIS (June 24, 2005; BLM 2005d).
- Both wind and solar energy development (renewable energy) can be considered wherever ROWs could be authorized.
- To be consistent with the existing withdrawals from mineral entry, apply a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities within the area of the Three Rivers and Westwater Mineral Withdrawals. This action would further protect the riparian, wildlife, scenic, and recreation values addressed in these withdrawals. Applying a no surface occupancy stipulation for oil and gas leasing to lands within the Three Rivers Withdrawal, in combination with other areas where a no surface occupancy stipulation is applied, results in tracts of land that are physically inaccessible to oil and gas operations. For this reason, portions of the lands within the Three Rivers Withdrawal (e.g., along the Colorado River near the Richardson Amphitheater and along the Dolores River near Beaver Creek) would be closed to oil and gas leasing. These areas would be managed as no surface occupancy for other surface-disturbing activities (see Appendix C).
- Lands and/or interest in lands (such as minerals and conservation easements) acquired through future LTA would take on the management of the surrounding area. Land acquisitions would be pursued if they meet the criteria in Appendix A.

Utility Corridors

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
All utility corridors would be 1 mile wide, except the existing Moab Canyon utility corridor, which is constrained by the topography of Moab Canyon. This physical corridor is only 1/4 mile wide at its narrowest point.	Designate an I-70 utility corridor that includes all major existing ROWs as identified in the RMP with a 100-foot width on each side of the widest ROW corridor (Map 2-2-B). Designate the existing Moab Canyon utility corridor (Map 2-2-B). Split the utility corridor south of Spanish Valley into two corridors, identical to existing corridors (Map 2-2-B).	Designate an I-70 utility corridor that includes all major existing ROWs as identified in the RMP with a 1/2-mile width on each side of the widest ROW corridor (2-2-C). Designate the existing Moab Canyon utility corridor (Map 2-2-C). Combine the two corridors south of Spanish Valley into a single corridor (Map 2-2-C). The corridor would include the approximately 2 to 3 miles separating the two segments.	Designate an I-70 utility corridor that includes all major existing ROWs as identified in the RMP with a 1-mile width on each side of the widest ROW corridor (Map 2-2-D). Designate the existing Moab Canyon utility corridor (Map 2-2-D). Combine the corridors south of Spanish Valley into a single corridor (Map 2-2-D). This corridor would include the approximately 2 to 3 miles separating the two segments.

Avoidance/Exclusion Areas for Rights-of-way (ROWs)

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
About 354,015 acres would be exclusion areas for ROWs. About 48,245 acres would be avoidance areas for ROWs.	About 672,724 acres would be exclusion areas for ROWs. About 341,919 acres would be avoidance areas for ROWs.	About 370,250 acres would be exclusion areas for ROWs. About 217,480 acres would be avoidance areas for ROWs.	About 355,146 acres would be exclusion areas for ROWs. About 84,772 acres would be avoidance areas for ROWs.

Disposal Land List

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
The list of parcels identified for disposal totals 12,415 acres.	Parcels identified for disposal total 14,961 acres and are shown on Map 2-3 and in Appendix D.	Parcels identified for disposal total 14,961 acres and are shown on Map 2-3 and in Appendix D.	Parcels identified for disposal total 14,961 acres and are shown on Map 2-3 and in Appendix D.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

LIVESTOCK GRAZING

Goals and Objectives:

- Achieve the attainment of Standards for Rangeland Health and other desired resource conditions by maintaining appropriate utilization levels of the range through management prescriptions and administrative adjustments of grazing permits.
- Achieve healthy, sustainable rangeland ecosystems that support the livestock industry while providing for other resource values such as wildlife habitat, recreation opportunities, clean water, and functional watersheds.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Grazing would be managed according to the Guidelines for Livestock Grazing Management to meet the Standards for Rangeland Health, including adjustment in seasons of use.
- On all allotments, allow allotment boundaries adjustments, joining and splitting, and modification of grazing season subject to appropriate NEPA review and analysis (see Map 2-4 for a map of grazing allotments).
- Continue to authorize grazing at the current preference levels (as per ten-year grazing permits) and adjust, if necessary to meet Standards for Rangeland Health.
- As amended in previous planning documents (the 1985 Grand RMP and a Plan Amendment analyzed in EA#068-94-047), grazing use would continue to not be authorized on the following allotments/areas (or portions of allotments/areas):
  - Between The Creeks with 3,960 acres and 221 AUMs, to protect municipal watersheds, improve mule deer winter range, improve riparian habitat, and reduce recreation conflict.
  - North Sand Flats with 18,246 acres and 798 AUMs, to reduce recreation conflict, improve mule deer winter range, and improve riparian habitat.
  - South Sand Flats with 10,209 acres and 592 AUMs, to reduce recreation conflict, improve mule deer winter range, and improve riparian habitat.
  - A portion of Arth's Pasture Allotment (Poison Spider area) with approximately 7,634 acres and 425 AUMs, to improve desert bighorn sheep habitat and reduce recreation conflict.
  - Castle Valley with 6,074 acres and 190 AUMs, to protect the Castle Valley sole source aquifer, to improve mule deer winter range, and to reduce recreation conflict.
  - Along Highway 128 from U.S. 191 to the Castle Valley Road, along U.S. 191 from Highway 313 to Moab, and along Highway 279 with 1,139 acres, to reduce recreation traffic conflict (no reduction in AUMs).
  - A portion of the Kane Spring Allotment (that portion in Kane Spring Canyon between the open valley and the river; 558 acres and no reduction in AUMs), to reduce recreation traffic conflict and to enhance riparian species' habitat.
  - An area along the Colorado River between Hittle and north of Dewey Bridge (400 acres and no reduction in AUMs), to reduce recreation traffic conflict and to enhance riparian species' habitat.
- Develop AMPs on seven allotments (Agate, Cisco, Cisco Mesa, Harley Dome, Highlands, Monument Wash, and San Arroyo) and on any additional allotments if resource issues are identified to benefit vegetation, wildlife, livestock grazing and soils.
- Identify appropriate utilization levels based on allotment or site-specific management practices, such as season-of-use, grazing intensity and duration, and utilization patterns, as well as vegetative conditions, the presence or absence of range improvements, and resource issues or concerns. Use utilization levels as an indicator to evaluate if current grazing use is appropriate to meet resource objectives for the area. Generally moderate utilization levels (40–60%) would be used to indicate if general management objectives can be met. Utilization levels above those identified as appropriate would be used to adjust livestock use on a yearly basis through pasture and possible early removal from allotments as needed. Utilization levels may be especially important during periods of drought. Long-term adjustments to livestock use (term permits adjustments) require the evaluation of monitoring data including climate, actual grazing use, current or historic impacts, utilization mapping, and long-term trend data, as well as utilization levels.
- Follow the recommendations of the National Sage-grouse Habitat Conservation Strategy (BLM 2004c) and the Strategic Management Plan for Sage-grouse (UDWR 2002) where applicable.
- Conversion of allotments from cattle to domestic sheep would not be considered in recognized bighorn sheep habitat (see Maps 2-25 and 2-28).
- Collect monitoring data, including trend, utilization, actual use, and climate data to determine if existing livestock management practices are meeting land-use planning and resource objectives.
- Change class of livestock from sheep to cattle on the Hatch Point Allotment (96,951 acres) to benefit wildlife.
- Rangelands that have been burned, reseeded, or otherwise treated to alter vegetative composition would have livestock grazing use temporarily suspended as follows: (1) burned rangelands, whether by wildfire or prescribed burning, would be ungrazed for a minimum of one complete growing season following the burn; (2) rangelands that have been reseeded, or otherwise mechanically treated would be ungrazed for a minimum of two complete growing seasons following treatment.

Relinquishment of Preference:

- Voluntary relinquishments of grazing permits and preference, in whole or in part, submitted by a permittee in writing to the BLM, would be handled on a case-by-case basis. BLM would not recognize as valid, relinquishments which are conditional on specific BLM actions and BLM would not be bound by them. Relinquished permits and the associated preference would remain available for application by qualified applicants after BLM considers if such action would meet rangeland health standards and is compatible with achieving land-use plan goals and objectives. Prior to re-issuance of the relinquished permit, the terms and conditions may be modified to meet RMP goals and objectives and/or site-specific resource objectives. However, upon relinquishment, BLM may determine through a site-specific evaluation and associated NEPA analysis that the public lands involved are better used for other purposes. Grazing may then be discontinued on the allotment through an amendment to the existing RMP or a new RMP effort. Any decision issued concerning discontinuance of livestock grazing is not permanent and may be reconsidered and changed through future LUP Amendments and updates.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
AUMs allotted to livestock: 107,071	AUMs allotted to livestock: 106,574	AUMs allotted to livestock: 106,479	AUMs allotted to livestock: 108,876
Acres available for grazing: 1,695,621	Acres available for grazing: 1,668,732	Acres available for grazing: 1,690,481	Acres available for grazing: 1,770,314 acres
Acres not available for grazing: 126,907	Acres not available for grazing: 153,797	Acres not available for grazing: 132,047	Acres not available for grazing: 52,214
Note: Please see Map 2-4-A for areas not available for livestock grazing under this alternative.	Note: Please see Map 2-4-B for areas not available for livestock grazing under this alternative.	Note: Please see Map 2-4-C for areas not available for livestock grazing under this alternative.	Note: Please see Map 2-4-D for areas not available for livestock grazing under this alternative.
Allotments Not Available for Grazing: • Bogart with 14,744 acres and 209 AUMs (to benefit wildlife, especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Cottonwood with 27,193 acres and 900 AUMs (to benefit wildlife, especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Diamond with 18,620 acres and 588 AUMs (to benefit wildlife, especially mule deer and/or elk habitat, riparian habitat, watershed health	**Allotments Not Available for Grazing:** • Bogart with 14,744 acres and 209 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Cottonwood with 27,193 acres and 900 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Diamond with 18,620 acres and 588 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and	**Allotments Not Available for Grazing:** • Bogart with 14,744 acres and 209 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Cottonwood with 27,193 acres and 900 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Diamond with 18,620 acres and 588 AUMs (to benefit wildlife to benefit wildlife especially mule deer and/or elk habitat, riparian habitat,	**Allotments Not Available for Grazing:** • Mill Creek with 3,921 acres and 137 AUMs (to reduce recreation and cultural conflict and to protect municipal watershed).

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and erosive soils). • Pear Park, with 14,201 acres and 200 AUMs (to benefit wildlife, especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Spring Creek, with 1,550 acres and 45 AUMs (to benefit wildlife, especially mule deer and/or elk winter range). • Beaver Creek with 2,304 acres and 0 AUMs (to benefit wildlife, especially riparian species and Colorado cutthroat trout).	erosive soils). • Pear Park, with 14,201 acres and 200 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Spring Creek-Buckhorn, approx. 600 acres and 45 AUMs (to benefit wildlife especially mule deer and/or elk winter range). • Beaver Creek with 2,304 acres and 0 AUMs (to benefit wildlife especially riparian species and Colorado cutthroat trout). • Professor Valley, with 18,966 acres and 378 AUMs (to reduce recreation conflict and enhance riparian habitat). • Ida Gulch, with 3,612 acres and 112 AUMs (to reduce recreation conflict and enhance riparian habitat). • River, with 386 acres and 7 AUMs (to reduce recreation conflict and enhance riparian habitat). • Mill Creek, with 3,921 acres and 137 AUMs (to reduce recreation and cultural conflict and to protect municipal watershed).	watershed health and erosive soils). • Pear Park, with 14,201 acres and 200 AUMs (to benefit wildlife especially mule deer and/or elk habitat, riparian habitat, watershed health and erosive soils). • Ida Gulch, with 3,612 acres and 112 AUMs (to reduce recreation conflict and enhance riparian habitat). • Portions of Professor Valley, Ida Gulch, and the River along Highway 128**, with 1,467 acres and 0 AUMs (to reduce recreation conflict and enhance riparian habitat). • Mill Creek with 3,921 acres and 137 AUMs (to reduce recreation and cultural conflict and to protect municipal watershed). **A fence would be constructed along the southeast side of Highway 128 (set back to protect the scenic resources of the National Scenic Highway). This would result in all BLM lands between the Colorado River and Highway 128 being unavailable for grazing. This would reduce acreage in the allotments, but it would not reduce the AUMs, because the quality of the forage is low due to heavy use by motorists and other recreationists.	
Allotments Currently Not Available for Grazing that would be Available for Grazing: None **Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** None	**Allotments Currently Not Available for Grazing that would be Available for Grazing:** None **Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** None	**Allotments Currently Not Available for Grazing that would be Available for Grazing:** After allotment specific evaluation to assure resource objectives are met, the following areas would be available for livestock grazing: Spring Creek. **Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** Beaver Creek with 1,351 acres and 0 AUMs.	**Allotments Currently Not Available for Grazing that would be Available for Grazing:** After allotment specific evaluation to assure resource objectives are met, the following areas would be available for livestock grazing: • Pear Park (no domestic sheep would be allowed). • Spring Creek. • Bogart (no domestic sheep would be allowed). • Cottonwood (no domestic sheep would be allowed). • Diamond Canyon (no domestic sheep would be allowed). **Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** Beaver Creek with 1,351 acres and 0 AUMs.
Grazing in Saline Soils: Manage livestock grazing on portions of the following allotments to stabilize impacts on highly saline soils and reduce salinity in the Colorado River drainage. This includes the following allotments: Athena, Cisco, Cisco Mesa, Crescent Canyon, Highland, Monument Wash, and Thompson Canyon (1985 Grand RMP).	**Grazing in Saline Soils:** Use grazing systems and develop AMPs to minimize impacts to saline soils and reduce salinity in the Colorado River drainage in the following allotments: Agate, Big Flat-Ten Mile, Cisco Mesa, Crescent Canyon, Floy Creek, Harley Dome, Highlands, and San Arroyo. If Rangeland Health Standards indicate that soil compaction is an issue on the following allotments, assess all available data and determine if a change in the livestock season of use would correct the problem: Athena, Cisco, Coal Canyon, Horse Canyon, Little Grand, Lone Cone, and Monument.	**Grazing in Saline Soils:** Use grazing systems and develop AMPs to minimize impacts to saline soils and reduce salinity in the Colorado River drainage in the following allotments: Agate, Athena, Big Flat-Ten Mile, Cisco, Cisco Mesa, Coal Canyon, Crescent Canyon, Floy Creek, Harley Dome, Highlands, Horse Canyon, Little Grand, Lone Cone, Monument, and San Arroyo.	**Grazing in Saline Soils:** Same as Alternative A.
Grazing in Riparian Areas: Continue no grazing in South Sand Flats, North Sand Flats, Between the Creeks, Cottonwood, and Diamond, to benefit riparian areas.	**Grazing in Riparian Areas:** Evaluate non-functioning and functioning-at-risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if exclusion from grazing would improve riparian functioning condition. The following riparian areas would be given priority for evaluation: Lower Gray Canyon of the Green River from Rattlesnake Canyon to Swasey's Beach, Ten Mile from Dripping Spring to the Green River, Day Canyon, Mill Creek, Seven Mile Canyon, East Coyote, Kane Springs, and Hatch Wash (totaling	**Grazing in Riparian Areas:** Evaluate non-functioning and functioning-at-risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if restriction from grazing would improve riparian functioning condition. The following riparian areas would be given priority for evaluation: Ten Mile from Dripping Spring to the Green River, Mill Creek, Day Canyon, Seven Mile Canyon, and East Coyote (totaling 1,169 acres).	**Grazing in Riparian Areas:** Continue present grazing management.

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	4,422 acres).		
Vegetation Treatments: Areas treated prior to 1985 are considered existing treatments. Land treatments on 11 allotments would be implemented to increase available forage by 8,514 AUMs to allow for increased use by livestock and wildlife. The increase in AUMs would be split evenly between livestock and wildlife where both are present. Land treatments include plowing and seeding, chaining and seeding, drill seeding. The following allotments are included in the land treatments: Bar X, Black Ridge, Buckhorn, Corral Wash, Hatch Point, Lisbon, Lower Lisbon, San Arroyo, Sand Flats, Taylor and Winter Camp. Initiate prescribed fire and seeding on approximately 14,149 acres (in 10 allotments), as currently proposed in existing LUP Amendments, thereby increasing AUMs by approximately 1,700 for livestock and wildlife. The allotments include Showerbath Spring, Floy Canyon, Cottonwood, Diamond, Middle Canyon, Little Hole, Buckhorn, Adobe Mesa, Hatch Point, and Lisbon. **Total Acres: 67,125.** **Implement Range Projects to meet or exceed Rangeland Health Standards:** Implement livestock manipulation techniques (fences and water development) to benefit wildlife and livestock.	**Vegetation Treatments:** Maintain the existing vegetation treatments (46,307 acres) to increase available forage within the following allotments. These areas have been treated over the past 50 years and consist primarily of pinyon-juniper woodlands. These areas would be treated by prescribed fire, chemical or mechanical or other means in accordance with BLM sagebrush conservation guidance and other applicable resource goals. The improved forage would benefit wildlife. Allotments: Adobe Mesa, Big Triangle, Black Ridge, Buckhorn; Cisco;East Coyote, Fisher Valley, Granite Creek, Hatch Point, Lisbon, Lower Lisbon; Mountain Island, Rattlesnake South, Scharf Mesa, Spring Creek, Steamboat Mesa, Taylor, Windwhistle. **Total Acres: 46,307.** Conduct no new vegetation treatments except those beneficial to other resource values such as wildlife or watershed. **Implement Range Projects to meet or exceed Rangeland Health Standards:** Implement range projects that would benefit resource values such as habitat for wildlife, reducing soil compaction and erosion, and improving the health of riparian areas.	**Vegetation Treatments:** Maintain the existing vegetation treatments (46,307 acres) to increase available forage within the following allotments. These areas have been treated over the past 50 years and consist primarily of pinyon-juniper woodlands. These areas would be treated by prescribed fire, chemical or mechanical or other means in accordance with BLM sagebrush conservation guidance and other applicable resource goals. The improved forage would benefit multiple use objectives including livestock and wildlife use. Allotments: Adobe Mesa, Big Triangle, Black Ridge, Buckhorn, Cisco, East Coyote, Fisher Valley, Granite Creek, Hatch Point, Lisbon, Lower Lisbon, Mountain Island, Rattlesnake South, Scharf Mesa, Spring Creek, Steamboat Mesa, Taylor, Windwhistle. **Total Acres: 46,307.** Conduct new vegetation treatments (6,900 acres) for increased forage in the following allotments with prescribed fire, chemical, mechanical or other means: Floy Canyon, Hatch Point, Lisbon, and Showerbath. Other vegetation treatments would be considered to benefit other resource values such as wildlife or watershed. **Implement Range Projects to help maintain Rangeland Health Standards:** Implement range projects that would equally benefit livestock grazing and other resource values.	**Vegetation Treatments:** Same as the Proposed Plan, but other vegetation treatments would be considered specifically to benefit livestock. **Implement Range Projects to help maintain Rangeland Health Standards:** Implement range projects that would emphasize livestock production.

MINERALS

Goals and Objectives:

- Provide opportunities for environmentally responsible exploration and development of mineral and energy resources subject to appropriate BLM policies, laws and regulations.
- Establish conditions of use through land-use planning to protect other resource values.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Continue the withdrawal of lands along the Colorado, Dolores, and Green Rivers, totaling 65,037 acres within the MPA, from mineral entry (Three Rivers Withdrawal, October 6, 2004). In addition, continue the Westwater (8,096 acres) withdrawal. Black Ridge Wilderness (5,200 acres) will remain closed, by law, to entry under the mining law.
- Wilderness Study Areas and designated Wilderness (358,806 acres) would remain closed, by law, to mineral leasing and development.
- Where public lands are sold or exchanged under 43 U.S.C. 682(B)(Small Tracts Act), 43 U.S.C. 869 (Recreation and Public Purposes Act), 43 U.S. C. 1718 (Sales) or 43 U.S. C. 1716 (Exchanges), the minerals reserved to the United States would continue to be removed from the operation of the mining laws unless a subsequent land-use planning decision expressly recommends restoring the land to mineral entry.

Leasable Minerals:

Split-estate lands (private surface/Federal minerals) and lands administered by other Federal agencies are not managed by the BLM. The lands include about 29,678 acres of split-estate lands and the lands administered by the Manti-LaSal National Forest (141,241 acres). The surface owner or surface management agency (SMA) manages the surface. BLM administers the operational aspects of mineral leases. On lands administered by other Federal agencies, lease stipulations would include those required by the SMA. On 20,061 acres of split-estate lands, the BLM would apply the same lease stipulations as those applied to surrounding lands with Federal surface. BLM would close or impose a no surface occupancy stipulation on 9,617 acres of split-estate lands (see Appendix C). Mitigation measures to protect other resource values would be developed during the appropriate site-specific environmental analysis and would be attached as conditions of approval to permits in consultation with the surface owner or SMA.

Coal:

The coal resources within the MPA include the Sego and the La Sal coal fields. Approximately 80% of the Sego coal field is within Wilderness Study Areas and is not available for development. For the remaining coal resources, no interest has been expressed for coal leasing and the potential for development of coal resources is low (see Mineral Potential Report). At such time as interest is expressed in coal leasing, the RMP would be amended as appropriate and mining unsuitability criteria (43 CFR 3461) would be applied by the MFO before any coal leases are issued. If coal leases are issued, they would be subject to special conditions developed in the RMP and the unsuitability assessment. This may restrict all or certain types of mining techniques. Before any coal could be removed, MFO would have to approve the mining permit application package, incorporating stipulations developed in the RMP.

Locatable Minerals:

Existing operations would continue to be subject to the stipulations developed for the notice or the plan of operations. The BLM would evaluate all operations authorized by the mining laws in the context of its requirement to prevent unnecessary and undue degradation of Federal lands and resources. Consistent with the rights afforded claimants under the mining laws, operations conducted after this RMP would be required to conform to the surface disturbing stipulations developed in this RMP.

Operations on BLM-administered lands open to mineral entry must be conducted in compliance with BLM's surface management regulations (43 CFR 3715, 3802, 3809, and 3814). BLM surface management regulations do not apply to operations on other Federal lands but do apply to split-estate lands.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Management Common to the PROPOSED PLAN and Draft RMPAlternatives B and D:

- To be consistent with the existing withdrawals from mineral entry, apply a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within the area of the Three Rivers and Westwater Mineral Withdrawals. This action would further protect the riparian, wildlife, scenic, and recreation values addressed in these withdrawals.
- To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix C. Leasable minerals include oil and gas, coal, and potash. Locatable minerals include gold, copper, and uranium. Salable minerals include sand and gravel, clay, and building stone.
- In areas where mineral activities would be incompatible with existing surface use, apply a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). These areas are as follows: Moab and Spanish Valley, Castle Valley (including Mayberry Orchard), Thompson Springs, Moab Landfill, Moab Airport, and Dead Horse Point State Park.
- The Federal minerals within the incorporated city of Moab and town of Castle Valley are closed to oil and gas leasing by Federal regulation at 43 CFR 3100.0-3 (a)(2)(iii).

Leasable Minerals:

Oil and Gas:

The plan would recognize and be consistent with the National Energy Policy Act and related BLM policy by adopting the following objectives:

- Recognizing the need for diversity in obtaining energy supplies.
- Encouraging conservation of sensitive resource values.
- Improving energy distribution opportunities.

In accordance with an UDEQ-DAQ letter dated June 6, 2008, (see Appendix V) requesting implementation of interim nitrogen oxide control measures for compressor engines; BLM will require the following as a Lease Stipulation and a Condition of Approval for Applications for Permit to Drill:

- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 gms of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gms of NOx per horsepower-hour.

Lease stipulations would be developed to mitigate the impacts of oil and gas activity (see Appendix C and Maps 2-5-A through 2-5-D). The stipulations would adhere to the Uniform Format prepared by the Rocky Mountain Regional Coordinating Committee in March 1989. Stipulations reflect the minimum requirements necessary to accomplish the desired resource protection and would contain provisions/criteria to allow for exception, waiver and modification if warranted. Stipulations would be determined unnecessary if duplicative of Section 6 of the Standard Lease Terms. The BLM has identified Land-use Plan leasing allocations for all lands within the Moab Field Office. In addition, the Proposed RMP describes specific lease stipulations and program-related Best Management Practices (both found in Appendix C: Stipulations and Environmental Best Practices Applicable to Oil and Gas Leasing and Other Surface Disturbing Activities) that apply to a variety of different resources.

Oil and gas leases issued prior to the RMP would continue to be managed under the stipulations in effect when issued. Those issued subsequent to the plan would be subject to the stipulations developed in the plan. Environmental best management practices would be incorporated into subsequent permits and authorizations to mitigate impacts and conflicts with other uses and resource values (see Appendix C).

Potash and Salt (Non-energy Leasable):

Within the MPA, three areas fall within known potash leasing areas (KPLAs). KPLA designations, based on known geologic data, would remain in place until potash resources are depleted. In KPLAs, potash leases are acquired through competitive bidding. In areas where potash values are not known, MFO could issue prospecting permits, which could lead to issuance of a preference right lease. There are currently 8 leases and 13 pending prospecting permit applications within the MPA (Map 2-6). Additional KPLAs could be designated, based on geologic data, if interest warranted. Potash leasing and prospecting permits issued prior to the RMP would continue to be managed under the stipulations in effect when issued. Those leases issued subsequent to the RMP would be consistent with the oil and gas leasing stipulations developed in the RMP (see Appendix C).

Locatable Minerals:

A no surface occupancy stipulation cannot be applied to locatable minerals without a withdrawal. All public lands overlying Federal minerals are open to mining claim location unless specifically withdrawn from mineral entry by Secretarial order or by a public land law. Therefore, other than the existing withdrawals (Three Rivers, Westwater, and Black Ridge Wilderness), all public lands with the MPA remain open under the mining laws. Future withdrawals may be recommended in areas identified as closed or with a no surface occupancy stipulation if it becomes necessary to prevent unacceptable resource impacts.

Salable Minerals:

There are currently 12 community pits totaling about 2,693 acres designated in the MPA (Map 2-7). Existing mineral material sale contracts, free use permits, and material sites, including community pits, would continue to be subject to the permit stipulation conditions. Sales, permits, community pits or common use areas issued or designated after the RMP would be subject to permit stipulations developed in the RMP. These stipulations would be the same as those stipulations for oil and gas leasing except that areas with a no surface occupancy stipulation and closed would be closed to the disposal of salable minerals.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Oil and Gas Leasing (see Map 2-5-A): • Approximately 1,038,344 acres would be open to oil and gas leasing, subject to standard lease terms (Category 1). • Approximately 389,605 acres would be open to oil and gas leasing subject to special conditions (controlled surface use/timing limitation stipulations [CSU/TL], or Category 2). • Approximately 38,912 acres would be open to oil and gas leasing with no surface occupancy (NSO; Category 3). • Approximately 353,293 acres would be closed to oil and gas leasing. (Category 4).	**Oil and Gas Leasing (see Map 2-5-B):** • Approximately 264,344 acres would be open to oil and gas leasing, subject to standard terms and conditions. • Approximately 543,751 acres would be open to oil and gas leasing subject to CSU and TL stipulations. • Approximately 342,931 acres would be open to oil and gas leasing subject to an NSO stipulation. • Approximately 671,444 acres would be closed to oil and gas leasing, of which 318,709 acres are outside Wilderness or Wilderness Study Areas. Of these 318,709 acres, 20,288 acres are within the Castle Valley and Moab-Spanish Valley watersheds, and 266,455 are within lands with wilderness characteristics. The remaining 31,966 acres are closed to oil and gas leasing because it is not reasonable to apply an NSO stipulation. This includes areas where the oil and gas resources are physically inaccessible by current directional drilling technology from outside the boundaries of the NSO areas. (These lands closed to oil and gas leasing	**Oil and Gas Leasing (see Map 2-5-C):** • Approximately 427,273 acres would be open to oil and gas leasing, subject to standard terms and conditions. • Approximately 806,994 acres would be open to oil and gas leasing subject to CSU and TL stipulations. • Approximately 217,480 acres would be open to oil and gas leasing subject to an NSO stipulation. • Approximately 370,250 acres would be closed to oil and gas leasing, of which 25,306 acres are outside Wilderness or Wilderness Study Areas. About 25,306 acres are closed to oil and gas leasing because it is not reasonable to apply an NSO stipulation. This includes areas where the oil and gas resources are physically inaccessible by current directional drilling technology from outside the boundaries of the NSO areas. (These lands closed to oil and gas leasing would be managed to preclude all other surface-disturbing activities.) Should technology change, a Plan Amendment would be initiated to place these 25,306 acres under an NSO	**Oil and Gas Leasing (see Map 2-5-D):** • Approximately 797,031 acres would be open to oil and gas leasing, subject to standard terms and conditions. • Approximately 590,442 acres would be open to oil and gas leasing subject to CSU and TL stipulations. • Approximately 84,772 acres would be open to oil and gas leasing subject to an NSO stipulation. • Approximately 350,219 acres would be closed to oil and gas leasing. In addition, 8,078 acres of Federal minerals (split-estate lands) would be managed as open to oil and gas leasing with an NSO stipulation, and 1,539 acres of Federal minerals (split-estate lands) would be closed to oil and gas leasing (see Appendix C).

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	would be managed to preclude all other surface-disturbing activities.) Should technology change, a Plan Amendment would be initiated to place these 31,966 acres under an NSO stipulation for oil and gas leasing. In addition, 7,259 acres of Federal minerals (split-estate lands) would be managed as open to oil and gas leasing with an NSO stipulation, and 2,358 acres of Federal minerals (split-estate lands) would be closed to oil and gas leasing (see Appendix C).	stipulation for oil and gas leasing. In addition, 8,078 acres of Federal minerals (split-estate lands) would be managed as open to oil and gas leasing with an NSO stipulation, and 1,539 acres of Federal minerals (split-estate lands) would be closed to oil and gas leasing (see Appendix C).	
Salable Minerals: Allow the disposal of salable minerals on 1,466,861 acres.	**Salable Minerals (see Map 2-5-B):** • Approximately 264,344 acres would be open to the disposal of salable minerals subject to standard terms and conditions. • Approximately 543,751 acres would be open to the disposal of salable minerals subject to CSU and TL stipulations. • Approximately 342,931 acres would not be open to the disposal of salable minerals (in those areas subject to an NSO stipulation for oil and gas leasing). • Approximately 671,444 acres would be closed to the disposal of salable minerals. In addition, 7,259 acres of Federal minerals (split-estate lands) would not be open to the disposal of salable minerals in those lands subject to an NSO stipulation for oil and gas, and 2,358 acres of Federal minerals (split-estate lands) would be closed to the disposal of salable minerals (see Appendix C).	**Salable Minerals (see Map 2-5-C):** • Approximately 427,273 acres would be open to the disposal of salable minerals subject to standard terms and conditions. • Approximately 806,994 acres would be open to the disposal of salable minerals subject to CSU and TL stipulations. • Approximately 217,480 acres would not be open to the disposal of salable minerals (in those areas subject to an NSO stipulation for oil and gas leasing). • Approximately 370,250 acres would be closed to the disposal of salable minerals. In addition, 8,078 acres of Federal minerals (split-estate lands) would not be open to the disposal of salable minerals in those lands subject to an NSO stipulation for oil and gas, and 1,539 acres of Federal minerals (split-estate lands) would be closed to the disposal of salable minerals (see Appendix C).	**Salable Minerals (see Map 2-5-D):** • Approximately 797,031 acres would be open to the disposal of salable minerals subject to standard terms and conditions. • Approximately 590,442 acres would be open to the disposal of salable minerals subject to CSU and TL stipulations. • Approximately 84,772 acres would not be open to the disposal of salable minerals (in those areas subject to an NSO stipulation for oil and gas leasing). • Approximately 350,219 acres would be closed to the disposal of salable minerals. In addition, 8,078 acres of Federal minerals (split-estate lands) would not be open to the disposal of salable minerals in those lands subject to an NSO stipulation for oil and gas, and 1,539 acres of Federal minerals (split-estate lands) would be closed to the disposal of salable minerals (see Appendix C).
Locatable Minerals: • Approximately 1,389,531 acres are open to operations for locatable minerals. • Approximately 78,333 acres are withdrawn from operations to locatable minerals. • Approximately 353,510 acres within WSAs are open to operations for locatable minerals subject to the *Interim Management Policy for Lands Under Wilderness Review* (IMP; 1650-1).	**Locatable Minerals:** • Approximately 268,873 acres are open to operations for locatable minerals subject to standard terms and conditions. • Approximately 1,120,658 acres are open to operations for locatable minerals subject to CSU and TL stipulations. • Approximately 78,333 acres are withdrawn from operations to locatable minerals. • Approximately 353,510 acres within WSAs are open to operations for locatable minerals subject to the IMP (1650-1).	**Locatable Minerals:** • Approximately 427,273 acres are open to operations for locatable minerals subject to standard terms and conditions. • Approximately 962,258 acres are open to operations for locatable minerals subject to CSU and TL stipulations. • Approximately 78,333 acres are withdrawn from operations to locatable minerals. • Approximately 353,510 acres within WSAs are open to operations for locatable minerals subject to the IMP (1650-1).	**Locatable Minerals:** • Approximately 797,031 acres are open to operations for locatable minerals subject to standard terms and conditions. • Approximately 592,500 acres are open to operations for locatable minerals subject to CSU and TL stipulations. • Approximately 78,333 acres are withdrawn from operations to locatable minerals. • Approximately 353,510 acres are open to operations for locatable minerals subject to the IMP (1650-1).

NON-WSA LANDS WITH WILDERNESS CHARACTERISTICS

BLM has identified non-WSA lands with wilderness characteristics for management consideration in this planning effort. Wilderness characteristics include the appearance of naturalness and outstanding opportunities for solitude or primitive and unconfined recreation (see Appendix P for more information).

Goals and Objectives:

- Protect, preserve and maintain wilderness characteristics (appearance of naturalness, outstanding opportunities for primitive and unconfined recreation or solitude) of non-WSA lands with wilderness characteristics as appropriate, considering manageability and the context of competing resource demands. Manage these primitive lands and backcountry landscapes for their undeveloped character, and to provide opportunities for primitive recreational activities and experiences of solitude, as appropriate.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Non-WSA lands with wilderness characteristics were not addressed in the 1985 Grand RMP, as amended. These lands are managed according to the 1985 RMP prescriptions.	Manage 266,485 acres of non-WSA lands (see Map 2-24-B) to protect, preserve and maintain wilderness characteristics by applying the following prescriptions: • Closed to oil and gas leasing (see Appendix C). • Preclude other surface-disturbing activities, including mineral material sales (see Appendix C). • Retain public lands in Federal ownership. • Prohibit woodland harvest. • Manage vehicle use as limited to designated roads. • Designate as VRM Class II. • Manage as exclusion areas for ROWs. **Non-WSA lands to be managed for wilderness characteristics:** Arches Adjacent (6,396 acres) Beaver Creek (25,722 acres), Behind the Rocks (3,643 acres), Big Triangle (5,200 acres), Coal Canyon (22,135 acres), Dead Horse	Manage 47,761 acres of non-WSA lands (see Map 2-24-C) to protect, preserve and maintain wilderness characteristics by applying the following prescriptions: • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). Applying a no surface occupancy stipulation for oil and gas leasing to non-WSA lands with wilderness characteristics, in combination with the no surface occupancy applied because of the Three Rivers Withdrawal, results in tracts of land which are physically inaccessible to oil and gas operations within the Fisher Towers, Mary Jane, and Beaver Creek areas. For this reason, portions of non-WSA lands in these areas with wilderness characteristics would be closed to oil and gas leasing. • These areas would be managed to preclude other surface-disturbing activities (see Appendix C) including mineral material sales (see Appendix C).	No non-WSA lands would be managed to maintain wilderness characteristics.

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	Cliffs (797 acres), Desolation Canyon (10,498 acres), Dome Plateau (14,207 acres), Fisher Towers (17,235 acres), Floy Canyon (9,983 acres), Flume Canyon (3,520 acres), Goldbar (6,437 acres), Gooseneck (843 acres). Granite Creek (4,528 acres), Harts Point (1,465 acres), Hatch Wash (10,983 acres), Hatch/Lockhart (2,670) acres), Hells Hole (2,538 acres), Hideout Canyon (11,607 acres), Horsethief Point (8,382 acres), Hunter Canyon (4,465 acres), Labyrinth Canyon (25,361 acres), Lost Spring Canyon (11,456 acres), Mary Jane Canyon (24,779 acres), Mexico Point (12,837 acres), Mill Creek Canyon (3,388 acres), Negro Bill Canyon (2,333 acres), Shafer Canyon (1,842 acres), Spruce Canyon (1,131 acres), Westwater Canyon (3,086 acres), Westwater Creek (7,188 acres), and Yellow Bird (357 acres).	• Retain public lands in Federal ownership. • Prohibit woodland harvest. • Manage vehicle use as limited to designated roads. • Designate as VRM Class II. • Manage as avoidance areas for ROWs. **Non-WSA lands to be managed for wilderness characteristics:** Beaver Creek (25,722 acres), Fisher Towers (5,540 acres within the Richardson Amphitheater), and Mary Jane Canyon (16,499 acres within the Richardson Amphitheater).	
PALEONTOLOGY			
Goals and Objectives: • Protect paleontological resources from surface-disturbing activities. Promote the scientific, educational, and recreational uses of fossils. • Foster public awareness and appreciation of the MPA's paleontological heritage. • Promote and facilitate scientific investigation of fossil resources. **Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:** • Vertebrate fossils may be collected only by qualified individuals under a permit issued by the BLM Utah State Office. Vertebrate fossils include bones, teeth, eggs, and other body parts of animals with backbones such as dinosaurs, fish, turtles, and mammals. Vertebrate fossils also include trace fossils, such as footprints, burrows, gizzard stones, and dung. • Fossils collected under a permit remain the property of the Federal government and must be placed in an approved repository (such as a museum or university) identified at the time of permit issuance. **Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:** • Locate, evaluate, and protect significant paleontological resources. Provide for public visitation and education opportunities while simultaneously protecting and supporting the scientific and research value of paleontological resources in the MPA. • Recreational collectors may collect and retain reasonable amounts of common invertebrate and plant fossils for personal, non-commercial use. Surface disturbance must be negligible, and collectors may only use non-power hand tools. • Casting of vertebrate fossils, including dinosaur tracks, is prohibited unless allowed under a scientific/research permit issued by the BLM Utah State Office. • Lands identified for disposal would be evaluated to determine whether such actions would remove significant fossils (see Appendix D) from Federal ownership. • Recognize and protect paleontological resources identified as part of the Dinosaur Diamond National Prehistoric Byway. • Prohibit petrified wood gathering within the Colorado Riverway Special Recreation Management Area (SRMA) to protect these paleontological resources for future public enjoyment. Prohibit private petrified wood collection only near high visitation sites within the Labyrinth Rims/Gemini Bridges SRMA. Manage petrified wood gathering outside these two SRMAs to allow for private collection of petrified wood (43 CFR 3620). • Prohibit commercial sales of petrified wood products due to limited availability of such resources. • Attach lease notices, stipulations, and other requirements to permitted activities to prevent damage to paleontological resources. • Manage Mill Canyon Dinosaur Trail, Copper Ridge Sauropod Trackway, and Poison Spider Track Site as important scientific and public education resources as guided by future SRMA activity-level plans. • Personal collection of a reasonable amount of invertebrate and plant fossils would be allowed throughout the MPA. Where areas with rare and significant invertebrate and plant fossils are identified, these areas would be closed to personal collection.			
RECREATION			
Goals and Objectives: To provide for multiple recreational uses of the public lands and sustain a wide-range of recreation opportunities and potential experiences for visitors and residents, while supporting local economic stability and sustaining the recreation resource base and sensitive resource values. **Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:** Management of recreation would be generally guided by the Utah Standards for Public Land Health and Guidelines for Recreation Management. The guidelines describe in a broad sense the conditions to be maintained or achieved for rangeland health within the recreation program. **Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:** • Where unacceptable damage to natural or cultural resources by recreational use is anticipated or observed, BLM would seek to limit or control activities by managing the nature and extent of the activity or by providing site improvements that make the activity more sustainable or by a combination of management controls and facility development. Such management actions would seek to reduce or eliminate the adverse impact while maintaining the economic benefits associated with a wide range of recreation uses. • BLM would consider and, where appropriate, implement management methods to protect riparian resources, special status species, and wildlife habitat while enhancing recreation opportunities. Management methods may include limitation of visitor numbers, camping and travel controls, implementation of fees, alteration of when use takes place, and other similar actions to be approved through normal BLM procedures. • BLM would coordinate management of recreation use with other agencies, State and local government and tribal units to provide public benefits. • Recreational off-highway vehicle (OHV) and mechanized travel would be consistent with area and route designations described in the travel management plan. BLM would work with agency and government officials and permit holders to develop procedures, protocols, permits or other types of authorization, as appropriate, to provide reasonable access for non-recreational use of OHVs for military, search and rescue, emergency, administrative, and permitted uses. • Dispersed camping is allowed where not specifically restricted. Dispersed camping may be closed seasonally or as impacts or environmental conditions warrant. All vehicle use associated with dispersed camping activities is required to stay on designated routes. • Management actions limiting camping, wood gathering, firewood cutting, and requiring use of fire pans and portable toilets implemented through published closures limitations, restrictions, or special rules applicable to specific land areas within the MPA are carried forward in all alternatives (see Consolidation of			

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Moab Field Office Rules, Closures, and Restrictions in Appendix E).

- Lands acquired within a management area through future land tenure adjustment would take on the management of the surrounding area.
- Provide visitor information and outreach programs that emphasize the value of public land resources and low impact recreation techniques while also providing information about recreation activities, experiences and benefits.
- Provide public information concerning the prevention of the spread of invasive and exotic weeds, and about wildlife species and their habitat especially in riparian areas.
- Continue to manage the Slickrock Bike Trail and Fisher Towers Trail as a National Recreation Trails consistent with their current secretarial designation. National Trails designation would be consistent with this plan.
- Continue supporting public use and enjoyment of the Prehistoric Highway National Scenic Byway. Assist with the development and implementation of a management plan.
- Support Grand County's efforts to obtain approval of corridor management plans for Utah Scenic Byways (Utah Highways 128, 313 and 279) and provide assistance, where feasible, in the development of byway facilities consistent with other decisions of the RMP.
- Continue to manage Kane Creek Road to Hurrah Pass and the roads to Needles, Anticline, and Minor overlooks as Utah Scenic Backways.
- BLM Back Country Byways and National Recreation Trails may be designated in the future as deemed appropriate with site-specific environmental analysis.
- Continue managing Kokopelli's Trail to facilitate its use as a potential segment of the American Discovery Trail. Seek to acquire public access along the entire route to facilitate potential designation as a National Recreation Trail.

Special Recreation Management Areas (SRMAs)

Management Common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D (see SRMA Maps 2-8-A through 2-8-D; see Appendix F for details on SRMAs):

- Criteria for establishment of SRMAs, or adding or revising SRMA boundaries (using the Plan Amendment process, where appropriate) include:
  - Recreation use requires intensive management strategies to provide recreation opportunities or maintain resource values.
  - A recreation area management plan or interdisciplinary plan with intensive and specific recreation management actions is approved.
  - BLM announces the management plan and plan approval through media.
- Generally, where SRMA boundaries are revised, management actions applicable to the original SRMA would also apply to the revised area.
- Manage all public lands within SRMAs for retention in Federal ownership consistent with the MFO exchange criteria and acquire high value non-Federal lands from willing sellers where such acquisition would further the purposes of each SRMA.
- Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) within 0.5 miles of developed recreation sites (current and planned as Potential Future Facilities; see each SRMA).
- Manage all SRMAs for sustainable camping opportunities. Camping may be restricted to designated sites if use and conditions warrant.
- Manage all SRMAs according to Visual Resource Management Class for each respective alternative to protect scenic values and settings important to recreation.
- Approved recreation facilities supporting recreation area management objectives would be planned and designed to reduce visual impacts where feasible (see Visual Resource Management).
- Replace The Colorado River SRMA (24,124 acres) with the Two Rivers, Colorado Riverway and Dolores River Canyons SRMAs (Maps 2-8-A through 2-8-D) to provide for more focused management.
- Provide general recreation management guidance and subsequent implementation of management actions for activity plan level actions for SRMAs through continuation and modification of approved recreation area management plans (RAMPs) and development of new RAMPs for all SRMAs.
- A River Management Plan for the Colorado River from the Colorado State Line to Castle Creek, and for the Dolores River, would be completed.
- Designate SRMAs as either Destination SRMAs (majority of visitation from outside the area), Community SRMAs (the majority of visitation is from the local community), or Undeveloped SRMAs (the focus of the SRMA is to maintain the backcountry setting.)

Facilities:

- Build and maintain additional recreation facilities consistent with the guidance provided in RAMPs and in the various focus areas as established in the RMP. In the absence of a RAMP, facilities may be considered through the NEPA process where they support the objectives of the SRMA.
- Campground facilities may be constructed; however, they would be located to avoid wetland, riparian, cultural resources, floodplains, and special status plant and animal species habitats. If avoidance is not possible, mitigation would be implemented to augment the values affected by the construction (MCA and Executive Orders).
- Continue to manage and maintain for recreation use all existing developed recreation sites. Follow site management guidance contained in RAMPs.
- Continue existing ROWs issued to BLM for all existing developed recreation sites and facilities. Issue similar protective ROWs for all new recreation facilities.
- Manage developed sites as necessary under the authority of 43 CFR Part 8360, inclusive of published closures, restrictions, and supplemental rules developed for the public lands within the MPA (see above), to protect visitor health and safety, reduce visitor conflicts, and provide for the protection of government property and resources.

Focus Areas or Recreation Management Zones (see Maps 2-9-A through 2-9-D; see Appendix F for more detail on SRMAs)

- Focus areas are Recreation Management Zones (RMZ) for emphasizing particular types of recreation activities while still allowing for other uses in accordance with the Travel Plan. As RMZs, Focus Areas are established as a mechanism for enhancing specific recreation opportunities through facilities and education such as route marking, parking, camping, and information. Where a single focus SRMA or a specific RMZ (Focus Area) is not identified, the default focus of that area is motorized, backcountry touring on designated roads. The roads are those identified in the Travel Plan accompanying this RMP.
- The following types of Focus Areas are considered under the alternatives: Non-mechanized Recreation, Mountain Bike Backcountry Touring, Motorized Backcountry Touring, Scenic Driving Corridors, Specialized Sport Venue Non-motorized, Specialized Sport Venue Motorized, and Managed Open OHV Area.

Bookcliffs SRMA

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Continue to manage the Bookcliffs for general recreation use.	The Bookcliffs SRMA (Map 2-8) would be established as an Undeveloped SRMA at 348,140 acres for non-mechanized recreation, especially equestrian use, hiking, backpacking, and big game hunting. It would be managed for low frequency of visitor interaction by not establishing new motorized, mechanized routes; no commercial motorized permits would be issued and competitive events would not be allowed.	The Bookcliffs SRMA would not be established.	The Bookcliffs SRMA would not be established.

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Cameo Cliffs SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
BLM authorization of the ROW to San Juan County for the Hook and Ladder OHV trailhead and several sections of connector route would continue. In June 2005, the Cameo Cliffs Special Recreation Area (Map 2-8) was designated under a Plan Amendment to the Grand RMP. OHV designation for the area is Limited to Designated Routes. The focus activity in the Cameo Cliffs SRMA is motorized route use.	Same as the Proposed Plan.	Manage the Cameo Cliffs area as a Destination SRMA (15,597 acres) under the Cameo Cliffs Recreation Area Management Plan. The Cameo Cliffs SRMA would provide sustainable opportunities for road-related motorized and mechanized outdoor recreation on a marked route system, and provide a non-mechanized hiking and equestrian area in Hook and Ladder Gulch and along the route of the Old Spanish Trail, while protecting and maintaining resource values including range, wildlife habitat, scenic, cultural, historical, recreational, and riparian values in current or improved condition. To facilitate use of the area for touring purposes, no motorized competitive events would be authorized. Work with San Juan County to further implement the Cameo Cliffs portion of the San Juan County All-terrain Vehicle Plan, and to protect and manage wildlife, vegetation, and cultural resources. Implement camping management rules as use levels and resource impacts warrant. **Potential Future Facilities:** Install Cameo Cliffs OHV Trailhead toilet.	Same as the Proposed Plan.
Canyon Rims SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Manage the Canyon Rims SRMA (101,531 acres) (Map 2-8) to protect, manage and improve the natural resources of the area while allowing for recreation activities such as developed camping, visiting scenic overlooks, auto touring on the primary road system, touring the secondary road system by motorized vehicle and mountain bike, and hiking and backpacking the canyons (in accordance with the ROS classes) utilizing interpretive and educational opportunities to realize the potential of the area. Major management actions include: 1. Manage the area as open to mineral leasing with controlled surface occupancy except for developed recreation sites, which would be managed as open to leasing with no surface occupancy. 2. Manage the area to maintain ROS classes as inventoried. 3. Acquire or exchange private and State lands from willing landowners. 4. Manage the entire area as OHV travel limited to existing roads (mapped as part of the planning process). 5. Manage the western rim land areas of Hatch Point as VRM Class II and the remainder of the area as VRM Class III. 6. Maintain and/or improve all existing developed recreation sites as specified in the Canyon Rims Recreation Area Management Plan. 7. Restrict camping near developed recreation sites. 8. Close the entire recreation area to wood cutting and gathering. 9. Manage Hatch Wash and the lower section of West Coyote Creek for primitive, non-motorized recreation. 10. Restrict backcountry motorized events to commercial and non-race special events on the Flat Iron Mesa Jeep Safari route only. 11. Consider development of additional trails and recreation facilities only as necessary.	Same as the Proposed Plan.	Same as Alternative A except: • Manage the Canyon Rims SRMA as a Destination SRMA (101,531 acres). • Motorized travel would be limited to designated roads and trails. • Manage the Windwhistle Nature Trail, Anticline Overlook Trail, Needles Overlook Trail, and Trough Spring Canyon Trail for hiking use only.	Same as the Proposed Plan.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Focus Area: Non-mechanized Recreation: N/A **Focus Area: Scenic Driving Corridors:** N/A	**Focus Area: Non-mechanized Recreation:** Same as the Proposed Plan. **Focus Area: Scenic Driving Corridors:** Needles and Anticline Roads – Utah Scenic Backways. Manage for scenic driving enjoyment. The corridor is defined as having a width of 1 mile from centerline (or to border of adjoining focus area).	**Focus Area: Non-mechanized Recreation (3,642 acres):** Hatch Wash Hiking and Backpacking Focus Area inclusive of the area from Goodman Canyon to the confluence of Hatch Wash with Kane Creek Canyon including the lower section of West Coyote Creek (from private land west to confluence with Hatch Wash) and the lower section of Troutwater Canyon. New motorized routes would not be considered. **Focus Area: Scenic Driving Corridors:** Needles and Anticline Roads – Utah Scenic Backways. Manage for scenic driving enjoyment. The corridor is defined as having a width of 1/2 mile from centerline (or to border of adjoining focus area).	**Focus Area: Non-mechanized Recreation:** The focus area would not be established. **Focus Area: Scenic Driving Corridors:** Needles and Anticline Roads – Utah Scenic Backways. Manage for scenic driving enjoyment. The corridor is defined as having a width of 1/4 mile from centerline (or to border of adjoining focus area).
Colorado Riverway SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
The Colorado Riverway (Map 2-8) was established as a recreation management area in 1992 and extended in 2001. Management has focused upon providing improvements to sites to facilitate recreation use and protection of scenic and other resource values. Subsequent recreation plan amendments have addressed camping in the Onion Creek area, the construction of a bike lane along SR 128 from the Porcupine Rim Trail to Lion's Park, the construction of a non-motorized bridge on non-Federal land at Lion's Park, and the establishment of a non-mechanized route system in the area between Onion and Professor Creeks. Major management actions include: 1. Acquiring specific tracts of State land. 2. Acquiring private lands or scenic easements from willing sellers. 3. Restricting motorized and mechanized travel to designated routes. 4. Developing and managing recreation facilities and uses. 5. Limiting camping and camp fires to designated sites. 6. Closing the area to firewood cutting and limiting firewood gathering to riverside driftwood. 7. Recommending withdrawal of the area from mineral entry. 8. Limiting use of the Fisher Towers, Negro Bill Canyon, Hunter Canyon, and Corona Arch trails to foot travel.* Lands along the Colorado River within the riverway are withdrawn from mineral entry through the Three Rivers Withdrawal.	Same as the Proposed Plan, except: • Expand boundary to include the entire Top of the World area and lands along the Entrada Bluffs Road up to the boundary of the Colorado River SRMA (103,467 acres). • Prohibit camping on the north side of the river along Highway 128. • Prohibit camping at the Kane Creek Crossing Area.	Colorado Riverway SRMA would be established as a Destination SRMA at 89,936 acres. Management would be the same as Alternative A with the following exceptions and additions: • Expand the boundary of the Colorado Riverway to include the lands north of the Entrada Bluffs Road to the boundary of the Two Rivers SRMA, as well as lands south of the Entrada Bluffs Road (one mile corridor). • Manage the Colorado Riverway as a Destination SRMA to manage camping, boating, river access, trail, and interpretive facilities in popular areas along or near the Colorado River and to protect the outstanding resource values of the area. Guidance for management is included in the Colorado Riverway Recreation Area Management Plan. • Manage the Dewey Bridge to Castle Creek portion of the Colorado River to provide opportunities for high use boating in a scenic setting (see Boating Management below). • Manage south shore recreation sites (from Dewey Bridge to Lion's Park) under the Colorado Riverway RAMP. • Manage the north shore to provide quality undeveloped designated camping and hiking opportunities while assuring protection of high quality habitat for bighorn sheep as well as for other resource values. • Manage the Kane Creek Crossing area to emphasize responsible designated camping and scenic touring. • Manage the Entrada Bluffs Road area to emphasize designated camping opportunities, and scenic touring. • Manage the Shafer Basin addition to emphasize scenic backcountry driving opportunities (no camping allowed in this area). • Manage the Amphitheater Loop, Fisher Towers, Negro Bill Canyon, Hunter Canyon, and Corona Arch trails and Professor Creek to provide high quality hiking-only opportunities while preserving ecological resources. • Provide for parking and manage the Kings Bench route (above the Kane Creek Road near the Kings Bottom camping area) as a hiking route. Obtain public access from a willing seller across the short section of private land that is located along the route. • Manage the seldom-used 1.5-mile long route (that spurs left from the Poison Spider Mesa Road) on the intermediate bench between the Colorado River and Poison Spider Mesa for hiking use. If future use levels warrant, develop a return hiking trail loop on the river side of the road bed. • Manage the Kane Creek Road to Amasa Back Jeep Road section of the Historic Jackson's Ladder trail as hiking and biking only.	Colorado Riverway SRMA would be established at 79,126 acres (this acreage excludes the Entrada Bluffs area). Management prescriptions would be the same as the Proposed Plan.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

		• Establish the proposed Pothole Arch and Rockstacker trails on Amasa Back (Kane Creek) as mountain bike routes. Work with Monticello Field Office to designate the Jackson's Ladder historic horse trail as a mountain bike trail from Jackson's Hole to the Amasa Back Jeep Road. Work with private land owners to secure non-motorized access to the bottom of this route. • Manage the Portal Trail to provide both hiking and mountain bike opportunities.	
Potential Future Facilities: N/A	**Potential Future Facilities:** • Entrada Bluffs Camping Area; camping in this area would be limited to this campground. • Hittle Bottom Group Campsites; camping in this area would be limited to this campground. • Kane Creek Crossing Camping Area; camping in this area would be limited to this campground. • Kane Creek Road Riverway Information Area. • Utah Highway 279 Riverway Information Area. • Wall Street climbing area toilet. • Lower Castle Creek Trail head and parking area. • Utah Highway 128 Bike Lane.	**Potential Future Facilities (in addition to those already in the Colorado Riverway Plan):** • Castle Valley Interpretive Site. • Entrada Bluffs Camping Area; camping in this area would be limited to this campground. • Hittle Bottom Group Campsites. • Kane Creek Crossing Camping Area. Work with SITLA to implement joint camping management in this area. • Kane Creek Road Riverway Information Area. • Lower Castle Creek Trail Access. • Poison Spider Dinosaur Track Trail. • Utah Highway 128 Bike Lane. • Utah Highway 279 Riverway Information Area. • Wall Street climbing area toilet.	**Potential Future Facilities:** Same as the Proposed Plan except: • Do not designate Entrada Bluffs Camping Area or limit camping. • Do not designate Hittle Bottom Group Campsites or limit camping. • Do not designate Kane Creek Crossing Camping Area or limit camping. • Do not construct Wall Street climbing area toilet.
Focus Areas: Non-mechanized Recreation: N/A	**Focus Areas: Non-mechanized Recreation:** Negro Bill Hiking and Ecological Study Focus Area (12,510 acres) inclusive of Negro Bill Canyon from the Sand Flats Recreation Area boundary to the eastern rim of Mat Martin Point with allowance for recreational mechanized use of the Porcupine Rim Trail from the junction approximately 1.55 miles east of Little Spring (upper exit to Sand Flats Road) to Highway 128. • Negro Bill Canyon would be restricted to day use only. Equestrian use of Negro Bill Canyon would be prohibited. • Manage the Porcupine Rim Trail to provide only hiking and mountain biking opportunities. Management of this trail may change pending resolution of wilderness designation for the Negro Bill Canyon WSA. • No new motorized routes would be considered. • Temporal zoning, permitting and vehicle type restrictions would be used to mitigate user conflicts on the Porcupine Rim Jeep Safari Route. Richardson Amphitheater/Castle Rock, Hiking, Climbing and Equestrian Focus Area: • Same as the Proposed Plan. • Up to 15 miles of equestrian trails would be marked within this focus area.	**Focus Areas: Non-mechanized Recreation:** Negro Bill Hiking and Ecological Study Focus Area (8,684 acres) inclusive of Negro Bill Canyon between the Sand Flats Recreation Area and the Porcupine Rim Trail. Manage for recreational mechanized use on the main portion of the Porcupine Rim Trail from the junction approximately 1.55 miles east of Little Spring (upper exit to Sand Flats Road) to Highway 128 (with the exception of the Porcupine Rim Trail to Coffeepot Rock which would be managed for motorized use.) • Manage the Negro Bill Canyon Trail for hiking use only. Equestrian use of Negro Bill Canon would be prohibited. • Manage the Porcupine Rim Trail to provide only hiking and mountain biking opportunities. Management of this trail may change pending resolution of wilderness designation for the Negro Bill Canyon WSA. • No new motorized routes would be considered. Richardson Amphitheater/Castle Rock, Hiking, Climbing and Equestrian Focus Area (24,767 acres) bounded by Fisher Valley, the rim of "Top of the World" escarpment, Highway 128, and non-Federal lands along the east side of the Castle Valley Road. Motorized use allowed on the Fisher Towers Road, the Onion Creek Road, roads serving private ranches and water developments in the Professor Valley area, and the motorized access route to the viewpoint of Professor Valley (the saddle between Adobe Mesa and Castle Rock) and the road to designated undeveloped campsites below Castle Rock. Work with Utah Open Lands (a private land conservation organization) to establish a semi-developed camping area to serve rock climbers. • The Onion Creek Benches equestrian trail system between Onion and Professor Creeks would be managed to provide opportunities for equestrian trail riding. An equestrian-oriented reservable camping area would be managed in Onion Creek upstream from Highway 128. Up to 30 miles of equestrian trails would be marked within this focus area. • Manage the Amphitheater Loop and Fisher Tower Trails for hiking only. • Consider connecting hiking trails between Onion Creek and the	**Focus Areas: Non-mechanized Recreation:** Negro Bill Hiking and Ecological Study Focus Area (1,287 acres) inclusive of the core of Negro Bill Canyon as identified in the 1985 RMP as the Negro Bill Canyon Outstanding Natural Area. • Equestrian use of Negro Bill Canyon would be prohibited. Richardson Amphitheater/Castle Rock, Hiking, Climbing and Equestrian Focus Area: • The Richardson Amphitheater/Castle Rock, Hiking, Climbing and Equestrian focus area would not be established.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

		Amphitheater Loop Trail.	
Focus Area: Scenic Driving Corridors: N/A	**Focus Area: Scenic Driving Corridors:** Same as the Proposed Plan, except increase scenic corridor average width to 1 mile from centerline or line of sight (whichever is shorter) or to border of adjoining focus area (see VRM for management prescriptions).	**Focus Areas: Scenic Driving Corridors:** These corridors include Highways 128 and 279 (which are both designated Utah Scenic Byways), as well as the Kane Creek/Hurrah Pass portion of the Lockhart Basin Scenic Backway and the BLM portion of the LaSal Mountain Loop Road Scenic Backway. Manage for scenic driving enjoyment. The corridor is defined as having a width of 1/2 mile from centerline, or line of sight or to border of adjoining focus area (whichever is shorter; see VRM for management prescriptions).	**Focus Area: Scenic Driving Corridors:** Same as the Proposed Plan, except reduce scenic corridor average width to 1/4 mile from centerline (or to border of adjoining focus area; see VRM for management prescriptions).
Focus Areas: Specialized Sport Venue, Non-motorized: N/A	**Focus Areas: Specialized Sport Venue, Non-motorized:** • No specialized sport venue-non motorized would be established. • BASE jumping would not be allowed in developed recreation sites.	**Focus Areas: Specialized Sport Venue, Non-motorized:** • Tombstone Competitive BASE Jumping Focus Area (42 acres): Manage Tombstone area to provide BASE jumping opportunities along the Kane Creek Road. BASE jumping would not be allowed in developed recreation sites. • Wall Street Sport Climbing Focus Area (44 acres) (with special protective measures taken for rock art): Manage Wall Street area to provide rock climbing opportunities along the Potash Road.	**Focus Areas: Specialized Sport Venue, Non-motorized:** Same as the Proposed Plan, except BASE-jumping would be allowed in all areas.
Boating Management: Dewey to Castle Creek: Continue the existing river management program on the Colorado and Dolores Rivers (24,000 passenger days per year: 30 commercial outfitters) to provide for the safe and enjoyable long-term use of the rivers.	**Boating Management:** Same as the Proposed Plan, except: • Dewey to Castle Creek: No restrictions on amount of private use would be established unless unacceptable resource impacts occur. Permit 20 unallocated and 2 allocated (100 user days each) commercial permits. Establish additional restrictions on amount of commercial use if conditions warrant based on desired resources objectives. • Camping would be restricted to existing campgrounds along the Colorado River from Dewey to Castle Creek. There would be no camping along the north side of the Colorado River.	**Boating Management:** • Dewey to Castle Creek: Manage to provide an opportunity for scenic, mild whitewater boating. No restrictions on amount of private use would be established unless unacceptable resource impacts occur. Permit 22 unallocated commercial permits. No further restrictions on amount of commercial use would be established. • Camping would be restricted to designated campsites along the north side of the Colorado River and existing campgrounds on the south side of the Colorado River.	**Boating Management:** Same as the Proposed Plan, except: • Dewey to Castle Creek: Permit 25 unallocated commercial permits. • River access camping by boaters would be allowed on the north side of the Colorado River and limited to existing campgrounds on the south side of the Colorado River. • Camping on the south side of the river: same as the Proposed Plan.
Dolores River Canyons SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Continue to manage the Dolores River Canyons area for general recreation use. BLM presently has no recreation management plan in place for the area except for private and commercial boating management. The Dolores River and its floodplain is an existing SRMA (Colorado River SRMA).	Same as the Proposed Plan.	Manage the Dolores River Canyons (Map 2-8) as an Undeveloped SRMA (31,661 acres). • Maintain high quality opportunities for non-motorized boating and day hiking or backpacking in a remote setting supported by basic trailheads, trails, and car camping facilities that support primitive, non-motorized use of the canyon system. • Major management actions would include prohibition of motorized and mechanized recreation use within the Dolores River's tributary canyons consistent with the Travel Plan. • No new motorized routes would be considered.	Dolores River Canyons SRMA would not be established.
Boating Management: Colorado State Line to Bridge Canyon: Continue the existing river management program on the Colorado and Dolores Rivers (24,000 passenger days per year: 30 commercial outfitters) to provide for the safe and enjoyable long-term use of the rivers.	**Boating Management:** Same as the Proposed Plan, except: • Colorado State Line to Bridge Canyon: establish maximum group size of 16 (including guides on commercial trips).	**Boating Management:** Colorado State Line to Bridge Canyon: Manage to provide opportunities for scenic whitewater boating trips. Permits required for private and commercial use. Establish maximum group size of 25 (excluding guides on commercial trips). Do not establish daily launch limits. Permit 14 unallocated commercial outfitters.	**Boating Management:** Dolores River Canyons SRMA would not be established.
Labyrinth Rims/Gemini Bridges SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
No specific recreation decisions were made under the Grand RMP for this area.	Same as the Proposed Plan, except:	Manage the Labyrinth Rims/Gemini Bridges area (Map 2-8) as a Destination	Establish Dee Pass SRMA (60,939 acres), consisting of the Dee Pass

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

BLM manages private boating use in Labyrinth Canyon in conjunction with the Utah Divisions of State Parks and Recreation and Fire, Forestry and State Lands under the terms of a cooperative agreement. The agreement establishes an interagency river permit system and coordinates implementation of common river protection rules including group size and use of fire pans and portable toilets. BLM also issues permits for shoreline use related commercial river trips. Lands along the Green River in Labyrinth Canyon were withdrawn from new entry under the mining laws through the Three Rivers Withdrawal. Front country type use takes place along SR 313 and the Island in the Sky Road. This highway was designated the Dead Horse Mesa Scenic Byway by the State of Utah in the early 2000s. To manage dispersed camping and protect scenic values, BLM established a 1-mile-wide corridor along SR 313 and the Island in the Sky Entrance Road where camping is limited to designated sites, wood cutting and firewood gathering are prohibited, and portable toilets are required. BLM currently limits camping in the corridor to the Horsethief Campground, the Big Mesa, and Cowboy Camp camping areas. BLM also limits camping and prohibits woodcutting and firewood gathering in a one-mile-wide corridor along the Gemini Bridges Road. Manage the small Cowboy Camp for tent camping and manage the Big Mesa area for group use. OHV and mountain bike travel are limited to existing roads and trails in the portion of the area south of the Ten mile Point Road (except for the Bartlett/ Tusher Slickrock area which was left open for 2 wheel riding). The area around the White Wash Sand Dunes is Open to OHV travel. In addition to the Mineral Bottom Takeout, BLM manages several additional facilities in the area including the Mill Canyon Dinosaur Interpretive Trail, the Halfway Stage Station Interpretive Site, and the Copper Ridge Sauropod Trackway Interpretive site. BLM also manages and maintains route markings (with user group assistance) on the Monitor and Merrimac, Seven Mile Rim, Poison Spider Mesa, Golden Spike, Goldbar Rim, Gemini Bridges, Lower Monitor and Merrimac, Bar M, and Klondike Bluffs routes which are used by both motorized and non-motorized visitors. The 3-D, Crystal Geyser, Hellroaring Rim, Secret Spire, and Wipeout Hill routes are authorized for Jeep Safari and other uses.	• The White Wash Sand Dunes and surrounding uplands would be managed to restore their ecological and scenic values and provide an opportunity for ecological interpretation and study. Emphasis would be placed upon protection of the cottonwood trees found in the open dune fields, water source protection, stream bank stabilization, and bighorn sheep habitat protection. Motorized travel in the White Wash area (like the rest of the SRMA) would be limited to designated routes. • Close the Bartlett/Tusher/Courthouse/Ten Mile area to camping.	SRMA (300,650 acres). General management guidance includes building upon current management as outlined in Alternative A with the following additions: • Continue issuing permits, for both private and commercial users, with common river protection rules for Labyrinth Rims/Gemini Bridges SRMA and consider extending the BLM/State cooperative agreement for management of non-commercial use to include management of commercial river use. If future use levels warrant, relocate the Mineral Bottom Takeout to a more suitable location and initiate cooperative site operations with the National Park Service. • Limit camping to designated sites in high-use areas including the Scenic Driving Corridors and all areas east of the Dubinky Well Road as well as along Ten Mile Wash. • Manage backcountry areas to facilitate scenic motorized touring on designated routes with special emphasis upon establishment of low-development, end of route parking areas and route signing. • Improve road to the Mill Canyon Dinosaur Trailhead to accommodate passenger car traffic. • Consider development of an alternative single-track mountain bike route on Poison Spider Mesa across the mesa top to the top of the Portal Trail.	motorized route system and the White Wash open OHV area. This area constitutes a subset of the Labyrinth Rims/Gemini Bridges area.
Potential Future Facilities: N/A	**Potential Future Facilities:** Same as the Proposed Plan, except: • There would be no campground constructed in Bartlett Wash. Camping would not be allowed in Bartlett Wash. • There would be no campground constructed at Courthouse Rock. Camping would not be allowed in the Courthouse Rock area.	**Potential Future Facilities:** • Bartlett Campground: camping in this area would be restricted to this campground. • Big Mesa Campground: camping in this area would be restricted to this campground. • Blue Hills Road OHV Trailhead. • Courthouse Rock Campground, camping in this area would be restricted to this campground. • Cowboy Camp Campground, camping in this area would be restricted to this campground. • Monitor and Merrimac Bicycle and OHV Trailhead relocation. • White Wash Sand Dunes OHV Parking and Camping Area. • Gemini Bridges Parking Area and Trailhead.	**Potential Future Facilities:** Same as the Proposed Plan, except: • Bartlett Campground would not be built; dispersed camping would be allowed in Bartlett. • Expand White Wash Sand Dunes OHV Base Area, including campground.
Focus Areas: Scenic Driving Corridors: N/A	**Focus Areas: Scenic Driving Corridors:** Highway 313 and the Island in the Sky Road (Dead Horse Mesa Utah Scenic Byway): Manage for scenic driving enjoyment. The corridor is defined as having a width of 1 mile from centerline (or to border of adjoining focus area; see Appendix C).	**Focus Areas: Scenic Driving Corridors:** Highway 313 and the Island in the Sky Road (Utah Scenic Byway): Manage for scenic driving enjoyment. The corridor is defined as having a width of 1/2 mile from centerline (or to border of adjoining focus area; see Appendix C).	**Focus Areas: Scenic Driving Corridors:** No scenic driving focus areas would be established.
Focus Areas: Non-mechanized Recreation:	**Focus Areas: Non-mechanized Recreation:**	**Focus Areas: Non-mechanized Recreation:**	**Focus Areas: Non-mechanized Recreation:**

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

N/A	• Goldbar/Corona Arch Hiking Focus Area (4,787 acres) covers the lands below the Golden Spike OHV route inclusive of the Culvert Canyon drainage to the southern rim of Long Canyon. Manage the Corona Arch Trail for hiking only. Develop a hiking loop route in Culvert Canyon from the canyon bottom up to Jeep Arch and back on the western bench of Culvert Canyon. Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to protect primitive hiking opportunities and scenic values. • White Wash Sand Dunes Ecological Study and Hiking Focus Area (9,708 acres) would be established. • Ten Mile Canyon Hiking and Equestrian Focus Area (1,871 acres) inclusive of Ten Mile Wash from Dripping Spring to the Green Riverwith equestrian use limited to the main canyon. • Spring Canyon Hiking Focus Area (457 acres) would be established upstream from the Spring Canyon Bottom Road. No new motorized routes would be considered. • Labyrinth Canyon Canoe Focus Area (8,182 acres) inclusive of the rims along the east side of Labyrinth Canyon from Placer Bottom to Canyonlands National Park excluding the Hey Joe Mine OHV and mountain bike route and the route downstream from Spring Canyon. Temporal zoning, permitting and vehicle type restrictions would be used to mitigate user conflicts on the Hey Joe Mine Route. • Seven Mile Canyons Equestrian Focus Area same as the Proposed Plan.	• Goldbar/Corona Arch Hiking Focus Area (4,191 acres) covers the lands below the Golden Spike OHV route inclusive of the Culvert Canyon drainage to the northern rim of Long Canyon exclusive of the main stem of the Day Point Road. Manage the Corona Arch Trail for hiking only. Develop a hiking loop route in Culvert Canyon from the canyon bottom up to Jeep Arch and back on the western bench of Culvert Canyon to the canyon to just up canyon from the railroad spur. Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to protect primitive hiking opportunities and scenic values. No new motorized routes would be considered. • White Wash Sand Dunes Ecological Study and Hiking Focus Area would not be established. • Ten Mile Canyon Hiking and Equestrian Focus area would not be established. • Spring Canyon Hiking Focus Area (457 acres) would be established upstream from the Spring Canyon Bottom Road. No new motorized routes would be considered. • Labyrinth Canyon Canoe Focus Area (7,709 acres) inclusive of the rims along the east side of Labyrinth Canyon from Placer Bottom to Mineral Bottom exclusive of the Hey Joe Mine OHV and mountain bike route. No new motorized routes would be considered. • Seven Mile Canyons Equestrian Focus Area (1,026 acres) inclusive of the north and south forks of Seven Mile Canyon westward from the junction of the two canyons. Equestrian use in this area would be restricted to private (non-commercial) horse use. No new motorized routes would be considered..	No non-mechanized focus areas would be established.
Focus Areas: Mountain Bike Backcountry Touring: N/A	**Focus Areas: Mountain Bike Backcountry Touring:** • Klondike Bluffs Mountain Biking Focus Area (14,626 acres) between Arches National Park and U.S. 191. Roads would be restricted to non-motorized access with the exception of Class B roads and the Copper Ridge Jeep Safari Route. Management same as the Proposed Plan (42 miles of road designated for motorized travel; 40 miles of route managed for mechanized use only). • Bar M Mountain Biking Focus Area (2,904 acres) between Arches National Park, U.S. Highway 191 and the Bar M area state lands, exclusive of motorized access for the Copper Ridge Jeep Safari Route and the 191 rock quarry access road. Convert selected existing routes to mechanized routes. Recommend that the old highway route in Moab Canyon be managed for non-motorized use to facilitate use of the route as part of the 191 bike lane (12 miles of road designated for motorized travel; 10 miles of route managed for mechanized use only). • Tusher Slickrock Mountain Biking Focus Area would not be established and would not available for slick rock mountain biking (there are no designated routes in this area). • Mill Canyon/Upper Courthouse Mountain Biking Focus Area would not be established. Manage the Mill Canyon Dinosaur Trail for hiking only.	**Focus Areas: Mountain Bike Backcountry Touring:** • Klondike Bluffs Mountain Biking Focus Area (14,626 acres) between Arches National Park and U.S. 191. Work with Grand County and SITLA to establish mountain-bike only opportunities in the Klondike area. Manage the Copper Ridge Sauropod Trackway Interpretive Trail for hiking only. • Bar M Mountain Biking Focus Area (2,904 acres) between Arches National Park, U.S. Highway 191, and the Bar M area state lands, exclusive of motorized access for the Copper Ridge Jeep Safari Route and the 191 rock quarry access road. Convert existing routes to mechanized use and provide for a limited number of new and connecting routes to support use of area as the destination for the 191 bike lane. Recommend that the old highway route in Moab Canyon be managed for non-motorized use to facilitate use of the route as part of the 191 bike lane. • Tusher Slickrock Mountain Biking Focus Area (428 acres) on slickrock between Bartlett and Tusher Washes with main access from Bartlett Wash to reduce traffic in Tusher Canyon. Manage the Tusher Canyon slickrock and Bartlett slickrock areas for mountain bike and hiking use only. Cross-country mountain biking across slick rock would be allowed throughout this area.	**Focus Areas: Mountain Bike Backcountry Touring:** No mountain bike backcountry touring focus areas would be established.
Focus Area: Motorized Backcountry Touring:	**Focus Area: Motorized Backcountry Touring:**	• Mill Canyon/Upper Courthouse Mountain Biking Focus Area (5,744 acres) inclusive of areas within the Mill Canyon and upper Courthouse drainages with continued use of the Seven Mile Rim Jeep Safari route for motorized use, with non-motorized trailheads near the Mill Canyon Dinosaur Trail and the Halfway Stage Station. Manage the Mill Canyon Dinosaur Trail for hiking only (35 miles of road designated for motorized travel; 23 miles of route managed for mechanized use only). **Focus Area: Motorized Backcountry Touring:**	**Focus Area: Motorized Backcountry Touring:**

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

N/A	Gemini Bridges/Poison Spider Mesa Focus Area would not be established.	Gemini Bridges/Poison Spider Mesa Focus Area (16,299 acres) for multiple use, including full-size OHV, ATV, and motorcycle use with consideration given to managing routes suitable for each vehicle type. Travel would be intensively managed on designated routes only. Close the spur route to Gemini Bridges to facilitate public use and help restore damaged lands along the spur route. Construct a parking area near the bridges.	• No motorized backcountry touring focus areas would be established.
Focus Areas: Specialized Sport Venues (Non-motorized): N/A	**Focus Areas: Specialized Sport Venues (Non-motorized):** • Mineral Canyon/Horsethief Point Competitive BASE Jumping Focus Area would not be established. • Bartlett Slickrock Freeride Focus Area would not be established.	**Focus Areas: Specialized Sport Venues (Non-motorized):** • Mineral Canyon/Horsethief Point Competitive BASE Jumping Focus Area (762 acres) would be established. • Bartlett Slickrock Freeride Focus Area (166 acres) would be established. No man-made structures would be added to facilitate "stunt riding."	**Focus Areas: Specialized Sport Venues (Non-motorized):** • No specialized sport venues (non-motorized) would be established.
Focus Areas: Specialized Sport Venue (Motorized): N/A	**Focus Areas: Specialized Sport Venue (Motorized):** • Dee Pass Motorized Trail Focus Area would not be established. • Airport Hills Motocross Focus Area would not be established.	**Focus Areas: Specialized Sport Venue (Motorized):** • Dee Pass Motorized Trail Focus Area (35,290 acres) for motorcycle and ATV use: This is the area for competitive motorized events. Competitive routes within this area would be identified based on site-specific NEPA analysis. All routes designated for motorized use in the accompanying Travel Plan would remain open while Section 106 cultural resource inventories are conducted. If these inventories indicate the presence of eligible sites within the travel corridor, the route would be altered or closed. All new routes would require Section 106 cultural resource inventory prior to designation. Establish a managed OHV route system with provision for ongoing management of existing single-track routes to maintain their single-track character. • Airport Hills Motocross Focus Area (285 acres): Manage the focus area for motocross use in partnership with local government under the Recreation and Public Purposes Act. A patent would be issued to local government.	**Focus Areas: Specialized Sport Venue (Motorized):** • Dee Pass Motorized Trail Focus Area (57,875 acres) for motorcycle and ATV use: This is the area for competitive motorized events. Competitive routes within this area would be identified based on site-specific NEPA analysis. All routes designated for motorized use in the accompanying Travel Plan would remain open while Section 106 cultural resource inventories are conducted. If these inventories indicate the present of eligible sites, the route would be altered or closed. All new routes would require Section 106 cultural resource inventory prior to designation. Establish a managed OHV route system with provision for on-going management of existing single-track routes to maintain their single-track character.
Focus Areas: Managed Open OHV Areas (cross country travel allowed): N/A	**Focus Areas: Managed Open OHV Areas (cross country travel allowed):** • No open areas for OHV use would be designated on public lands in the MPA. • Open OHV use areas would not be considered for lease or patent under the Recreation and Public Purposes Act.	**Focus Areas: Managed Open OHV area (cross country travel allowed):** • White Wash Sand Dunes Open OHV Focus Area, (1,866 acres) encompassing the area round the dunes themselves. Manage the central portion of the White Wash Sand Dunes for motorized sand play with exception of the dune field cottonwood trees and White Wash water sources which would be closed to motorized travel and fenced. • Limit camping use in the White Wash Sand Dunes area to designated sites and establish basic camping facilities on the bench on the north side of White Wash. • Implement a fee system, under the guidelines of the Federal Land Recreation Enhancement Act, to help fund cost of intensive management of the White Wash Sand Dunes area.	**Focus Areas: Managed Open OHV Areas (cross country travel allowed):** • Greater White Wash Sand Dunes Open OHV Focus Area (3,064 acres) bounded by the Duma Point Road, the Red Wash/Ruby Ranch Road, and portion of the Crystal Geyser Jeep route between the Ruby Ranch Road and the Duma Point Road. Manage the entire Greater White Wash Sand Dune area as Open to OHV use for motorized sand play except for the dune field cottonwood trees and White Wash water sources which would be closed to motorized travel and fenced. • Limit camping use in the White Wash Sand Dunes area to designated sites and establish basic camping facilities on the bench on the north side of White Wash. • Implement a fee system to help fund cost of intensive management of the White Wash Sand Dunes area.
Lower Gray Canyon SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Continue existing management as described in the 1979 Desolation-Gray Canyons Management Plan prepared by the BLM Price Field Office.	Same as the Proposed Plan.	• Manage the Lower Gray Canyon SRMA (3,759 acres within the MPA; see Map 2-8) as a Destination SRMA in coordination with the Price Field Office. • Manage river recreation in accordance with the Desolation-Gray Canyons Management Plan. • Manage the existing riverside and the parallel bench route loop trails from Nefertiti Rapid to Rattlesnake Canyon for hiking and equestrian use. • Vehicle camping limited to designated sites.	Lower Gray Canyon SRMA would not be established.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Sand Flats SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
The Sand Flats RAMP was approved in August of 1994. Management of the Sand Flats Recreation Area is also supported by the June 1994 Cooperative Agreement with Grand County, which authorizes the county to collect fees for the benefit of the recreation area and participate in the operational management of the area to help implement the recreation area management plan. The plan includes: 1. Acquisition of State lands through exchange. 2. OHV travel limited to designated roads and trails. 3. Provision for entrance and use fees. 4. Development of campgrounds. 5. Potential development of a drinking water source. 6. Provision for parking lots at the Slickrock and Little Spring trailheads. 7. Installation of toilets. 8. Development of an entrance station. 9. Provision for visitor protection. 10. Information and various services. 11. Limit camping to designated sites. 12. Limit OHV and mountain bike travel to designated routes. 13. Prohibit wood collecting and gathering.	Same as the Proposed Plan, except: • Close the Moab Slickrock Bike Trail to all motorized vehicles.	Same as Alternative A, plus: • Manage the Sand Flats Area (Map 2-8) as a Destination SRMA (6,246 acres). Guidance for management is included in the Sand Flats RAMP. • Close the Moab Slickrock Bike Trail to four-wheeled vehicles and ATV use for safety purposes. • The Slickrock Bike Trail would be open to motorcycles and mountain bikes only. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to protect recreation and scenic values.	Same as the Proposed Plan, except: • Establish a Slickrock mountain bike free-ride area. • Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) to protect scenic values (VRM Class II).
South Moab SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Continue to manage the Mill Creek Power Dam hiking trailhead, the Ken's Lake Recreation Site, the Hidden Valley hiking trailhead and the Blue Hill multi-use trailhead and undeveloped camping area as recreation sites. Continue to manage the Mill Creek Canyon hiking trails, the Ken's Lake hiking trail system, the Hidden Valley Hiking trail, the Steelbender/Flat Pass OHV/ mountain bike route, the Behind the Rocks OHV route, the Strike Ravine OHV route, and the Kane Creek Canyon Rim OHV/mountain bike route as recreation routes. Continue to limit camping to designated sites and prohibit wood gathering and cutting along the Black Ridge Road, the Pack Creek Road, the LaSal Mountain Loop Road and the Kane Creek Canyon Rim Road out to the Picture Frame Arch area. Prohibit camping on the west side of Spanish Valley, and in Mill Creek.	Same as the Proposed Plan.	Manage the South Moab SRMA (Map 2-8) as a Destination SRMA (63,999 acres). • Same as Alternative A, except provide additional emphasis upon development of non-motorized trails through agreements with neighboring land owners through preparation of management guidance covering the Ken's Lake area. • Work with Grand and San Juan counties to establish the New Spanish Trail Bicycle Lane to provide safe bicycle access from Canyonlands Field to the Pack Creek Picnic Area. • Work with Moab City and Grand County to extend the Mill Creek Parkway to the Power Dam trailhead to provide safe access for cyclists and hikers. • Formalize and continue the existing partnership with the water district to share management expenses at Ken's Lake.	South Moab would not be established as an SRMA.
Continue to manage Ken's Lake as a developed recreation site in partnership with the holders of the ROW for Ken's Lake (Spanish Valley Water and Sewer District). Continue to manage the Mill Creek Canyon planning area in accordance with the approved interdisciplinary Mill Creek Canyon Management Plan.		• Manage the Mill Creek Canyon planning area in accordance with the approved interdisciplinary management plan (as in Alternative A). • Work with Grand County, SITLA, and private land owners to establish the "Power line" trail along the west side of Moab and Spanish Valleys from Kane Creek Road near the river portal south via the Hidden Valley Trailhead to the southern end of the Behind the Rocks area. • Work with San Juan and Grand Counties, SITLA, and private land owners to establish the Red Rock Horse Trail along the east side of Spanish Valley via Ken's Lake from the Johnson's Up-on-Top Road to the Loop Road/Pack Creek junction area. • Work with the Backcountry Horsemen, SITLA and San Juan County to establish *equestrian riding loop routes south from the Ken's Lake Trailhead.*	

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Focus Areas: Scenic Driving Corridors: N/A	**Focus Areas: Scenic Driving Corridors:** LaSal Mountain Loop Road Scenic Backway: Manage for scenic driving enjoyment. The corridor is defined as: having a width of 1 mile from centerline (or to border of adjoining focus area; see Appendix C).	**Focus Areas: Scenic Driving Corridors:** LaSal Mountain Loop Road Scenic Backway. Manage for scenic driving enjoyment. The corridor is defined as: having a width of 1/2 mile from centerline (or to border of adjoining focus area) (see Appendix C).	**Focus Areas: Scenic Driving Corridors:** South Moab would not be established as an SRMA.
Focus Areas: Non-mechanized Recreation: N/A	**Focus Areas: Non-mechanized Recreation:** • Mill Creek Canyon Hiking Focus Area: Same as the Proposed Plan, except include motorized routes identified in the Travel Plan for this alternative. Temporal zoning, permitting and vehicle type restrictions would be used to mitigate user conflicts on the Steel Bender Routes. • Behind the Rocks Hiking Focus Area: Same as the Proposed Plan. Temporal zoning, permitting, and vehicle type restrictions would be used to mitigate user conflicts on the Pritchett Canyon and Moab Rims. Hunter Canyon Rim Road at the end of the Jeep Safari route is available for mountain bike travel. • Manage Hidden Valley Trail as non-mechanized only.	**Focus Areas: Non-mechanized Recreation:** • Mill Creek Canyon Hiking Focus Area (16,950 acres) inclusive of the north and south forks of Mill Creek, Rill Creek, and Burkholder Draw south to the LaSal Mountain Loop Road with motorized use limited to the Steelbender OHV route and routes identified in the Travel Plan for this alternative. Emphasize management of the core area of Mill Creek to provide primitive hiking opportunities. Commercial equestrian use of Mill Creek Canyon and its tributaries would be prohibited except for use along the Steelbender/Flat Pass OHV/mountain bike route. No new motorized routes would be considered. • Behind the Rocks Hiking Focus Area (17,536 acres) inclusive of the area currently closed to motorized use in the 1985 RMP and the Hunter Canyon area between Pritchett Canyon and the eastern rim of Kane Creek Canyon exclusive of the Pritchett Canyon and Behind the Rocks OHV route. Manage the Hunter Canyon trail for hiking only. Emphasize the management the core area of Behind the Rocks to provide primitive hiking opportunities. No new motorized routes would be considered.	**Focus Areas: Non-mechanized Recreation:** South Moab would not be established as an SRMA.
Focus Area: Mountain Bike Backcountry Touring: N/A	**Focus Area: Mountain Bike Backcountry Touring:** Same as the Proposed Plan.	**Focus Area: Mountain Bike Backcountry Touring:** Upper Spanish Valley Mountain Biking Focus Area (2,255 acres; Mud Spring Area) for development of a beginner to intermediate skill level mountain bike trail system through conversion of existing routes and development of new routes. Work with SITLA to expand route system on adjacent state lands.	**Focus Area: Mountain Bike Backcountry Touring:** South Moab would not be established as an SRMA.
Focus Area: Specialized Sport Venue (Non-motorized): N/A	**Focus Area: Specialized Sport Venue (Non-motorized):** Same as the Proposed Plan.	**Focus Area: Specialized Sport Venue (Non-motorized):** 24 Hours of Moab Focus Area (2,905 acres) would be established to facilitate mountain bike speed-related events.	**Focus Area: Specialized Sport Venue (Non-motorized):** South Moab would not be established as an SRMA.
Focus Area: Specialized Sport Venue (Motorized): N/A	**Focus Area: Specialized Sport Venue (Motorized):** Potato Salad Hill spur route would be closed to motorized travel.	**Focus Area: Specialized Sport Venue (Motorized):** Potato Salad Hill Climbing Focus Area (41 acres) would be established within the boundary of the fenced areas emphasizing hill climbing events. Parking limitations would be established to limit vehicle group size.*	**Focus Area: Specialized Sport Venue (Motorized):** South Moab would not be established as an SRMA.
Two Rivers SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
The 1985 RMP provided for continuation of the river management program, which was initiated in early 1970s in response to increased demand for recreational boating. Existing management of the Colorado River focuses upon providing facilities and management to support and regulate commercial and private river use of the Colorado and Lower Dolores Rivers. Management activities are described in the annual Colorado and Dolores Rivers operating plan.	Same as the Proposed Plan.	Manage the Two Rivers SRMA (29,839 acres) as a Destination SRMA (Map 2-8) with the objective of continuing to provide distinct, high quality opportunities for recreational boating and camping, and to protect the outstanding resource values. Use launch systems and campsite assignments to reduce inter-party contacts.	Manage the Two Rivers SRMA (14,056 acres) as a Destination SRMA with the objective of continuing to provide distinct, high quality opportunities for recreational boating and camping. Use launch systems and campsite assignments to reduce inter-party contacts.
Boating Management: Continue the existing river management programs on the Colorado and Dolores Rivers (24,000 passenger days per year; 30 commercial outfitters) to provide for the safe and enjoyable long-term use of the rivers.	**Boating Management:** Same as the Proposed Plan except: • State Line to Westwater Ranger Station: Seek to manage for moderate use flat water boating in conjunction with the Ruby/Horsethief Canyons section in Colorado. • Westwater Canyon: Manage to provide an opportunity for whitewater boating in a highly primitive and very remote setting. Establish maximum group size of 16 (including guides on commercial trips). Establish daily launch limit of 48 people for each sector.	**Boating Management:** • State Line to Westwater Ranger Station: Manage for relatively high use flat water boating in conjunction with the Ruby/Horsethief Canyons section in Colorado. Co-administer a private boating or parking permit system and user limitations and fees in conjunction with Colorado BLM as a means of providing for adequate take-out. • Westwater Canyon: Manage to provide an opportunity for whitewater boating in a primitive and remote setting. Permits required for private and commercial use. Distribute potential use levels equally from May 1 to	**Boating Management:** Same as the Proposed Plan, except: • State Line to Westwater Ranger Station: Seek to manage for of high use flat water boating in conjunction with the Ruby/Horsethief Canyons section in Colorado. • Westwater Canyon: Manage to provide an opportunity for whitewater boating in a semi-primitive (social only) and remote setting. Establish maximum group size of 32 (including guides on commercial trips). Establish daily launch limit of 128 people for each sector.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	• Cisco Landing to Dewey Bridge: For private use, no restrictions on amount of private use would be established unless warranted by future use levels. Permit 20 unallocated and 2 allocated (100 user days each) commercial permits. Establish additional restrictions on amount of commercial use if conditions warrant based on desired resource objectives. • Dolores River from Bridge Canyon to its confluence with the Colorado River: Establish maximum group size of 16 (including guides on commercial trips).	September 30 (allocation season) between private and commercial sectors (including guides). Establish maximum private group size of 25 people and a daily launch limit of 75 people. For commercial use, establish a maximum trip size of 25 passengers, plus one crew member per passenger carrying craft, plus two additional crew. Establish a commercial daily launch limit of 75 passengers. Permit 18 commercial outfitters. • Cisco Landing to Dewey Bridge: Manage to provide an opportunity for scenic flat water boating or as an extension of Westwater Canyon trips. For private use, no restrictions on amount of use would be established. Permit 22 unallocated commercial permits. No further restrictions on amount of commercial use would be established. Manage the Dewey Bridge Recreation Site under the Colorado Riverway RAMP. • Dolores River from Bridge Canyon to its confluence with the Colorado River: Manage to provide opportunity for scenic whitewater boating trips. Permits required for private and commercial use. Establish maximum group size of 25 (excluding guides on commercial trips). Do not establish daily launch limits. Permit 14 unallocated commercial outfitters.	• Cisco Landing to Dewey Bridge: Permit 25 unallocated commercial permits. • Dolores River from Colorado State Line to its confluence with the Colorado River: Establish maximum group size of 32 (excluding guides on commercial trips.
Potential Future Facilities: N/A	**Potential Future Facilities:** Same as the Proposed Plan, except do not seek to develop a take-out facility separate from the Westwater Ranger Station launch ramp.	**Potential Future Facilities:** Acquire additional lands at the Westwater Ranger Station to include additional camping, parking and launch facilities. Seek to develop a take-out facility separate from the Westwater Ranger Station launch ramp to reduce congestion at the ranger station. Seek opportunities to expand legal and physical access to facilitate camping at the Ranger Station.	**Potential Future Facilities:** Same as the Proposed Plan.
Focus Area: Non-mechanized Recreation: N/A	**Focus Area: Non-mechanized Recreation:** Same as the Proposed Plan.	**Focus Area: Non-mechanized Recreation:** • Establish the Westwater Canyon River Use and Hiking Focus Area (23,479 acres) inclusive of Westwater Canyon along the Colorado River between Westwater Ranch and Rose Ranch and the surrounding uplands. • New motorized routes would not be considered.	**Focus Area: Non-mechanized Recreation:** The focus areas would not be established.
Utah Rims SRMA			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Continue to manage the Utah Rims area for general recreation use. BLM presently has a limited management program in place for the area included in the proposed Utah Rims SRMA. Manage the Kokopelli's Trail for recreation use. Manage Bitter Creek Campsite for camping. Continue limiting travel to existing routes.	Same as the Proposed Plan, except: • No new recreational routes would be established.	Manage the Utah Rims area (Map 2-8) as a Community SRMA (15,424 acres) to provide sustainable opportunities for motorized, mechanized and non-motorized route related recreation while protecting and maintaining resource values including range, wildlife habitat, scenic, cultural, recreational, and riparian values in current or improved condition. Work with Colorado BLM to coordinate management of the Utah Rims and Rabbit Valley Colorado areas. Management actions would include: 1. Limiting motorized and mechanized travel to a designated road and route system, including where feasible, the establishment and management of a network of single-track routes. 2. Acquisition of public access across non-Federal lands for the route system. 3. Development of a staging area. 4. Potential separation of types of single-track route use by time period. 5. Limited provision of camping facilities. 6. Prohibition of competitive, motorized events on the single-track route system to maintain its single-track nature. Add single-track routes to the route system on a case-by-case basis pending resolution of resource concerns.	Utah Rims SRMA would not be established.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Moab Extensive Recreation Management Area (ERMA) Establishment

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- Manage all lands within the MPA not within an SRMA as the Moab Extensive Recreation Management Area (ERMA; see Maps 2-8-A through 2-8-D and Appendix F).
- ERMA lands may be designated as SRMAs in the future based on intensity of use and would be analyzed through the plan amendment process.
- Minimal facilities may be constructed in the ERMA as needed to insure visitor health and safety, reduce user conflict, and protect resources.
- Provide general recreation management guidance and subsequent implementation of management actions for activity plan level actions for the Moab ERMA through development of a Recreation Area Management Plan (RAMP). Address both site-related issues (development and management in response to user demand and changing conditions) and backcountry management issues (the retention of backcountry characteristics, e.g., low level of development, relative lack of crowding, and feeling of remoteness).
- Amend the RMP, as necessary, for RMP level recreation and non-recreation actions proposed through the RAMP developed subsequent to RMP approval.
- Manage OHV travel as limited to designated routes or closed, depending on the specific area (see Travel Management section, beginning on page 2-47).
- Monitor recreation activity in the Moab ERMA to maintain recreation opportunities and protect resource values.

Moab ERMA Management Guidance

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Continue making improvements to sites and areas as necessary and supported by activity and project level planning to balance demand for recreation opportunities and protection of the recreation resource base. Continue to manage the Utah portion of the Kokopelli's Trail as a multi-day mountain bike and vehicle route (in part) with associated camping areas.	Same as the Proposed Plan, except: • Upper Fisher Mesa would not be managed to emphasize mountain biking use.	• Continue making improvements to sites and areas as necessary and supported by activity and project level planning to balance demand for recreation opportunities and protection of the recreation resource base. • Continue to manage the Utah portion of the Kokopelli's Trail as a multi-day mountain bike and vehicle route (in part) with associated camping areas. • Develop basic camping and trailhead facilities to serve the Lost Spring Canyon area should use levels and impacts warrant. • Construct information boards at the main exits along I-70 to inform visitors about recreation opportunities, travel management, low impact recreation techniques, and visitor safety issues. • Upper Fisher Mesa (1,365 acres) would be managed to emphasize mountain biking. BLM would convert existing roads and provide new connecting routes for bicycle use in conjunction with the existing bike route within the Manti-LaSal National Forest. Motorized access would be retained along the main existing Fisher Mesa access road. • Manage the Bookcliffs area (335,457 acres) for non-mechanized recreation, especially equestrian use, hiking, backpacking and big game hunting. It would be managed for low frequency of visitor interaction by not establishing new motorized or mechanized recreation routes, no commercial motorized permits would be issued, and competitive events would not be allowed. • Manage the Sego Canyon Rock Art Site as a day use recreation area. Consider acquisition of the adjacent private rock art area north of the interpretive site to expand interpretive opportunities.	Same as the Proposed Plan, except: • Manage the Bookcliffs area (141,679 acres) for non-mechanized recreation, especially equestrian use, hiking, backpacking and big game hunting. It would be managed for low frequency of visitor interaction by not establishing new motorized or mechanized recreation routes, no commercial motorized permits would be issued, and competitive events would not be allowed.

General Policy for Issuance and Management of Special Recreation Permits (SRPs)

Management Common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- SRPs would be issued as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs would be applied where appropriate.
- Priority for authorization of new SRPs for events would be given to applicants proposing uses that: do not duplicate existing events; take place outside of March, April, May, and October; make use of less-crowded weekdays; utilize facilities off public lands for overnight accommodation of guests; display and communicate the Canyon Country Minimum Impact Practices; and focus visitation on sites and areas capable of withstanding repeated use.
- All SRPs would contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns.
- There would be no competitive mechanized or motorized events in Wilderness Study Areas while these areas are managed under the IMP.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Continue to issue and manage special recreation permits (e.g., four-wheel drive vehicle tours, horseback trips, bear hunting camps, survival school) to enhance outdoor recreational opportunities and provide business opportunities for	Same as the Proposed Plan, except: • Increased emphasis would be placed upon mitigating the impacts of new	• Issue and manage special recreation permits for a wide variety of uses to enhance outdoor recreational opportunities, provide opportunities for private enterprise, manage user-group interaction, and limit the impacts of	• Same as the Proposed Plan, except that increased emphasis would be placed upon realizing positive economic and community benefits through SRP management.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

private enterprise. Continue to permit competitive and noncompetitive OHV events.	uses in support of conservation of natural and cultural resource values. • Organized group permits required for groups with 15 or more vehicles (one driver/vehicle.)	such uses upon natural and cultural resources. • Organized group permits required for groups with 25 or more vehicles (one driver/vehicle.)	• Organized group permits required for groups with 50 or more vehicles (one driver/vehicle.)
RIPARIAN			
Goals and Objectives: • Manage riparian areas for properly functioning condition (PFC) and ensure stream channel morphology and functions are appropriate for local soil type, climate, and landform. • Avoid or minimize the disturbance, loss, or degradation of riparian, wetland, and associated floodplains; preserve and enhance natural and beneficial values; and provide for fish, wildlife and special status species habitats. **Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:** • Manage riparian resources for PFC, which is described as the presence of adequate vegetation, landforms, or large woody debris, in accordance with the Utah Standards for Public Rangeland Health and Guidelines for Recreation Management for BLM Lands in Utah and with the Grazing Guidelines for Grazing Management. • Retain the Between the Creeks, North Sand Flats, and South Sand Flats Allotments as not available for grazing to benefit riparian resources. These allotments include the following streams: Negro Bill Canyon, portions of Mill Creek, and Rill Creek. • Mitigation to reduce impacts to floodplains and riparian areas include (from Standards for Public Land Health and Guidelines for Recreation Management for BLM Lands in Utah and BLM Riparian Manual 1737): 1. Where feasible and consistent with user safety, developed travel routes would be located/relocated away from sensitive riparian/wetland areas. 2. Camping in riparian areas would be avoided and must be managed, monitored, and modified as conditions dictate to reduce vegetation disturbance and sedimentation. 3. Stream crossings would be limited in number dictated by the topography, geology, and soil type. Design any necessary stream crossings to minimize sedimentation, soil erosion and compaction (minimize longitudinal routes along stream banks, design crossings perpendicular to the stream). 4. Where necessary, control recreational use by changing location or kind of activity, season, intensity, distribution and/or duration. 5. Grazing actions to meet riparian objectives include vegetation use limits, fencing, herding, change of livestock class, temporary closures, change of season, and/or alternate development or relocation of water sources. 6. Any water diversions from riparian areas by BLM or non-BLM entities would be designed and constructed to protect ecological processes and functions. 7. Implement weed management stipulations and education to reduce spread of noxious weeds along stream corridors. 8. To the extent possible, mineral removal and lease development (including placer mining) must be located away from water's edge and outside of riparian/wetland zones. **Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:** • Limit activities in riparian areas, as necessary, to achieve and maintain PFC. • Grazing actions to meet riparian objectives can include fencing, herding, change of livestock class, temporary closures, and/or change of livestock season of use. • Preclude surface-disturbing activities within 100-year floodplains, 100 m of riparian areas, public water reserves, and 100 m of springs. • Prioritize restoration activities in riparian systems that are Functioning at Risk or Non-functioning. • Continue to apply integrated species management to accomplish riparian restoration through biological, chemical, mechanical, and manual methods (e.g., tamarisk control, willow plantings). • Acquire riparian lands and water resources (from willing sellers) to preserve and maintain riparian habitat and instream flow. • Do not dispose of riparian or wetland resources unless resource loss is mitigated. • Develop watershed management plans for impaired systems as identified in current TMDL reports (e.g., Onion Creek, Mill Creek, and Castle Creek). • Close riparian areas to woodcutting, except where permitted for traditional cultural practices identified for Native Americans or for restoration to benefit riparian values. • Establish Lower South Fork of Seven Mile Canyon as a Riparian/Wetland Demonstration Area for the improvement and restoration of riparian, wetland and wildlife resources. • Grazing would not be authorized on portions of the following streams (listed with affected allotments): the Colorado River from Dewey Bridge to Hittle Bottom (Professor Valley), and Lower Kane Creek (Kane Creek Springs). • Management strategies would be implemented to restore degraded riparian communities, protect natural flow requirements, protect water quality, and manage for year-round flow.			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Grazing Actions: • Retain the Between the Creeks, North Sand Flats, South Sand Flats, Spring Creek, Castle Valley, Pear Park, Bogart, Cottonwood and Diamond Allotments as not available to grazing to benefit riparian resources. • Maintain the reduction of AUMs in the Cisco Allotment (1,819 AUMs allocated to livestock).	**Grazing Actions:** • Evaluate non-functioning and functioning at risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if exclusion from grazing would improve riparian functioning condition. • The following riparian areas would be given priority for evaluation: Lower Gray Canyon of the Green River from Rattlesnake Canyon to Swasey's Beach, Ten Mile from Dripping Spring to the Green River, Mill Creek, Seven Mile Canyon, East Coyote, Kane Springs, and Hatch Wash (totaling 4,673 acres). • BLM would be required to build and maintain fences and provide access to water in Seven Mile Wash, and East Coyote wetland areas. • Cottonwood, Bogart and Diamond Allotments (which include Cottonwood and Diamond Canyons) would continue to not be available	**Grazing Actions:** • Evaluate non-functioning and functioning at risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if restriction from grazing would improve riparian functioning condition. The following riparian areas would be given priority for evaluation: Ten Mile from Dripping Spring to the Green River, Mill Creek, Seven Mile Canyon, and East Coyote (totaling 1,420 acres). • Cottonwood, Bogart, Pear Park and Diamond Allotments (which include Cottonwood and Diamond Canyons) would continue to be not available to grazing to benefit riparian resources. Castle Valley would also not be available for grazing. Spring Creek would be available for grazing.	**Grazing Actions:** • Grazing management in riparian areas would be identical as described in Alternative A, except that Spring Creek, Pear Park, Castle Valley, Cottonwood, Diamond and Bogart Allotments would be available for grazing.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	to grazing to benefit riparian resources. Castle Valley, Spring Creek and Pear Park would also be not available for grazing.		
Season-of-Use: N/A	**Season-of-Use:** Season of use adjustments would be made on a case-by-case basis to achieve PFC.	**Season-of-Use:** Season of use adjustments would be made on a case-by-case basis to achieve PFC.	**Season-of-Use:** Season of use adjustments would be made on a case-by-case basis to achieve PFC.
Watershed Management Plans: Not specified.	**Watershed Management Plans:** Prioritize development and implementation of the Watershed Management Plans and riparian studies for the following areas: Mill Creek (including North Fork, Rill, and Burkholder), Ten Mile Wash, Kane Springs, White Wash, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Professor Creek, Negro Bill Canyon, Cottonwood/Diamond, Spring Canyon, Red Wash, Green River, Colorado River, Onion Creek and Westwater Creek.	**Watershed Management Plans:** Prioritize development and implementation of the Watershed Management Plans and riparian studies for the following areas: Ten Mile Wash, Kane Springs, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Cottonwood-Diamond, and Onion Creek.	**Watershed Management Plans:** Do not prioritize Watershed Management Plans.

SOIL AND WATER

Goals and Objectives:

- Manage watersheds to enhance ecosystem health and provide for public uses.
- Maintain and improve existing water quality by ensuring that all authorized uses on public lands comply with State water quality standards and with the Colorado River Basin Salinity Control Act.
- Manage watersheds to maintain or improve soil quality and long-term productivity.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Comply with all State, Federal and local laws to protect municipal watersheds (Thompson, Moab, and Castle Valley), and watersheds of any public or private water supply such as Windwhistle Campground, Westwater Ranger Station, La Sal Creek, and Browns Hole.
- Coordinate with Utah Division of Oil, Gas, and Mining to remediate existing Abandoned Mine Lands sites.
- Comply with Floodplain Executive Order 11988.
- BLM would work with partners to implement Best Management Practices (BMPs) and continue BLM's cooperative work with the Utah Divisions of Water Rights and Water Quality in accordance with the administrative memorandum of understanding (MOU) and the cooperative agreement addressing water quality monitoring.

Management Common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Allow no surface occupancy and preclude surface-disturbing activities (see Appendix C) within 100-year floodplains, within 100 m of a natural spring, or within public water reserves.
- In cooperation with Grand and San Juan Counties, develop BMPs for road maintenance and construction in high risk areas (e.g., floodplains, riparian zones, and areas with sensitive soils).
- Continue management of the Mill Creek planning area in accordance with the Mill Creek Management Plan (2001).
- Develop watershed management plans for municipal watersheds to ensure water sources are protected adequately. Monitor municipal water quality/watershed conditions.
- To protect sensitive soils on slopes, apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) prohibiting surface-disturbing activities on slopes in the Bookcliffs (see Map 2-12) greater than 30% from November 1 to April 30. This restriction includes road construction and traffic on existing roads associated with initial drilling operations. In addition, apply a controlled surface use stipulation for oil and gas and other surface-disturbing activities (see Appendix C) on slopes greater than 30% throughout the MPA.
- Follow Total Maximum Daily Load (TMDL) recommendations on 303(d) listed streams, currently Mill, Castle, and Onion Creeks.
- Minimize surface disturbance in areas identified as having "sensitive soils" (see Chapter 3, Soil and Water) unless long-term impacts can be mitigated.
- Maintain vegetation based on desired future condition to provide adequate ground cover to prevent accelerated erosion in wind erodible soils.
- Apply environmental BMPs to all oil and gas authorizations in accordance to WO IM 2007-021 and the most current version of the "Goldbook."
- Develop BMPs to address health and safety concerns associated with blowing dust along U.S. 191 and I-70.
- Maintain or improve soil quality and long-term soil productivity through the implementation of Standards for Rangeland Health and other soil protection measures.
- Manage uses to minimize and mitigate damage to soils.
- Maintain and/or restore overall watershed health and reduce erosion, stream sedimentation, and salinization of water.
- Coordinate with Grand Water and Sewer Service Agency to ensure required minimum instream flow of 3.0 cfs in Mill Creek below the Sheley diversion.
- Implement portions of Greater Sagers Wash Watershed Management Plan that pertain to surface disturbance.
- No additional OHV routes would be allowed in saline soils other than those already designated in the Travel Plan accompanying this RMP (see Appendix G). An exception would be considered on a case-by-case basis for proposed routes in the Dee Pass Motorized Focus Area and in the Utah Rim SRMA. Exceptions could also be considered on a case-by-case basis outside these two areas if potential impacts could be mitigated and if the action would benefit other natural and cultural resources.
- Develop BMPs for activities on saline and other sensitive soils.
- Specific recommendations regarding surface and subsurface pipeline crossings found in Guidance for Pipeline Crossings (see Appendix H) would be implemented to prevent breakage and subsequent contamination.
- Implement guidelines from Technical Reference 1730-2, where feasible, to protect or restore the functions of biological soil crusts.
- Manage public lands in a manner consistent with the Colorado River Salinity Control Program, implementing BMPs and watershed restoration projects to reduce salinity contributions to the Colorado River system.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Aquifers/Watersheds: The Castle Valley aquifer was not addressed. The Mill Creek-Spanish Valley aquifer was not addressed.	**Aquifers/Watersheds:** Close the Castle Valley watershed to oil and gas leasing and other surface-disturbing activities to protect the Castle Valley sole source, unconfined, surficial aquifer. Close the Mill Creek-Spanish Valley watershed to oil and gas leasing and other surface-disturbing activities to protect the aquifer for the Moab area.	**Aquifers/Watersheds:** Apply a no surface occupancy stipulation to oil and gas leasing and preclude other surface-disturbing activities in the Castle Valley watershed in order to protect the sole source, unconfined, surficial aquifer. Apply a no surface occupancy stipulation to oil and gas leasing and preclude other surface-disturbing activities in the Mill Creek-Spanish Valley watershed in order to protect the aquifer for the Moab area.	**Aquifers/Watersheds:** Do not apply a stipulation to protect the Castle Valley aquifer. Do not apply a stipulation to protect the Mill Creek-Spanish Valley aquifer.
Saline Soils in Mancos Shale: Apply a timing limitation on 313,800 acres of Mancos Shale prohibiting surface-disturbing activities from November 1 to April 30.	**Saline Soils in Mancos Shale:** To minimize watershed damage on saline soils in the Mancos Shale, apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) prohibiting surface-disturbing activities on 330,142 acres of moderately to highly saline soils in the Mancos Shale (see Map 2-13) from December 1 to May 31. This restriction includes road construction and traffic on existing roads associated with drilling operations.	**Saline Soils in Mancos Shale:** Same as Alternative B.	**Saline Soils in Mancos Shale:** Do not apply a timing limitation to saline soils in the Mancos Shale.
Grazing: Manipulate livestock grazing on portions of ten allotments to lessen impacts on saline soils and reduce salinity in the Colorado River Drainage.	**Grazing:** Use Standards for Rangeland Health and Guidelines for Grazing Management to consider adjusting season of use on allotments with saline soils to minimize soils compaction.	**Grazing:** Use grazing systems and develop AMPs to minimize impacts to saline soils.	**Grazing:** Same as Alternative A.
Watershed Management Plans: Not specified.	**Watershed Management Plans:** Prioritize development and implementation of the Watershed Management Plans for the following areas: Mill Creek (including North Fork, Rill, and Burkholder), Ten Mile Wash, Kane Springs, White Wash, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Professor Creek, Negro Bill Canyon, Cottonwood/Diamond, Spring Canyon, Red Wash, Green River, Colorado River, Onion Creek and Westwater Creek.	**Watershed Management Plans:** Prioritize development and implementation of the Watershed Management Plans for the following areas: Ten Mile Wash, Kane Springs, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Cottonwood-Diamond, and Onion Creek.	**Watershed Management Plans:** Do not prioritize Watershed Management Plans.

SPECIAL DESIGNATIONS – AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

The term "Area of Critical Environmental Concern" means areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards (FLPMA, 43 U.S.C. 1702(a)).

Goals and Objectives:

Designate, modify and manage areas as ACECs where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

Management Common to the PROPOSED PLAN and Draft RMP Alternative B (see Maps 2-14-A through 2-14-D for ACECs by alternative; see Appendix I for the Relevance and Importance Evaluations of Area of Critical Environmental Concern Nominations)

- In those areas where ACECs overlap with WSAs, the WSA management prescriptions, as stipulated in the Interim Management Policy for Lands Under Wilderness Review (IMP), would take precedence.
- ACECs would be avoidance areas for all ROWs, including wind, solar energy and communication sites.

Behind the Rocks Potential ACEC

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
The area is not designated as an ACEC. Behind the Rocks WSA would be managed according to the IMP to protect wilderness values (12,635 acres). Manage 694 acres as open to oil and gas leasing, 1,958 acres as no surface occupancy, and 15,196 acres as closed.	Behind the Rocks Potential ACEC (17,836 acres) would be designated as an ACEC. This area includes the Behind the Rocks WSA (12,635 acres) in its entirety. **Special Management:** To protect the relevant and important values of natural systems (threatened, sensitive, and endangered plants), cultural resources and scenery, the following management prescriptions would apply: • Designate as VRM Class I. • No vegetation treatments except for noxious weeds and exotics. • Cultural resources would be prioritized for Class III inventory. • Vehicle-based camping only in campgrounds. No campfires outside of	Behind the Rocks Potential ACEC (5,201 acres) would be designated as an ACEC. This area excludes the Behind the Rocks WSA, which would be managed according to the IMP to protect wilderness values. **Special Management:** To protect the relevant and important values of natural systems (threatened, sensitive and endangered plants), cultural resources and scenery, the following management prescriptions would apply: • Designate as VRM Class II. • No vegetation treatments (except for exotic/noxious weeds). • Cultural resources in Behind the Rocks ACEC would be prioritized for Class III inventory.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • The Behind the Rocks WSA would be managed according to the IMP to protect wilderness values (12,635 acres). • The remaining 5,201 acres will be managed as follows: Designate as VRM Class III. Allow vegetation treatments. Open to oil and gas leasing with standard terms and conditions.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	campgrounds. • No new motorized or mechanized routes, motorized/mechanized travel limited to designated routes. • Manage the WSA as closed to oil and gas leasing and other surface-disturbing activities (12,635 acres). Manage the non-WSA lands with wilderness characteristics as closed to oil and gas leasing (4,231 acres). In the remaining 970 acres, apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities. • No commercial or private use of woodland products.	• Vehicle-based camping only in campgrounds. No campfires outside of campgrounds. • No new motorized or mechanized routes, motorized/mechanized travel limited to designated routes. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private use of woodland products. • There are approximately 12,635 acres of this potential ACEC proposed for designation under another statutory authority (Wilderness Study Area) and no further management attention is required.	
Bookcliffs Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Desolation, Flume, Floy, Coal and Spruce WSAs would be managed according to the IMP to protect wilderness values (250,207 acres). Manage 15,757 acres as open to oil and gas leasing, 38,415 acres with timing limitations and controlled surface use, and 250,207 acres as closed. OHV designations include open and limited to existing routes.	Bookcliffs Potential ACEC (304,252 acres) would be designated as an ACEC. This area includes Desolation, Flume, Floy, Coal, and Spruce WSAs (250,207 acres). **Special Management:** To protect the relevant and important values of wildlife and cultural resources, the following management prescriptions would apply: • All WSAs would be managed according to the IMP. • Work with UDWR and other agencies to create and implement a Habitat Management Plan for the Bookcliffs. • No new motorized or mechanized routes. Motorized and mechanized travel is limited to designated routes outside the WSA and closed in the WSA. • Manage WSAs as closed to oil and gas leasing and other surface-disturbing activities (249,988 acres). Manage the non-WSA lands with wilderness characteristics as closed to oil and gas leasing (19,901acres). In the remaining 34,363 acres, apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private use of woodland products. • Prioritize Bookcliffs for Class III cultural inventory.	Proposed area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • The WSAs (Desolation, Flume, Floy, Coal, and Spruce) would be managed according to the IMP. • Areas outside of the WSAs (54,174 acres) would be managed according to the following prescriptions: ▪ Apply standard and controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C).	Same as the Proposed Plan.
Canyon Rims Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not designated as an ACEC. Manage as part of the Canyon Rims SRMA (see SRMA prescriptions). Designate as VRM Class II. Manage with timing limitations and controlled surface use for oil and gas leasing.	Canyon Rims Potential ACEC (23,400 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important value of scenery, the following management prescriptions would apply: • Designate as VRM Class II. • No new motorized or mechanized routes. Motorized and mechanized travel limited to designated routes. Manage consistently with the Canyon Rims Recreation Area Plan. • Manage the non-WSA lands with wilderness characteristics as closed to oil and gas leasing (3,417 acres). Apply a no surface occupancy stipulation for oil and gas leasing, and preclude other surface-disturbing activities (see Appendix C) on the remaining 19,983 acres.	Proposed area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Manage as part of the Canyon Rims SRMA (see SRMA prescriptions). • Designate as VRM Class II. • Avoid permitting new ROWs. • Apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities on 15,422 acres. The Scenic Byway corridor (7,035 acres) would be managed as controlled surface use for oil and gas leasing and other surface-disturbing activities (see Appendix C). The remainder of the area (943 acres) would be managed as open with standard stipulations.	Proposed area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Manage as part of the Canyon Rims SRMA (see SRMA prescriptions). • Designate as VRM Class II and III. • Avoid permitting new ROWs. • The area would be managed with the following stipulations for oil and gas: 2,226 acres are open to leasing subject to standard terms and conditions, and apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities to 17,420 acres. The Scenic Byway corridor (3,754 acres) would be managed as controlled surface use for oil and gas leasing and other surface-disturbing activities (see Appendix C).
Cisco White-tailed Prairie Dog Complex Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC.	Cisco White-tailed Prairie Dog Complex Potential ACEC (117,481 acres)	Proposed area would not be designated as an ACEC. Management of the	The area would not be designated as an ACEC. Management of the acreage

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Currently implemented Seasons of Use for livestock grazing: Agate - 3/15, Cisco - 5/10, Cisco Mesa - 5/15, Corral Wash - 5/10, Harley - 5/12, Highlands - 5/15, Monument Wash - 5/15, Pipeline - 5/15, San Arroyo - 5/25, and Sulphur Canyon - 4/12. Manage 97,089 acres as open to oil and gas leasing, 19,240 acres with timing limitations and controlled surface use, and 1,152 acres as no surface occupancy.	would be designated as an ACEC. **Special Management:** To protect the relevant and important value of wildlife, the following management prescriptions would apply: • Use grazing systems and develop AMPs to protect prairie dog habitat in the following allotments or portions of allotments: Agate, Cisco, Cisco Mesa, Harley Dome, Highlands, Monument Wash, Pipeline, San Arroyo. Establish rest-rotation system to allow adequate recovery for seed dispersal and establishment. • Work with UDWR to prohibit shooting of prairie dogs year-round and ban prairie dog poisoning on public lands. • Develop cooperative agreements with UDWR and USFWS to inventory prairie dog densities and to manage habitat for prairie dogs, ground squirrels and raptors. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No new motorized or mechanized routes. Motorized and mechanized travel is limited to designated routes.	acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Maintain current season of use, and manage grazing to allow for adequate seed production. • Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 660 feet of active prairie dog colonies. No permanent above-ground facilities would be allowed within the 660-foot buffer.	would default to prescriptions applicable to the general area.
Colorado River Corridor Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Negro Bill Canyon would be designated as Outstanding Natural Area (1,375 acres). Continue the Three Rivers Withdrawal for locatable minerals (18,519 acres). Manage the river corridor as part of the Colorado River Recreation Area and the Colorado River SRMA. Manage 34,342 acres as open to oil and gas leasing, 10,864 acres with timing limitations and controlled surface use, 1,189 acres as no surface occupancy, and 3,613 acres as closed.	Colorado River Corridor Potential ACEC (50,483 acres) would be designated as an ACEC. • Negro Bill Canyon would no longer be designated as an Outstanding Natural Area, but would be included within the Colorado River Corridor ACEC. Negro Bill Canyon WSA would be managed according to the IMP to protect wilderness values. • Manage recreation use according to the Colorado Riverway SRMA (see SRMA prescriptions) with the exception of the Dry Mesa/Cache Valley area north of the Colorado River. • **Special Management:** To protect the relevant and important values of natural systems (threatened, sensitive and endangered plants), fish and wildlife, and scenery, the Colorado River Corridor would be designated as an ACEC with the following management prescriptions: Designate as VRM Class I. No permitted activities north of the Colorado River (excluding immediate river corridor) during crucial bighorn lambing and rutting periods, April 1 through June 15 and October 1 to December 15, respectively. Motorized and mechanized travel limited to designated routes. No competitive OHV events. Vehicle-based camping only in designated campsites on south side of the Colorado River. Campfires for vehicle-based camping would be allowed only within designated campsites on the south side of the Colorado River. No Special Recreation Permits would be issued north of the river (except for immediate river corridor used by river runners). No vegetation treatments except for noxious weeds and exotics. Season of use adjustments for livestock grazing in crucial bighorn lambing and rearing habitat (see Wildlife). Retain ACEC in public ownership except lands involved in the existing Professor Valley land exchange. Prioritize acquisition of inholdings as opportunity presents itself. Apply a no surface occupancy stipulation on 9,196 acres for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). Close	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Negro Bill Canyon would no longer be designated as an Outstanding Natural Area. The Negro Bill Canyon WSA would be managed according to the IMP to protect wilderness values. • Designate as VRM Class II (see VRM section starting on page 2-50) except for Negro Bill WSA, which would be managed as VRM Class I. • Manage recreation use according to the Colorado Riverway SRMA (see SRMA prescriptions) with the exception of the Dry Mesa/Cache Valley area north of the Colorado River, which would be managed according to the following prescriptions: No permitted activities north of the river (except in the immediate river corridor) during crucial bighorn lambing and at rutting seasons, April 1 through June 15 and October 1 to December 15, respectively. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) in VRM Class II areas, areas within the Three Rivers Withdrawal (see Map 2-1) and in crucial bighorn lambing and rearing areas. Within these areas, prohibit geophysical exploration for oil and gas, and close to minerals material disposal. Close areas unreachable by directional drilling to oil and gas leasing.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Negro Bill Canyon would no longer be designated as an Outstanding Natural Area. The Negro Bill Canyon WSA would be managed according to the IMP to protect wilderness values. • Manage recreation use according to the Colorado Riverway SRMA (see SRMA prescriptions). • Area would be managed the same as the Proposed Plan, with the following exceptions: Permitted activities would be allowed year-round. Apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C). Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) within the Three Rivers Withdrawal (see Map 2-1). Open to minerals material disposal. Open to geophysical exploration for oil and gas. No commercial or private collection of woodland products on the south side of the river.

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	33,548 acres of non-WSA lands with wilderness characteristics to oil and gas leasing. Close 8,008 acres, which are unreachable by directional drilling to oil and gas leasing. No commercial or private collection of woodland products.		
Cottonwood-Diamond Watershed Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Manage the portions of the Cottonwood-Diamond Watershed Potential ACEC (34,004 acres) within the Flume, the Coal Canyon and the Spruce WSAs according to the IMP to protect the wilderness values. Manage areas outside the WSAs with timing limitations and controlled surface use for oil and gas leasing (1,825 acres).	Cottonwood-Diamond Watershed Potential ACEC (35,830 acres) would be designated as an ACEC. **Special Management: NOTE: ACEC would only be designated until hazard is no longer present. At that point, management would revert to the IMP.** To protect the relevant and important values of natural systems, and to mitigate the natural hazards due to fire, the following management prescriptions would apply: • Continue to keep area not available to livestock grazing. • Close to vehicle use at the end of the Class B-road system, except for administrative access. • No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes outside the WSA, and closed in the WSA. • No competitive events. • Suspend commercial permits (guiding or special groups). • Manage the acreage within the WSAs (34,027 acres) as closed to oil and gas leasing and other surface-disturbing activities. Manage the remaining acreage within non-WSA lands with wilderness characteristics as closed to oil and gas leasing (1,690 acres). Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities on the remaining acreage (113 acres; see Appendix C).	Cottonwood Diamond Watershed would be designated as an ACEC with the same prescriptions as in Alternative B, except that 34,027 acres within the WSA are closed to oil and gas leasing, and the remaining 1,804 acres would be managed as no surface occupancy for oil and gas leasing. Other surface-disturbing activities would be precluded (see Appendix C).	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Manage portions of the area that are in the Flume, Spruce or Coal WSA according to IMP.
Highway 279/Shafer Basin/Long Canyon Potential ACEC			
Alternative A (No Action)	**Alternative B**	**Proposed Plan**	**Alternative D**
This area is not designated as an ACEC. Manage 6,425 acres as open to oil and gas leasing, 4,606 acres with timing limitations and controlled surface use, 2,094 acres as no surface occupancy, and 362 acres as closed. Continue the Three Rivers Withdrawal for locatable minerals (2,034 acres). Avoid permitting new ROWs.	Highway 279/Shafer Basin/Long Canyon Potential ACEC (13,500 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important values of scenery, wildlife, natural systems (threatened, sensitive, and endangered plants), and cultural resources, the following management prescriptions would apply: • Designate as VRM Class I. • Permitted activities would be confined to main roads within crucial bighorn lambing habitat from April 1 through June 15. This restriction would not apply to filming if the filming meets the minimum impact criteria (see Appendix B). • Wall Street rock art sites would be managed for public use with the emphasis on interpretation. • Motorized and mechanized travel limited to designated routes. • Vehicle-based camping only in designated campgrounds. • No campfires except in campgrounds. • Retain ACEC in public ownership except for the previously initiated Moab Salt Exchange Parcel (635 acres). • Manage non-WSA lands with wilderness characteristics as closed to oil and gas leasing (3,502 acres). Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to the remaining acreage (9,998 acres).	Highway 279/Shafer Basin/Long Canyon would be designated as an ACEC with the same prescriptions as in Alternative B, except: • Designate Highway 279 and Long Canyon as VRM Class II; manage the remainder of the ACEC as VRM I. • Manage the entire area as no surface occupancy for oil and gas leasing and preclude other surface-disturbing activities.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Designate as VRM Class III. • The area would be managed with the following stipulations for oil and gas: 5,741 acres would be open to leasing subject to standard terms and conditions, and apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities on 5,370 acres. In addition, 2,389 acres along the Colorado River would be managed as no surface occupancy (see Appendix C).

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Labyrinth Canyon Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Manage as open to oil and gas leasing subject to standard terms and conditions and as open with controlled surface use stipulations for oil and gas. Continue the Three Rivers Withdrawal for locatable minerals. No commercial or private use of woodland products.	Labyrinth Canyon Potential ACEC (8,528 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important values of scenery and fish, the following management prescriptions would apply: • Designate as VRM Class I. • No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes. • Manage non-WSA lands with wilderness characteristics as closed to oil and gas leasing (5,492 acres). Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) on the remaining lands (3,036 acres). • No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Designate as VRM Class II. • No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private use of woodland products.	Same as the Proposed Plan.
Mill Creek Canyon Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Manage Mill Creek Canyon WSA (9,780 acres) according to the IMP to protect wilderness values. Manage the WSA as closed to oil and gas leasing and other surface-disturbing activities. Manage remainder of the area as open with standard stipulations. Livestock grazing would be available in the Mill Creek Allotment.	Mill Creek Canyon Potential ACEC (13,501 acres) would be designated as an ACEC. This area includes the Mill Creek Canyon WSA (9,780 acres) in its entirety. **Special Management:** To protect the relevant and important values of cultural resources, scenery, and natural systems (cold water fishery/riparian/watershed and wildlife), the following management prescriptions would apply: • Recreation activities would be managed according to the South Moab SRMA. • Prioritize Mill Creek for Class III cultural inventory. • Protect Native American traditional cultural places. • Designate as VRM Class I. • Livestock grazing would not be available. • No vehicle-based camping. • No campfires in riparian areas. • Motorized competitive events would be prohibited. • No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes. • All recreational events would be confined to the designated roads in the ACEC. • Limit recreation facility development to day-use only. • Acquire state land within ACEC as the opportunity arises. • Maintain 3 cfs in the South Fork of Mill Creek below the Sheley diversion. • Manage the area as closed to oil and gas leasing. No recreational mining would be allowed. • No fuel wood harvesting permits would be issued. • Private wood gathering for backpacking campfires would be allowed in the uplands only.	Mill Creek Canyon Potential ACEC (3,721 acres) would be designated as an ACEC. This area excludes the Mill Creek Canyon WSA. The Mill Creek Canyon WSA (9,780 acres) would be managed according to the IMP to protect wilderness values. **Special Management:** To protect the relevant and important values of cultural resources, scenery, natural systems: (cold water fishery/riparian/watershed and wildlife), the following management prescriptions would apply to 3,721 acres in the ACEC: • Recreation activities would be managed according to the South Moab SRMA. • Prioritize Mill Creek for Class III cultural inventory. • Protect Native American traditional cultural places. • Designate as VRM Class II. • Livestock grazing would not be available. • No vehicle-based camping. • No campfires in riparian areas. • Motorized competitive events would be prohibited. • No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes. • All recreational events would be confined to the designated roads in the ACEC. • Limit recreation facility development to day-use only. • Acquire state land within ACEC as the opportunity arises. • Maintain 3 cfs in the South Fork of Mill Creek below the Sheley diversion. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No recreational mining would be allowed. • No fuel wood harvesting permits would be issued. • Private wood gathering for backpacking campfires would be allowed in the uplands only.	The proposed area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • The Mill Creek Canyon WSA would be managed according to the IMP to protect wilderness values (9,780 acres). • The remaining 3,721 acres would be managed as follows: Recreation activities would be managed according to the South Moab SRMA in that portion within the SRMA. Designate as VRM Class II. Livestock grazing would not be available. Apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C).

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Ten Mile Wash Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Manage as controlled surface use for oil and gas use. Open to competitive motorized events.	Ten Mile Wash Potential ACEC (4,980 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important values of natural systems (riparian/wetlands), wildlife, cultural resources and natural hazards, the following management prescriptions would apply: • Prioritize Ten Mile for Class III cultural inventory. • Prioritize Ten Mile as a scientific research area. • No grazing in Ten Mile Canyon downstream from Dripping Springs. • Prioritize area for riparian restoration. • No vehicular travel in Ten Mile Wash from Dripping Springs to the Green River. • Restrict camping and campfires to designated sites at Dripping Spring. • Manage non-WSA lands with wilderness characteristics as closed to oil and gas leasing (232 acres). Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to the remaining acreage (4,748 acres). • No commercial or private collection of woodland products. NOTE: In Alternative B, Ten Mile does not have a designated road in it; therefore, all the road-related prescriptions have been removed from Alternative B.	Ten Mile Wash Potential ACEC (4,980 acres) would be designated as an ACEC with the following management prescriptions: • Prioritize Ten Mile for Class III cultural inventory. • Prioritize Ten Mile as a scientific research area. • No grazing in Ten Mile Canyon downstream from Dripping Springs. • Prioritize area for riparian restoration. • Restrict camping and campfires to designated sites at Dripping Spring. • Motorized and mechanized travel limited to designated routes. • No competitive events. • Establish speed limits. • Reroute designated road around the wetlands south of the cattle guard near Dripping Springs. • Restrict vehicle access at the Green River; designate a parking area at the Green River. • Permits for motorized recreational use may be required if monitoring indicates long-term damage. • Require permits for groups greater than 25 vehicles. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private collection of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Continue present grazing management in Ten Mile Canyon. • No campfires outside of designated sites. • Motorized travel on designated routes only (see Map 2-11-D). • Require permits for groups greater than 50 vehicles. • Apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) to 2,558 acres.
Upper Courthouse Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Managed as open to oil and gas leasing with standard terms and conditions. No commercial or private use of woodland products.	Upper Courthouse Potential ACEC (11,529 acres) would be designated as an ACEC. • Recreation use would be managed in accordance with the Labyrinth Rims/Gemini Bridges SRMA. • **Special Management:** To protect the relevant and important values of historic/cultural/paleontological resources and natural systems (threatened, sensitive, endangered, and relict plants), the following management prescriptions would apply: Prioritize Upper Courthouse for a Class III cultural inventory. No collection of petrified wood. No new range improvements except for fencing. No vegetation treatments except for noxious weeds and exotics, and to restore riparian environments. Active protection of archeological sites from grazing. Limit OHVs to designated routes (no sandhill climbing routes would be designated). No new mechanized or motorized routes. Motorized and mechanized travel limited to designated routes. Vehicle-based camping only in designated sites. No campfires outside of campgrounds. No competitive OHV events. Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Recreation use would be managed in accordance with the Labyrinth Rims/ Gemini Bridges SRMA. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to mesa-top relict plant communities. • Avoid permitting new ROWs on the mesa-top relict plant communities. • No commercial or private use of woodland products. • Recommend the mesa-top relict plant communities for the withdrawal of locatable minerals.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Manage as open for oil and gas leasing (see Map 2-5-D). • Open to locatable mineral development. • No commercial or private use of woodland products.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Westwater Canyon Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Manage the Westwater WSA according to the IMP to protect wilderness values. Manage as closed to oil and gas leasing and other surface-disturbing activities. Continue with the existing withdrawal for locatable minerals. Avoid permitting new ROWs.	Westwater Canyon Potential ACEC (5,069 acres) would be designated as an ACEC. This area is within the Westwater Canyon WSA. **Special Management:** To protect the relevant and important values of scenery and fish, the following management prescriptions would apply: • Manage the Westwater Canyon WSA according to the IMP to protect wilderness values. • Designate as VRM Class I. • Closed to motorized and mechanized travel. • Acquire inholdings within ACEC. • Manage as closed for oil and gas leasing and other surface-disturbing activities. • No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Manage the Westwater Canyon WSA according to the IMP to protect wilderness values.	Same as the Proposed Plan.
White Wash Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
This area is not designated as an ACEC. Competitive motorized events would be allowed. Open to cross country OHV travel. Manage as no surface occupancy for oil and gas leasing. Open to locatable mineral development.	White Wash Potential ACEC (2,988 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important value of natural systems (riparian dune systems), the following management prescriptions would apply: • Limit OHVs to designated routes. • Competitive motorized events would not be allowed. • Vehicle-based camping in campgrounds only. • No fires or wood gathering allowed. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Recreational use in this area would be managed according to the White Wash Sand Dunes Open OHV Focus Area (1,866 acres) within the Labyrinth Rims/ Gemini Bridges SRMA. The remaining 1,122 acres would be managed according to the Dee Pass Motorized Trail Focus Area in the same SRMA. • About 1,866 acres are open to OHV, and 1,122 acres are limited to designated routes. • Competitive motorized events would be allowed. • Manage as open to oil and gas leasing (see Map 2-5-C). • Open to locatable mineral development. • No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Recreational use in this area would be managed according to the White Wash Sand Dunes Open OHV Focus Area within the Dee Pass SRMA for this alternative. • The entire area would be open to OHV use. • Competitive motorized events would be allowed.
Wilson Arch Potential ACEC			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
The area is not designated as an ACEC. Managed as open to oil and gas leasing.	Wilson Arch Potential ACEC (3,700 acres) would be designated as an ACEC. **Special Management:** To protect the relevant and important value of scenery, Wilson Arch would be designated as an ACEC with the following management prescriptions: • Designate as VRM Class I. • Build one trail up to Wilson Arch for hiking use only. • Motorized and mechanized travel limited to designated routes. • Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). • No commercial or private use of woodland products.	The area would not be designated as an ACEC. Management of the acreage would default to prescriptions applicable to the general area, which include, but are not limited to: • Designate as VRM Class II. • Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C).	Same as the Proposed Plan, except designate as VRM Class III.
SPECIAL DESIGNATIONS – NATIONAL HISTORIC TRAIL – OLD SPANISH TRAIL			
Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D: • Segments of the Old Spanish Trail would be identified and classified for historic integrity and condition. These segments would then be designated for appropriate types of management and travel. • Landmarks along the Old Spanish Trail would be identified for historic integrity and interpreted only if the action would not impact the values at the site. All interpretation projects would be done in consultation with Native Americans and other interested parties including the Old Spanish Trail Association and			

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

National Park Service.

- Consider plan amendment, as necessary, to incorporate provisions of the forthcoming Old Spanish Trail Comprehensive Management Plan.
- Participate in the development of the management plan for the Old Spanish Trail and assist with its implementation as opportunities arise, consistent with other decisions of the RMP.
- Support protective management, interpretation, and public enjoyment and understanding of the National Historic Old Spanish Trail, consistent with the Old Spanish Trail Comprehensive Management Plan.
- Seek to acquire public access to the site of the Old Spanish Trail ford of the Green River, upstream from the town of Green River, Utah, for the purpose of developing an interpretive site.
- Consistent with the Cameo Cliffs and Canyon Rims Recreation Area Management Plans (RAMPs), consider developing and managing a section of the Old Spanish Trail for equestrian use.

SPECIAL DESIGNATIONS – WILD AND SCENIC RIVERS (WSRs)

Goals and Objectives:

- Review all eligible rivers to determine suitability for Congressional designation into the National Wild and Scenic River System (NWSRS).
- To the extent of the BLM's authority (limited to BLM lands within the river corridor), maintain and enhance the free flowing character, preserve and enhance the outstandingly remarkable values, and allow no activities within the river corridor that would alter the tentative classification of those river segments determined suitable for congressional designation in the NWSRS until Congress acts.

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- River segments found suitable and recommended for designation would be managed to protect their free-flowing condition and to protect the outstandingly remarkable values and maintain the tentative classification within line-of-sight up to 1/4 mile (1/3 miles on the Colorado and Dolores Rivers) from the high water mark on each bank of the river (not to exceed 320 acres per mile). Management that would apply should any rivers be designated by Congress is identified in BLM Manual 8351.51 (see Appendix J and Maps 2-15-B and 2-15-C for river segments found suitable for WSR designation, by alternative).
- BLM would not seek water rights as part of a suitability decision made in the Record of Decision for this RMP.
- WSR segments recommended as suitable for Wild would be designate as VRM Class I; Scenic and Recreational segments would be designated as VRM Class II.
- OHV travel would be limited to designated routes or closed, depending on the river segment.
- The stipulations that would be applied to oil and gas leasing and other surface-disturbing activities within suitable river segments have been developed based on other resource values such as scenery, wildlife and fisheries, riparian, and recreation. In all cases, these stipulations are sufficient to protect the outstandingly remarkable values. All suitable segments would be managed with a no surface occupancy stipulation for oil and gas leasing as well as all other surface-disturbing activities, or as closed to oil and gas leasing (see Appendix C and Maps 2-5-B and 2-5-C for the surface stipulations application to oil and gas leasing and other surface-disturbing activities, by alternative).
- BLM would work with the State of Utah, local and tribal governments, and other federal agencies, in a state-wide study, to reach consensus regarding recommendations to Congress for the inclusion of rivers in the National Wild and Scenic Rivers System. Besides applying consistent criteria across agency jurisdictions, the joint study would avoid piece-mealing of river segments in logical watershed units in the state. The study would evaluate, in detail, the possible benefits and effects of designation on the local and state economies, agricultural and industrial operations and interests, outdoor recreation, natural resources (including the outstandingly remarkable values for which the river was deemed suitable), water rights, water quality, water resource planning, and access to and across river corridors within, and upstream and downstream from the proposed segments(s). Actual designation of river segments would only occur through congressional action or as a result of Secretarial decision at the request of the Governor in accordance with provisions of the Wild and Scenic Rivers Act (the Act). BLM will work with the State, local and tribal governments, and the agencies involved to coordinate its decision making on wild and scenic river issues and to achieve consistency wherever possible.
- BLM recognizes that water resources on most river and stream segments within the State of Utah are already fully allocated. Before stream segments that have been recommended as suitable under this Proposed Plan are recommended to Congress for designation, BLM will continue to work with affected local, state, federal, and tribal partners to identify in-stream flows necessary to meet critical resource needs, including values related to the subject segments(s). Such quantifications would be included in any recommendation for designation. BLM would then seek to jointly promote innovative strategies, community-based planning, and voluntary agreements with water users, under State law, to address those needs.
- Should designations occur on any river segment as a result of Secretarial or congressional action, existing rights, privileges, and contracts would be protected. Under Section 12 of the Act, termination of such rights, privileges, and contracts may happen only with the consent of the affected non-federal party. A determination by the BLM of eligibility and suitability for the inclusion of rivers on public lands to the Wild and Scenic Rivers System does not create new water rights for the BLM. Federal reserved water rights for new components of the Wild and Scenic Rivers System are established at the discretion of Congress. If water is reserved by Congress when a river component is added to the Wild and Scenic Rivers System, it would come from water that is not appropriated at the time of designation, in the amount necessary to protect features which led to the river's inclusion into the system. BLM's intent would be to leave existing water rights undisturbed and to recognize the lawful rights of private, municipal, and state entities to manage water resources under state law to meet the needs of the community. Federal law, including Section 13 of the Act and the McCarren Amendment (43 U.S.C. 666), recognizes state jurisdiction over water allocation in designated streams. Thus, it is BLM's position that existing water rights, including flows apportioned to the State of Utah interstate agreements and compacts, including the Upper Colorado River Compact, and developments of such rights would not be affected by designation or the creation of the possible federal reserved water right. BLM would seek to work with upstream and downstream water users and applicable agencies to ensure that water flows are maintained at a level sufficient to sustain the values for which affected river segments were designated.

Beaver Creek (7.7 miles)

- Segment 1 – Forest Service boundary to one mile from Dolores River
- Segment 2 – One mile to Dolores River

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Suitability determination would not be made for either of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Wild Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class I Segment 2 – Suitable–Scenic Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Not suitable	Segment 1 – Not suitable Segment 2 – Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Colorado River (66.5 miles) • Segment 1 – Colorado-Utah state line to Westwater Canyon • Segment 2 – Westwater Canyon (Mile 125) to River Mile 112 • Segment 3 – River Mile 112 to confluence with the Dolores River • Segment 3(a) – River Mile 112 to Cisco Wash • Segment 3(b) – Cisco Wash to confluence with the Dolores River • Segment 4 – Confluence with the Dolores River to River Mile 49 near Potash • Segment 4 (portion for Alternative D only) – Hittle Bottom to Take Out Beach • Segment 5 – River Mile 44.5 to Mile 38.5 state land boundary • Segment 6 – River Mile 37.5 below state land to Mile 34 Canyonlands National Park			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for any of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 2 – Suitable–Wild Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I Segment 3 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 4 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 5 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 6 – Suitable–Wild Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Suitable–Wild Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I Segment 3(a) – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 3(b) – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 4 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 5 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 6 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Not suitable Segment 3 – Not suitable Segment 4 – Not suitable Segment 5 – Not suitable Segment 6 – Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Cottonwood Canyon (10.4 miles) • Source near Cottonwood Point to private land (includes the first 1/2 mile of Horse Canyon)			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Suitable–Scenic Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I	Not suitable	Not suitable
Dolores River (22.0 miles) • Segment 1 – Colorado-Utah state line to Fisher Creek • Segment 2 – Fisher Creek to Bridge Canyon • Segment 3 – Bridge Canyon to Colorado River			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for any of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 2 – Suitable–Wild Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class I Segment 3 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 2 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 3 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Not suitable Segment 3 – Not suitable
Green River (99.0 miles) • Segment 1 – Coal Creek to Nefertiti Boat Ramp • Segment 2 – Nefertiti Boat Ramp to Swasey's Boat Ramp • Segment 3 – Swasey's Boat Ramp to I-70 Bridge • Segment 3(a) – Swasey's Boat Ramp to River Mile 97 (confluence with the San Rafael River; combination of Segment 3 and part of Segment 4) • Segment 4 – I-70 Bridge to River Mile 91 below Ruby Ranch • Segment 4(a) – Mile 97 (confluence with the San Rafael River) to Canyonlands National Park boundary (part of Segment 4 and all of Segments 5 and 6) • Segment 5 – Mile 91 below Ruby Ranch to Hey Joe Canyon • Segment 6 – Hey Joe Canyon to Canyonlands National Park Boundary			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for any of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification	Segment 1 – Suitable–Wild Oil and gas leasing: Closed OHV category: Closed	Segment 1 – Suitable – Wild Oil and gas leasing: Closed OHV category: Closed	Segment 1 – Not suitable Segment 2 – Not suitable Segment 3 – Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	VRM designation: Class I Segment 2 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 3 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 4 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 5 – Suitable–Wild Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class I Segment 6 – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	VRM designation: Class I Segment 2 – Suitable – Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 3 – Not suitable Segment 3(a) – Not suitable Segment 4 – Not suitable Segment 4(a) – Suitable–Scenic Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II Segment 5 – Not suitable Segment 6 – Not suitable	Segment 4 – Not suitable Segment 5 – Not suitable Segment 6 – Not suitable
Mill Creek (6.0 miles) • Segment 1 – National Forest boundary to private property below diversion • Segment 2 – T26S, R23E, Section 19 to Power Dam			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for either of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Recreational Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I Segment 2 – Suitable–Scenic Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I	Segment 1 – Not suitable Segment 2 – Not suitable	Segment 1 – Not suitable Segment 2 – Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Negro Bill Canyon (7.4 miles) • Segment 1 – From state land below rim to 1/4 mile from Colorado River • Segment 2 – Last 1/4 mile to Colorado River			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for either of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Wild Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I Segment 2 – Suitable–Recreational Oil and gas leasing: NSO OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Not suitable	Segment 1 – Not suitable Segment 2 – Not suitable
North Fork Mill Creek (11.2 miles) • National Forest boundary near Wilson Mesa to Mill Creek			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Suitable–Wild Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I	Not suitable	Not suitable
Onion Creek (12.5 miles) • Segment 1 – Source to Onion Creek Road • Segment 2 – Beginning of Onion Creek Road to Colorado River			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for either of the eligible river segments. They would remain eligible and would be managed to protect their outstandingly remarkable values, free-flowing nature, and tentative classification.	Segment 1 – Suitable–Wild Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class I Segment 2 – Suitable–Recreational Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class II	Segment 1 – Not suitable Segment 2 – Not suitable	Segment 1 – Not suitable Segment 2 – Not suitable
Professor Creek (7.4 miles) • National Forest and state land boundary to diversion near private land			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Suitable–Wild Oil and gas leasing: Closed	Not suitable	Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	OHV category: Limited to designated routes VRM designation: Class I		
Rattlesnake Canyon (31.6 miles) • Source to Green River (including Flat Nose George Tributary)			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Suitable–Wild Oil and gas leasing: Closed OHV category: Closed VRM designation: Class I	Not suitable	Not suitable
Salt Wash (0.3 miles) • Arches National Park boundary to Colorado River			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Salt Wash to be deferred until NPS does suitability on portion within Arches National Park. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification. By default, the lower 0.25 miles of this 0.3-mile segment is within Segment 4 of the Colorado River. Consequently, it would be managed as suitable with a recreation classification.	Salt Wash to be deferred until NPS does suitability on portion within Arches National Park. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification. By default, the lower 0.25 miles of this 0.3-mile segment is within Segment 4 of the Colorado River. Consequently, it would be managed as suitable with a recreation classification.	Salt Wash to be deferred until NPS does suitability on portion within Arches National Park. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.
Thompson Canyon (5.5 miles) • Source of Thompson to Fisher Creek (Cottonwood Canyon; tributary of Dolores River)			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Suitability determination would not be made for this eligible river segment. It would remain eligible and would be managed to protect its outstandingly remarkable values, free-flowing nature, and tentative classification.	Suitable–Wild Oil and gas leasing: Closed OHV category: Limited to designated routes VRM designation: Class I	Not suitable	Not suitable

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

SPECIAL DESIGNATIONS – WILDERNESS AND WILDERNESS STUDY AREAS (WSAs)

Goals and Objectives:

- Preserve the wilderness character of Wilderness Study Areas (WSAs) until Congress designates them wilderness or releases them.
- Manage the Black Ridge Wilderness Area to provide for the protection of wilderness character and for the use and enjoyment of visitors in a manner that leaves it unimpaired for future use (43 CFR 8560).

Management Common to PROPOSED PLAN and Draft RMP Alternatives A, B. and D:

- Manage WSAs under the Interim Management Policy for Lands Under Wilderness Review (IMP; USDI-BLM 1995; see Map 2-16). Manage for the continued preservation of each WSA's wilderness character.
- Manage Black Ridge Wilderness Area (5,200 acres; part of the McInnis Canyon National Conservation Area) in accordance with applicable law, regulation, policy, and management for the area (see Maps 2-16-A through 2-16-D).
- For WSAs, no surface disturbance, permanent new development, or ROWs are allowed, and the lands are closed to oil and gas leasing (see Appendix C).
- For designated Wilderness, any new development or surface disturbance is for wilderness purposes, and the lands are closed to mineral leasing and location. These are non-discretionary, non-planning decisions.
- Only Congress can release a WSA from wilderness consideration. Should any WSA, in part or in whole, be released from wilderness consideration, proposals in the released area would be examined on a case-by-case basis. All proposals inconsistent with Interim Management Policy (IMP) would be deferred until completion of requisite plan amendments. Because a plan amendment would be required, there is no separate analysis in this Land-use Plan to address resource impacts if any WSAs are released.
- Fire activities and projects in WSAs would follow the IMP.
- Designate WSAs and Wilderness as VRM Class I.
- Under the Proposed Plan and under Alternatives A and D, where routes would remain available for motorized use within WSAs, such use could continue on a conditional basis. Use of the existing routes in the WSAs ("ways" when located within WSAs – see Glossary) could continue as long as use of these routes does not impair wilderness suitability, as provided by the Interim Management Policy for Lands Under Wilderness Review (BLM 7/5/95). The miles of motorized routes in WSAs (see below for miles of route per WSA) are only conditionally open to vehicle use. If Congress designates the area as wilderness, the routes will be closed. In the interim, if use and/or non-compliance are found through monitoring efforts to impair the area's suitability for wilderness designation, BLM would take further action to limit use of the routes, or close them. The continued use of these routes, therefore, is based on user compliance and non-impairment of wilderness values.

Behind the Rocks WSA (12,635 acres)

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Designate the majority of the Behind the Rocks WSA as closed to OHV use. About 3.55 miles of inventoried way are designated.	Designate the Behind the Rocks WSA as closed to OHV use. No miles of route are designated.	Designate a portion of the Behind the Rocks WSA as closed to OHV use (11,822 acres). Designate OHV use in the remainder of the WSA as limited to designated routes (813 acres, with 0.9 miles of designated route).	Designate the Behind the Rocks WSA as limited to designated routes (with 0.9 miles of designated routes).

Black Ridge (52 acres) and Lost Spring Canyon (1,624 acres) WSAs

Note: Most of the original Black Ridge WSA was designated Wilderness with the creation of the McInnis Canyon NCA. Most of the original Lost Spring Canyon WSA has been incorporated into Arches National Park.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Designate Black Ridge and Lost Spring Canyon WSAs as limited to inventoried routes, with 0.25 miles of route designated in Lost Spring Canyon WSA and 0 miles of route designated in Black Ridge WSA.	Designate Black Ridge and Lost Spring Canyon WSAs as closed to OHV use, with 0 miles of route designated in Lost Spring Canyon WSA and 0 miles of route designated in Black Ridge WSA.	Designate Black Ridge and Lost Spring Canyon WSAs as limited to designated routes, with 0.25 miles of route designated in Lost Spring Canyon WSA and 0 miles of route designated in Black Ridge WSA.	Same as the Proposed Plan.

Desolation Canyon (81,603 acres), Floy Canyon (72,605 acres), Flume Canyon (50,800 acres), Coal Canyon (60,755 acres), Mill Creek Canyon (9,780 acres), Negro Bill Canyon (7,820 acres), and Spruce Canyon (20,990 acres) WSAs

Note: Acreage of Desolation Canyon WSA is for the MPA portion only. Remainder of this WSA is managed by the Price Field Office. Acreage of Flume Canyon WSA includes 2,750 acres in areas administered by the Vernal Field Office.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Designate these WSAs as limited to inventoried routes, with: • 8.2 miles of inventoried way designated in Desolation Canyon WSA. • 23.5 miles of inventoried way designated in Floy Canyon WSA. • 10.1 miles of inventoried way designated in Flume Canyon WSA. • 8.0 miles of inventoried way designated in Coal Canyon WSA. • 1.8 miles of inventoried way designated in Mill Creek Canyon WSA. • 3.5 miles of inventoried way designated in Negro Bill Canyon WSA. • 1.0 mile of inventoried way designated in Spruce Canyon WSA.	Designate these WSAs as closed to OHV. No miles of route would be designated.	Same as Alternative B.	Designate these WSAs as limited to designated routes, with • 1.5 miles of inventoried way designated in Floy Canyon WSA. • 1.5 miles of inventoried way designated in Coal Canyon WSA. • 1.4 miles of inventoried way designated in Mill Creek Canyon WSA. • 1.1 miles of inventoried way designated in Negro Bill Canyon WSA.

Westwater Canyon WSA (31,160 acres)

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Designate the Westwater Canyon WSA as limited to inventoried routes, with 22.5 miles of inventoried way designated.	Designate the Westwater Canyon WSA as closed to OHV, with no miles of route designated.	Designate a portion of the Westwater Canyon WSA as closed to OHV (23,690 acres). Designate the remainder of the WSA as limited to designated routes,	Designate the Westwater Canyon WSA as limited to designated routes, with 8.4 miles of route designated.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

		with zero miles designated (7,470 acres).	
SPECIAL STATUS SPECIES			

Goals and Objectives:

- Maintain, protect, and enhance habitats (including but not limited to designated critical habitat) of Federally listed threatened, endangered, or candidate plant or animal species to actively promote recovery to the point that they no longer need protection under the Endangered Species Act.
- Maintain, protect, and enhance habitats of BLM (State) Sensitive plant and animal species to prevent the listing of these species under the Endangered Species Act.
- Implement management strategies that restore degraded riparian communities; protect natural flow requirements; protect water quality; manage for stable, non-eroding banks; and manage for year-round flows where applicable.
- Allow or participate in research of threatened and endangered (T&E) and Sensitive species and their habitats.
- Avoid practices that permanently convert sagebrush shrubland to invasive species.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

As required by the Endangered Species Act:

- Implement recovery actions identified in Recovery Plans and in Conservation Agreements, Plans and Strategies in coordination with U.S. Fish and Wildlife Service (USFWS), Utah Division of Wildlife Resources (UDWR), and other interested entities. The BLM would be an active participant in all recovery implementation teams.
- The protection of habitat for listed and non-listed plant and animal species would be considered prior to authorizing any actions that could alter or disturb such habitat.
- No management action would be permitted on public lands that would jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E.
- Surveys of habitat or potential habitat for special status species (including any sensitive species under consideration for formal designation as T&E) would be made prior to taking any action that could affect these species. Surveys would be conducted using protocols established for potentially affected species.
- BLM would conduct or cooperate in surveys to determine the extent of listed and non-listed plant and animal species and their habitat or potential habitat. Any listed or non-listed special status species survey must be conducted by qualified biologists, botanists, or ecologists that have been approved by the BLM.
- Monitoring, using approved protocol, would be required on listed and non-listed special status species habitat that may be affected by BLM authorization of any activities within that habitat.
- Follow current and future recovery plans and manage habitat for T&E and BLM Sensitive species:
  - Colorado Squawfish Recovery Plan.
  - Colorado Pikeminnow Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan.
  - Humpback Recovery Plan.
  - Humpback Chub Recovery Goals: amendment and supplement to the Humpback Recovery Plan.
  - Bonytail Recovery Plan.
  - Bonytail Recovery Goals: amendment and supplement to the Bonytail Recovery Plan.
  - Razorback Sucker Recovery Plan.
  - Razorback Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan.
  - Black-footed Ferret Recovery Plan.
  - Northern States Bald Eagle Recovery Plan.
  - Recovery Plan for the Mexican Spotted Owl.
  - Recovery Plan Southwestern Willow Flycatcher.
- Support and implement special status plant and animal Species Management Plans. Coordinate actions with UDWR and other involved entities. Support population and habitat monitoring.
- Support and implement current and future special status plant and animal species Conservation Plans, Strategies, and Agreements. Coordinate actions with USFWS and other involved entities. Support population and habitat monitoring. As of 2005, Conservation Plans Strategies and Agreements include:
  - Colorado River Cutthroat Trout Conservation Agreement and Strategy Conservation Agreement for the Roundtail Chub, Bluehead Sucker and Flannelmouth Sucker (see Map 2-17).
  - Follow current and future Conservation Measures and Best Management Practices (BMP) for Federally Listed Species (see Appendix K). Species include but are not limited to: Jones Cycladenia, Mexican Spotted Owl, Southwestern Willow Flycatcher, Bald Eagle, and the Endangered Fish of the Colorado River.
- Work with UDWR to implement the Utah Wildlife Action Plan (UDWR 2005a) to coordinate management actions that will conserve native species and prevent the need for additional listings.
- Mitigate all unavoidable habitat losses for special status species as required by policy or law.
- Avoid construction of new roads within listed and non-listed special status plant and animal species habitats.
- Apply lease notices for listed plant and animal species as determined by Section 7 consultation between BLM and USFWS. Apply appropriate lease notices for any non-listed special status plant and animal species that occur or could potential occur applicable proposed lease areas.
- Develop cooperative agreements with other agencies or entities to inventory and/or monitor existing or potential habitat for listed and non-listed special status plant and animal species.
- Plan and implement assessment and monitoring plans for T&E and BLM Sensitive species.
- Participate in the Colorado River Fishes Recovery and Implementation Program.
- Coordinate with USFWS and UDWR to allow for the reintroduction of T&E and BLM Sensitive species into historic or suitable range. These reintroductions would be analyzed with site-specific NEPA.
- Allow translocations and population augmentation of special status species to aid in conservation and recovery efforts. Implement necessary habitat manipulations and monitoring to ensure successful translocation efforts.
- Apply environmental best management practices (BMPs) to all oil and gas operations in accordance with WO IM 2007-021 and the latest version of the "Goldbook" (see Appendix C).

Mexican Spotted Owl (MSO):

- If BLM determines that a proposed action may affect MSO or its habitat, consultation with the USFWS would be initiated (see Map 2-18).

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

- Monitor and protect known Protected Activity Center (PAC) sites according to USFWS recommendations and MSO Recovery Plan.
- Manage habitat for MSO according to USFWS and UDWR recommendations and recovery plans.
- Develop cooperative agreements with other agencies and entities to inventory and monitor existing potential habitat and annually schedule assessment plans of MSO habitat to determine quality of habitat and presence of species.
- Protect occupied and potential habitat, including designated critical habitat for the MSO, by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C). These stipulations would preclude temporary activities within designated critical habitat from March 1 through August 31. Permanent actions are prohibited year-round within 0.5 miles of a PAC.

Southwestern Willow Flycatcher (SWFL):

- If BLM determines that a proposed action may affect SWFL or its habitat, consultation with the USFWS would be initiated.
- Monitor and protect known nesting sites according to USFWS recommendations and SWFL Recovery Plan.
- Manage habitat for SWFL according to USFWS and UDWR recommendations and recovery plans; avoid loss or disturbance of suitable riparian habitat.
- Develop cooperative agreements with other agencies and entities to inventory and monitor existing potential habitat and annually schedule assessment plans of SWFL habitat to determine quality of habitat and presence of species.
- Protect SWFL and their habitat by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C) within suitable habitat. These stipulations would preclude activities within a 100-m buffer of suitable habitat year long. Activities within 0.25 miles of occupied breeding habitat would not occur during the breeding season, May 1 through August 15.

Bald Eagle:

- If BLM determines that a proposed action may affect bald eagles or its habitat, consultation with the USFWS would be initiated.
- Acquire lands with roost and nest sites through land exchange, purchase or donation.
- Conduct assessments of wintering bald eagle habitat to delineate essential winter habitat and to develop necessary protective measures.
- Monitor nesting territories annually during breeding season (generally January 1 through August 31).
- Protect bald eagle nest sites by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C) within 1.0 mile of documented nest sites (2,439 acres). These stipulations would preclude surface-disturbing activities within a 1.0 mile radius of nest sites from January 1 through August 31 (see Map 2-19). No permanent structures would be allowed within 0.5 miles of known bald eagle nest sites year-round. Deviations may be allowed only after appropriate levels of consultation and coordination with the USFWS.
- Protect bald eagle winter habitat by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C) within 0.5 mile of winter roost areas. These stipulations would preclude activities and permanent structures within a 0.5 mile radius of winter roost sites from November 1through March 31 (see Map 2-19). No permanent structures would be allowed within 0.5 mile of winter roost sites, if the structure would result in the habitat becoming unsuitable for future winter roosting by bald eagles.

Sage-grouse:

- Advance the conservation of Greater sage-grouse as well its habitat in accordance with the BLM National Sage-grouse Habitat Conservation Strategy to avoid contributing to its listing under the Endangered Species Act (see Map 2-20).
- Consistent with RMP goals and objectives, utilize and apply, as needed, the following plans as part of implementing the BLM's National Sage-grouse Habitat Conservation Strategy, Strategic Management Plan for Sage-grouse (UDWR 2002), Western Association of Fish and Wildlife Agencies, Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004), Greater Sage-grouse Comprehensive Conservation Strategy (WAFWA 2006), and the Gunnison Sage-grouse Range-wide Conservation Plan. Follow The Gunnison Sage-grouse Range-wide Conservation Plan (GSRSC 2005) for suggested management practices within 4 miles of active Gunnison sage-grouse leks.
- Work cooperatively with UDWR; universities; State, county, and local agencies; and private organizations to develop expanded data; assist with analysis; identify important habitat and potential restoration areas and treatments; and form cooperative agreements with other agencies and organizations to inventory sage-grouse densities and identify suitable habitat for expansion.
- Develop and implement suitable sage-grouse habitat restoration projects.
- Allow for translocation of sage-grouse in suitable unoccupied habitat.

White-tailed and Gunnison Prairie Dogs:

- The White-tailed prairie dog and the Gunnison prairie dog are BLM and State sensitive species; translocations of these species would be considered in suitable unoccupied habitats (see Map 2-21).
- Manage both prairie dog species and their habitats in coordination with the UDWR. Apply habitat management guidance and population monitoring strategies as recommended in the newly developed multi-agency White-tailed and Gunnison's Prairie Dog Management Plan.
- Develop cooperative agreements with other agencies to inventory prairie dog densities and identify suitable habitat for expansion.

Colorado River Endangered Fish:

- No surface-disturbing activities within the 100-year floodplain of the Colorado River, Green River, and at the confluence of the Dolores and Colorado Rivers would be allowed. Any exceptions to this requirement would require consultation with the USFWS. Restrictions on surface disturbance within this critical habitat would be developed through this consultation process (see Map 2-17).

Golden Eagle:

- Known golden eagle nest sites would be protected according to the Bald and Golden Eagle Protection Act amended in 1978.
- Acquire lands with nest and roost sites through land exchange or acquisition.
- Conduct assessments of wintering golden eagle habitat.
- Protect golden eagle nest sites and habitat (12,902 acres) by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C). These stipulations would preclude surface-disturbing activities within 0.5 miles of documented nest sites from February 1 to July 15 (see Map 2-19).

Burrowing Owl:

- Protect burrowing owls by applying the standard terms and conditions developed in consultation with the USFWS (see Appendix O) for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C) by precluding surface-disturbing activities within 0.25 miles of known nests from March 1 through August 31 (see Map 2-22).
- Domestic sheep camps, temporary watering sites, and salt and mineral blocks would not be located within 0.25 miles of occupied burrowing owl nests from March 1 through August 31.

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- Maintain ground squirrel and prairie dog colonies to provide habitat and nesting burrows for burrowing owls.
- The species would be managed under the guidance provided by the Raptor Best Management Practices (BMPs; see Appendix O), which includes implementation of spatial and seasonal buffers to protect nesting raptors and their habitats.

Kit Fox:

- Protect kit fox by precluding surface-disturbing activities within 200 m of a kit fox den.

Ferruginous Hawk:

- Manage ferruginous hawk nesting and foraging habitat by applying the standard terms and conditions developed in consultation with the USFWS (see Appendix O) for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C) precluding surface-disturbing activities within 0.5 miles of active nests from March 1 through August 1 (see Map 2-22).
- Domestic sheep camps, temporary watering sites, and salt and mineral blocks would not be located within 0.5 miles of occupied ferruginous hawk nests from March 1 through August 1.
- The species would be managed under the guidance provided by the Raptor BMPs (see Appendix O), which includes implementation of spatial and seasonal buffers to protect nesting raptors and their habitats.

Yellow-billed Cuckoo:

- Avoid loss or disturbance of yellow-billed cuckoo habitat and manage yellow-billed cuckoo nesting and foraging habitat by applying the standard terms and conditions developed in consultation with the USFWS for oil and gas leasing and other surface-disturbing activities (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C). These stipulations preclude surface-disturbing activities within 100 m of yellow-billed cuckoo habitat within riparian areas from May 15 through July 20.
- Compliance with BLM Riparian Policy would restrict surface disturbance within 100 m of riparian habitat and would therefore protect nesting habitat for yellow-billed cuckoo.

Jones *Cycladenia (Cycladenia humilis* var. *jonesii*):

- Require specific site inventories for all surface disturbing projects in areas with suitable *Cycladenia humilis* var. *jonesii* habitat.
- BLM would restrict activities, in suitable *Cycladenia humilis* var. *jonesii* habitat. Restrictions include limiting motorized travel to designated routes, precluding surface disturbing activities within 300 feet of plants and suitable habitat, and precluding construction activities from May 15th through June 30th within occupied habitat (see Standard Terms and conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C). Other restrictions include avoiding road construction, land disposal, and utilities in this habitat, as well as avoiding grazing activities such as trailing, salting, watering and herding.

California Condor

- Within potential habitat for the California Condor, surveys will be required prior to operations unless species occupancy and distribution information is complete and available.
- Surface disturbing activities will not occur within 1.0 mile of nest sites during the breeding season of August 1 to November 30 or within 0.5 mile of established roosting sites (see Standard Terms and Conditions [Lease Notices] which are Required to Protect Special Status Species and to Comply with the Endangered Species Act, Appendix C).
- No permanent infrastructure will be placed within 1.0 mile of nest sites and within 0.5 miles of established roosting sites.

Greater Sage-grouse Habitats			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not specified.	About 12,850 acres of pre-settlement habitat (see Map 2-20) would be subject to controlled surface use and timing limitation stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Leks (within 2 miles of active strutting grounds):** apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C). These stipulations would preclude surface-disturbing activities from March 1 to May 15. Allow no permanent above-ground facilities within the 2 mile buffer year-round. • **Nesting and Brood-rearing Habitat:** apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude activities from March 15 to July 15. • **Winter Habitat:** apply a timing limitation stipulation to oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude surface-disturbing activities from November 15 to March 14 on 12,850 acres. Any surface occupancy that would require or result in loss or fragmentation of 12,850 acres of habitat would be avoided or minimized. If surface occupancy cannot be avoided, BLM would recommend that sagebrush habitat be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance	About 3,068 acres of potential habitat would be subject to controlled surface use and timing limitation stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Leks (within 2 miles of active strutting grounds):** apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C). These stipulations would preclude surface-disturbing activities from March 1 to May 15. Allow no surface-disturbing activities year-round within 0.5 mile buffer of active leks. Allow no permanent above-ground facilities within the two mile buffer. • **Nesting and Brood-Rearing Habitat:** apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude activities from March 15 to July 15. • **Winter Habitat:** apply a timing limitation stipulation to oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude surface-disturbing activities from November 15 to March 14 on 3,068 acres. Any surface occupancy that would require or result in loss or fragmentation of 3,068 acres of habitat would be avoided or minimized. If surface occupancy cannot be avoided, BLM would recommend that sagebrush habitat be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance	About 1,986 acres of potential brooding habitat would be subject to controlled surface use and timing limitations stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Leks (within 0.25 miles of active strutting grounds):** apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C). These stipulations would preclude surface-disturbing activities from March 1 to May 15. Allow no permanent above-ground facilities within the 0.25 mile buffer year-round. • **Nesting and Brood-Rearing Habitat:** apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude activities from March 15 to July 15. • **Winter Habitat:** apply a timing limitation stipulation to oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude surface-disturbing activities from November 15 to March 14 on 1,986 acres. Any surface occupancy that would require or result in loss or fragmentation of 1,986 acres of habitat would be avoided or minimized. If surface occupancy cannot be avoided, BLM would recommend that sagebrush habitat be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance

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	with 40 CFR 1508.20.	with 40 CFR 1508.20.	with 40 CFR 1508.20.
Gunnison Sage-grouse Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not specified.	About 246,107 acres of pre-settlement habitat (See Map 2-20) would be subject to controlled surface use and timing limitation stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Lek habitat (within 2.0 miles of active strutting ground):** Apply controlled surface use and timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude permanent surface occupancy within 2.0 miles of an active lek. No surface-disturbing activities would be allowed from March 20 to May 15. Allow no permanent above-ground facilities within the buffer. Prohibit or limit year-round construction of fences. Where opportunity exists, remove existing fences. Prohibit construction of power lines or other structures. Avoid issuing ROWs that would result in permanent above-ground facilities within 2.0 miles of a lek. Human caused disturbances would be avoided from March 20 to May 15. • **In year-round habitat (within 6.0 miles of active lek):** avoid construction of fences, power lines, and tall structures.	About 175,727 acres of current potential habitat would be subject to controlled surface use and timing limitation stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Leks (within 2 miles of active strutting grounds):** apply controlled surface use and timing limitation stipulations for oil and gas leasing and other surface-disturbing activities (see Appendix C). These stipulations would preclude surface-disturbing activities from March 20 to May 15. Allow no surface disturbing activities year-round within 0.5 mile buffer of active leks. Allow no permanent above-ground facilities within the two mile buffer. Prohibit or limit year-round construction of fences. Where opportunity exists, remove existing fences. Prohibit construction of power lines or other structures. Avoid issuing ROWs that would result in permanent above-ground facilities within 0.5 miles of a lek. Human caused disturbances would be avoided from March 20 to May 15. • **In year-round habitat (within 4.0 miles of active lek):** minimize fence construction and avoid overhead power line construction where it would provide new raptor hunting perches and the possibility of collision for sage-grouse. Fences deemed necessary to construct should be built with materials that maximize visibility for sage-grouse to avoid collision.	About 41,620 acres of potential brooding habitat would be subject to controlled surface use and timing limitation stipulations (if sage-grouse occupation is identified by BLM in cooperation with UDWR) as follows: • **Lek habitat (within 0.25 miles of active strutting ground):** Apply controlled surface use and timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). These stipulations would preclude permanent surface occupancy within 0.25 miles of an active lek. No surface-disturbing activities would be allowed from March 20 to May 15. Allow no permanent above-ground facilities within the buffer. Prohibit or limit year-round construction of fences. Where opportunity exists, remove existing fences. Prohibit construction of power lines or other structures. Avoid issuing ROWs that would result in permanent above-ground facilities within 0.25 miles of a lek. Human caused disturbances would be avoided from March 20 to May 15.
Not specified.	Any surface occupancy that would require or result in loss or fragmentation of 246,107 acres of habitat would be avoided or minimized. If surface occupancy cannot be avoided sagebrush habitat would be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance with 40 CFR 1508.20.	Any surface occupancy that would require or result in loss or fragmentation of any of the 175,727 acres of identified Gunnison sage-grouse habitat would be avoided or minimized. If surface occupancy cannot be avoided sagebrush habitat would be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance with 40 CFR 1508.20.	Any surface occupancy that would require or result in loss or fragmentation of 41,620 acres of habitat would be avoided or minimized. If surface occupancy cannot be avoided sagebrush habitat would be reclaimed. BLM would require onsite mitigation measures that prevent unnecessary or undue degradation to protect surface resources in accordance with 40 CFR 1508.20.
White-tailed Prairie Dog Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not specified.	Manage 199,505 acres of historic habitat (see Map 2-21) designated by UDWR. Manage 117,481 acres of this habitat as the Cisco White-tailed Prairie Dog Complex ACEC; apply no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) within the ACEC. Manage the remaining 82,024 acres of habitat to protect active prairie dog colonies by applying a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This stipulation would preclude surface-disturbing activities within 1,300 feet of these colonies. No permanent above-ground facilities would be allowed within the 1,300-foot buffer.	Manage the contiguous 117,481 acres of historic habitat designated by UDWR. Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 660 feet of active prairie dog colonies. This stipulation would preclude surface-disturbing activities within 660 feet of these colonies. No permanent above-ground facilities would be allowed within the 660-foot buffer.	Manage 31,186 acres of occupied habitat designated by UDWR. Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 660 feet of active prairie dog colonies. This stipulation would preclude surface-disturbing activities within 660 feet of these colonies. No permanent above-ground facilities would be allowed within the 660-foot buffer.
Gunnison Prairie Dog Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not specified.	Manage 10,700 acres of habitat designated by UDWR for Gunnison prairie dogs (see Map 2-21). Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 1,300 feet of active prairie dog colonies. This stipulation would preclude surface-	Manage 10,700 acres of habitat designated by UDWR for Gunnison prairie dogs. Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 660 feet of active prairie dog colonies. This stipulation would preclude surface-disturbing	Manage Gunnison prairie dog habitat using standards terms and conditions.

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	disturbing activities within 1,300 feet of these colonies. No permanent above-ground facilities would be allowed within 1,300 feet of prairie dog colonies. Construction of new power lines would be prohibited within 1,300 feet of prairie dog colonies.	activities within 660 feet of these colonies. No permanent above-ground facilities would be allowed within 660 feet of prairie dog colonies. Power lines would be avoided within prairie dog colonies; however in the event that power lines are required within colonies, raptor anti-perch devices would be required.	

TRAVEL MANAGEMENT

Motorized Travel

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

Under the Proposed Plan and under Alternatives A and D, where routes would remain available for motorized use within WSAs, such use could continue on a conditional basis. Use of the existing routes in the WSAs ("ways" when located within WSAs – see Glossary) could continue as long as use of these routes does not impair wilderness suitability, as provided by the Interim Management Policy for Lands Under Wilderness Review (BLM 7/5/95). The miles of motorized routes in WSAs (see page 2-42 and 2-43 for miles of route per WSA) are only conditionally open to vehicle use. If Congress designates the area as wilderness, the routes will be closed. In the interim, if use and/or non-compliance are found through monitoring efforts to impair the area's suitability for wilderness designation, BLM would take further action to limit use of the routes, or close them. The continued use of these routes, therefore, is based on user compliance and non-impairment of wilderness values.*

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- BLM, in preparing its RMP designations and its implementation-level travel management plans, is following policy and regulation authority found at: 43 C.F.R. Part 8340; 43 C.F.R. Subpart 8364; and 43 C.F.R. Subpart 9268.
- *Provide opportunities for a range of motorized recreation experiences on public lands while protecting sensitive resources and minimizing conflicts among various users. Identification of specific designated routes would be initially established through the chosen Travel Plan accompanying this RMP (see Appendix G) and may be modified through subsequent implementation planning and project planning on a case-by-case basis. These identified routes would be available regardless of other management actions. These adjustments would occur only in areas with limited route designations and would be analyzed at the implementation planning level. These adjustments would be done through a collaborative process with local government and which would include public review of proposed route changes. Site-specific NEPA documentation would be required for changes to the route designation system.* †
- All areas would be limited, open, or closed to motorized travel. Limit travel by motorized vehicle on all lands administered by the MFO to designated routes, except for Managed Open Areas, and for areas that are closed to motorized travel (see Maps 2-10-A through 2-10-D; see Appendix G for Travel Plan development).
- BLM could impose limitations on types of vehicle allowed on specific designated routes if monitoring indicates that a particular type of vehicle is causing disturbance to the soil, wildlife, wildlife habitat, cultural or vegetative resources, especially by off-road travel in an area that is limited to designated roads.
- OHV access for game retrieval, antler collection and dispersed camping would only be allowed on designated routes (designated routes/spurs have been identified specifically for dispersed camping). Adherence to the Travel Plan is required for all activities, except where otherwise explicitly permitted.
- Only designated roads and managed open areas are available for motorized commercial and organized group use (see Maps 2-11-B through 2-11-D for route designations by alternatives).
- Where the authorized officer determines that off-road vehicles are causing or would cause considerable adverse impacts, the authorized officer shall close or restrict such areas. The public would be notified as to these closures and restrictions.
- Any routes that are not baseline routes would be signed "Closed" on the ground. Such routes would be considered as impacts to the area's natural character, and use of such routes would be considered cross country use and not allowed. Non-inventoried routes should be rehabilitated.
- Under the Proposed Plan and under Alternatives A and D, where routes would remain available for motorized use within WSAs, such use could continue on a conditional basis. Use of the existing routes in the WSAs ("ways" when located within WSAs – see Glossary) could continue as long as use of these routes does not impair wilderness suitability, as provided by the Interim Management Policy for Lands Under Wilderness Review (BLM 7/5/95). The miles of motorized routes in WSAs (see below for miles of route per WSA) are only conditionally open to vehicle use. If Congress designates the area as wilderness, the routes will be closed. In the interim, if use and/or non-compliance are found through monitoring efforts to impair the area's suitability for wilderness designation, BLM would take further action to limit use of the routes, or close them. The continued use of these routes, therefore, is based on user compliance and non-impairment of wilderness values.

♦ Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Continue to manage motorized vehicle travel under the travel designations established in the 1985 Grand RMP as modified by subsequent Federal Register notices published under the authority of 43 CFR 8340 (see Map 2-10-A). Manage 620,212 acres as open to off-road vehicle travel, 1,196,920 acres as OHV travel limited to existing roads and trails (of which 48,169 acres would be OHV travel limited to designated roads and trails and 309,749 acres within WSAs would be limited to inventoried routes) and 5,062 acres as closed to OHV travel.	♦ 437,424 acres would be closed to OHV travel. ♦ 1,475,074 acres would be limited to designated routes. ♦ 0 acres would be open to cross country travel (see Map 2-10-B).	♦ 339,298 acres would be closed to OHV travel. ♦ 1,481,334 acres would be limited to designated routes. ♦ Approx. 2,000 acres (White Wash Sand Dunes) would be open to cross country travel (see Map 2-10-C).	♦ 57,351 acres would be closed to OHV travel. ♦ 1,762,083 acres would be limited to designated routes and/or inventoried routes within WSAs. ♦ 3,064 acres (White Wash Sand Dunes and the Airport Hills) would be open to cross country travel (see Map 2-10-D).
Miles of Route:	**Designated Routes:**	**Designated Routes:**	**Designated Routes:**
6,199 miles motorized routes.	3,328 miles motorized routes.	*3,693 miles motorized routes.*†	3,855 miles motorized routes.
199 miles inventoried verified motorized single-track.	122 miles of full-sized motorized routes converted to motorcycle-only use.	*313 miles for motorcycles (163 miles on inventoried routes and 150 miles on inventoried single-track).* †	347 miles for motorcycles (151 miles on inventoried routes and 196 miles on inventoried single-track).

† This is an implementation decision that cannot be protested under the planning regulations. Please see the cover letter for further information

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Dirt Bike Trail/Route: Dirt bike route from Colorado State Line to Thompson not designated.	**Dirt Bike Trail/Route:** Do not designate dirt bike routes from the Colorado State Line to Thompson, Utah.	**Dirt Bike Trail/Route:** *Designate dirt bike route from Colorado State Line to Thompson (see Map 2-11), utilizing 9 miles of single-track and 22 miles of inventoried Grand County roads. These totals are reflected in the mileage under "designated routes."* †	**Dirt Bike Trail/Route:** Designate 58.3 miles of dirt bike route from the Colorado State Line to Thompson. Portions of this route (48 miles) are considered new and will require site-specific NEPA analysis prior to possible designation and use. The remaining 10 miles of the route may be used immediately. These totals are reflected in the mileage under "designated routes."
Mechanized Recreational Travel (e.g., mountain bikes)			
Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D: • Provide opportunities for mechanized travel on all routes open to motorized use. • Prohibit new bike routes within non-WSA lands managed for wilderness characteristics or within hiking focus areas. • Limit mechanized travel to designated trails and managed routes for resource protection purposes. Routes that are no longer available for motorized travel may be converted to bike routes upon application of site-specific NEPA analysis. • Manage approximately 11.2 miles of routes on the following trails for non-motorized use only: Jackson Trail, "Baby Steps," Hunter Canyon Rim, Portal Trail, Hidden Valley, and Porcupine Rim single-track section. (Hidden Valley and Porcupine Rim Trails are subject to IMP.) • Identification of specific designated routes would be initially established through the RMP process and may be modified through subsequent planning at the activity plan and project plan levels on a case-*by-case basis. These modifications would be analyzed through site-specific NEPA.*			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Continue to manage mechanized travel under closure and restriction notices published in the Federal Register under the authority of 43 CFR 8364. Manage 4 miles of route on the following trails for mechanized use: • Jackson Trail. • Portal Trail.	Design and implement up to 75 additional miles of managed mechanized trails. Implement these new system routes solely by converting inventoried routes not designated for motorized travel to non-motorized use, where appropriate, and installing support facilities such as trailheads and route signage. No new single track trails would be considered (see Map 2-11-F(B)).	*Design and implement up to 150 new miles of managed mechanized trails. In addition, convert existing inventoried routes not designated for motorized travel to non-motorized use, where appropriate, and install appropriate support facilities such as trailheads and route signage*† *Initially designate the following existing trails for mechanized use (totaling 11.3 miles; see Map 2-11-F(C):*† • *Fisher Mesa (in conjunction with USFS; 5.8 miles).* • *Pothole (on Amasa Back; 1.2 miles).* • *Rockstacker (on Amasa Back; 0.9 miles).* • *Lower Porcupine Singletrack (LPS; 1.4 miles).* • *"Power line" Trail (0.07 miles on public land).* • *Mill Creek Parkway Extension (0.16 miles on public land).*	Design and implement up to 300 new miles of managed mechanized trails. In addition, convert inventoried routes not designated for motorized travel to non-motorized use, where appropriate, and install appropriate support facilities such as trailheads and route signage. Same as the Proposed Plan, except also initially designate the following additional trails for mechanized use (totaling 15.5 miles; see Map 2-11-F(D)): • Goldbar Singletrack (4.4 miles) This new proposed trail would be analyzed with site-specific NEPA before implementation.
Non-mechanized Recreational Travel (e.g., hiking, backpacking, and equestrian)			
Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D: • Non-mechanized travel is not restricted on public lands except where limited or prohibited to protect specific resource values, provide for public safety or maintain an identified opportunity. • Provide opportunities for non-mechanized travel on all routes open to mechanized use and manage routes identified in each alternative to exclude motorized and mechanized use and provide opportunities for non-mechanized travel independent of motorized and mechanized routes. • Limit non-mechanized travel on specific lands to designated trails and managed routes for resource protection purposes. • Manage 17 miles of routes on the following trails for non-mechanized use: Amphitheater Loop, Fisher Towers, Negro Bill, Corona Arch, Trough Spring Canyon, Anticline Overlook, Needles Overlook, Windwhistle Nature Trail, Mill Canyon Dinosaur Interpretive Trail, Copper Ridge Sauropod Interpretive Trail, and Sego Canyon Interpretive Trail. • Identify specific routes through the RMP process. These routes may be modified through subsequent planning at the RMP, activity plan, and project plan levels on a case-by-case basis. • Work with equestrian groups to identify additional trails for equestrian and hiker use only. These trails would be designated based on site-specific NEPA analysis.			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Not addressed.	• Design and implement up to 25 additional miles of managed non-mechanized trail system consistent with the Travel Plan. Implement these new system routes largely by converting roads to non-mechanized use and installing appropriate support facilities such as trailheads and route signage. • Manage the Hidden Valley Trail as non-mechanized only. • Mark the following existing trails: Castleton, Culvert-Goldbar Loop. Mark a new trail from Onion Creek to Amphitheater Loop.	• Design and implement up to 50 miles of managed non-mechanized trail system consistent with the Travel Plan. Implement these new system routes largely by converting existing, low utilization roads to non-mechanized use and installing appropriate support facilities such as trailheads and route signage. • Mark the following existing trails: Castleton, Culvert-Goldbar Loop. Mark a new trail from Onion Creek to Amphitheater Loop.	• Design and implement up to 100 additional miles of managed non-mechanized trail system consistent with the Travel Plan. Implement these new system routes largely by converting existing, low utilization roads to non-mechanized use and the installation of appropriate support facilities such as trailheads and route signage. • In addition to the trails proposed in the Proposed Plan, work to gain public access to the Heavenly Stairway Trail.
Equestrian Use:	**Equestrian Use:**	**Equestrian Use:**	**Equestrian Use:**

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

All public lands within the field office are presently available for equestrian use. Equestrian use in Negro Bill Canyon has been discouraged because the sandy hiking trail is easily damaged by equestrian use. The Mill Creek Canyon Plan specifies that commercial equestrian use would not be renewed.	Same as the Proposed Plan, except the following additional equestrian trails would be developed. Hikers would also be allowed on this trail, but there would be no motorized or mechanized vehicles allowed: • Ten Mile from Dripping Springs to Green River.	The following trails would be managed for equestrian use. Hikers would also be allowed on these trails, but there would be no motorized or mechanized vehicles allowed: • Onion Creek Benches (Colorado Riverway SRMA). • Ida/Stearns Gulch Equestrian Trail System. • Castle Creek Equestrian Trail. • Rattlesnake Trail above Nefertiti Boat Launch. • Seven Mile Canyons. • Red Rock Horse Trail (Ken's Lake to Johnson's Up-on-Top).	Same as the Proposed Plan.
VEGETATION			
Goals and Objectives: • Manage vegetation resources for desired future conditions (DFC) ensuring ecological diversity, stability, and sustainability, including the desired mix of vegetation types, structural stages, and landscape/riparian function and provide for livestock grazing and for native plant, fish, and wildlife habitats (see Appendix L for Desired Future Conditions for Vegetation). • Maintain existing vegetation treatment areas as appropriate. • Control invasive and non-native weed species and prevent the introduction of new invasive species by implementing a comprehensive weed program (as per national guidance and local weed management plans in cooperation with state, federal, and affected counties), including: coordination with partners; prevention and early detection; education; inventory and monitoring; and using principles of integrated weed management. • Manage for vegetation restoration, including control of weed infestations and control of invasive and undesirable nonnative species. • Maintain, protect and enhance special status plant and animal habitats in such manner that the potential need to consider any of these species for listing as threatened or endangered under the Endangered Species Act does not arise. • Develop management prescriptions for all surface-disturbing resource uses during times of extended drought (see description of Adaptive Drought Management, below). • Maintain or enhance the integrity of current sagebrush and sage steppe communities and identify areas in need of restoration. Initiate restoration and/or rehabilitation efforts to ensure sustainable populations of sage-grouse, mule deer and other sagebrush obligate species.			
Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D: • Utilize the BLM National Sage-grouse Conservation Strategy – Guidance for Management of Sagebrush Plant Communities for Sage-Grouse Conservation, when applicable, in the development and implementation of vegetation and land treatments, livestock manipulation techniques, fire projects, energy exploration and development and any surface-disturbing activity within sagebrush and sage steppe communities. • Sagebrush/steppe communities would be a high priority for wildfire suppression, emergency stabilization and fuel reduction to avoid catastrophic fires in these communities. • Reclaim and restore up to 257,809 acres of sagebrush habitat and shrub-steppe ecosystems where appropriate in accordance with the BLM sagebrush conservation guidance. Reclamation/restoration would be undertaken in cooperation with the Utah Partners for Conservation and Development (UPCD) and may include removing surface material, re-contouring, spreading topsoil, seeding or planting seedlings, and/or changing livestock grazing strategies, such as, changing season of use, type of use, removing or reducing spring grazing, reducing livestock numbers, reducing grazing intensity, improving distribution, requiring rest rotation practices, or exclusion. Work in coordination with UDWR to reduce wildlife numbers, as necessary, to restore sagebrush habitat. • Provide opportunities for seed gathering of various vegetation types while protecting other resources. • Restoration and rehabilitation would use native seed-mixes wherever possible. Non-native species may be used as necessary for stabilization or to prevent invasion of noxious or invasive weed species. • Gather necessary vegetation information and continue monitoring to assess if planning objectives are being met. • Utilize the techniques and methods for vegetation treatments identified in the Utah ROD for Vegetation Treatments using Herbicides on Bureau of Land Management Lands in Seventeen Western States (2007). • Control noxious weed species and prevent the infestation and spread of invasive species. Develop cooperating agreements with other Federal, State, local and private organizations to control invasive and noxious weed species. • Reduce tamarisk and Russian olive where appropriate using allowable vegetation treatments. Restore riparian habitat to native willow and cottonwood communities. • Where appropriate, replant cottonwoods and willow subsequent to wildland fire or other disturbance in riparian areas. • Promote science and research opportunities in the San Arroyo Area/Exclosures, Sagers Watershed Area/Exclosures and Big Flat Area/Exclosures (approximately 300 acres each). • Establish Lower South Fork of Seven Mile Canyon as a Riparian/Wetland Demonstration Area for the improvement and restoration of the riparian area. • Insect pests would be treated in coordination with the State of Utah, other Federal agencies, affected counties, adjoining private land owners and other directly affected interests. • See Livestock Grazing for other vegetation treatments.			
Adaptive Drought Management: Establish criteria for restricting activities during drought (see Appendix M for Drought Classification System) based on the following measures/parameters: *Severe (D2):* • Send drought letters. • UDWR coordination for big game herd control. • Prepare local seasonal precipitation graphs. • Suspend or limit seed collecting activities.			

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Extreme (D3):

- No new surface-disturbing activities in areas with sensitive soils (subject to valid existing rights or actions associated with other valid permitted activities; see oil and gas Appendix C for definition of surface-disturbing activities).
- Changes in livestock use would be based on site-specific data on those allotments that are affected by drought.
- OHV use and competitive motorized events would be confined to designated roads and routes within the open OHV area.
- Require additional erosion-control techniques/BMPs for surface-disturbing activities (e.g., hydromulching).
- Limit prescribed burns and vegetation treatments.

Exceptional (D4):

- Changes in livestock use will be based on site-specific data on those allotments that are affected by drought.
- No new surface-disturbing activities (subject to valid existing rights or actions associated with other valid permitted activities).
- Consider closing areas to public entry.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Not specified.	Avoid or minimize to the extent possible the loss of sagebrush/steppe habitat from BLM-initiated or authorized actions. The BLM recommends that loss of sagebrush/steppe habitat essential to wildlife (e.g., sage-grouse, mule deer, and sagebrush obligate species) be reclaimed or mitigated off-site.	Avoid or minimize to the extent possible the loss of sagebrush/steppe habitat from BLM-initiated or authorized actions. The BLM recommends that loss of sagebrush/steppe habitat essential to wildlife (e.g., sage-grouse, mule deer, and sagebrush obligate species) be reclaimed or mitigated off-site.	Same as the Proposed Plan.

VISUAL RESOURCE MANAGEMENT (VRM)

Goals and Objectives:

- Manage public lands in a manner that protects the quality of scenic values.
- Recognize and manage visual resources for overall multiple use, filming, and recreational opportunities for visitors to public lands.
- Manage BLM actions to preserve those scenic vistas that are most important.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

WSAs and designated wilderness would be designated as VRM Class I.

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- Wild and Scenic River (WSR) segments recommended as suitable for Wild would be designated as VRM Class I, Scenic would be designated as VRM Class II, and Recreational would be managed the same as the underlying VRM management class.
- For all VRM classes, all resource uses and management activities would be required to meet VRM objectives. However, recreation developments in the immediate foreground of Key Observation Points (KOPs) in VRM Class I and II areas would require special consideration to meet both recreational and VRM objectives. These facilities often create more contrast than would be acceptable; however this contrast would be allowed if the facilities are part of the expected image of the public being served. The contrast should be allowed only to the extent needed for the function of the facility, which should reflect design excellence and be a positive element of the built environment. Structures should blend into the landscape while retaining functionality.
- Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) to all areas designated as VRM Class I.
- Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) to all areas designated as VRM Class II. This would require surface-disturbing activities to meet the objectives of VRM Class II.
- Designated utility corridors within VRM Class II areas would be designated as VRM Class III only for utility projects.
- Necessary road maintenance could occur regardless of VRM class.
- Public lands within the viewshed of Arches National Park would be designated as VRM Class II.
- See Maps 2-23-A through 2-23-D for VRM Management Classes, by alternative.

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
VRM management classes identified only for Canyon Rims (33,037 acres designated as VRM Class II; 67,236 acres designated as VRM Class III). Interim management classes would be assigned through site-specific analysis based on the current VRM inventory.	Areas with high potential for oil and gas development (Big Flat/Hatch Point/Lisbon Valley and Eastern Bookcliffs/Greater Cisco) would be designated according to the underlying VRM inventory (VRM Classes II and III).	Areas with high potential for development of oil and gas (Big Flat/Hatch Point/Lisbon Valley, and Eastern Bookcliffs/Greater Cisco) would be designated as VRM Class III with the exception of those portions of SRMAs and ACECS that have more stringent VRM classifications.	Areas with high potential for oil and gas (Big Flat/Hatch Point/Lisbon Valley, and Eastern Bookcliffs/Greater Cisco) development would be designated as VRM Class III or IV with the exception of the more stringent VRM classification established for the rims of the Canyon Rims Recreation Area.
Wilderness, WSAs, and Negro Bill Outstanding Natural Area would be designated as VRM Class I.	The following ACECs would be designated as VRM Class I: Behind the Rocks, Canyon Rims, Colorado River, Highway 279/Shafer Basin/Long Canyon, Mill Creek Canyon, Upper Courthouse, Westwater and Wilson Arch. Manage the remaining ACECs according to the underlying VRM inventory class. Scenic driving corridors would be designated as VRM Class II within a specified viewshed not to exceed 1 mile from centerline. Apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C) within 1 mile of scenic driving corridors.	Manage the Shafer Basin portion of the Highway 279/Shafer Basin/Long Canyon ACEC as VRM Class I. Scenic driving corridors would be designated as VRM Class II within a specified viewshed not to exceed 0.5 mile from centerline. Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 0.5 mile of scenic driving corridors. Manage the following areas with high-quality visual resources as VRM Class II: Sand Flats, Gemini Bridges/Monitor and Merrimac/Poison Spider/Goldbar/ Corona Arch area, the Colorado, Dolores and Green River corridors, Tusher	Scenic driving corridors would be designated as VRM Class II within a specified viewshed not to exceed 0.25 mile from centerline. Apply a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C) within 0.25 mile of scenic driving corridors. Manage the following areas with high quality visual resources as VRM Class II: Sand Flats, the Colorado, Dolores and Green River corridors, Tusher Canyon (Bookcliffs), the Colorado Riverway, Matt Martin Point, areas bordering Arches National Park, Hatch Wash, the rims of Canyon Rims, the Mill Creek area, and Beaver Creek (see Map 2-23-D).

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

	Manage the following areas with high quality visual resources as VRM Class II: Sand Flats, Gemini Bridges/Monitor and Merrimac/Poison Spider/Goldbar/ Corona Arch area, the Colorado, Dolores and Green River corridors, Tusher Canyon (Bookcliffs), areas of the Colorado Riverway not within the Colorado River ACEC, Matt Martin Point, areas bordering Arches National Park, Kane Creek, Hatch Wash, the rims of Canyon Rims, Beaver Creek and the eastern Book Cliffs (see Map 2-23-B).	Canyon (Bookcliffs), the Colorado Riverway, Matt Martin Point, areas bordering Arches National Park, Kane Creek, Hatch Wash, the rims of Canyon Rims, the Mill Creek and Behind the Rocks ACECs, Beaver Creek, and Long Canyon (see Map 2-23-C).	
349,110 acres would be designated as VRM Class I.	453,462 acres would be designated as VRM Class I.	358,911 acres would be designated as VRM Class I.	349,617 acres would be designated as VRM Class I.
401,015 acres inventoried as VRM Class II, of which 33,037 acres would be designated as VRM II.	373,647 acres would be designated as VRM Class II.	365,566 acres would be designated as VRM Class II.	245,773 acres would be designated as VRM Class II.
800,782 acres inventoried as VRM Class III, of which 67,236 would be designated as VRM III.	784,246 acres would be designated as VRM Class III.	829,158 acres would be designated as VRM Class III.	956,724 acres would be designated as VRM Class III.
271,356 acres inventoried as VRM Class IV.	210,532 acres would be designated as VRM Class IV.	268,133 acres would be designated as VRM Class IV.	269,641 acres would be designated as VRM Class IV.

WILDLIFE AND FISHERIES

Goals and Objectives:

- Maintain, protect, and enhance habitats to support natural wildlife diversity, reproductive capability, and a healthy, self-sustaining population of wildlife and fish species.
- Manage crucial, high-value, and unfragmented habitats as management priorities.

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Continue to implement and modify three Habitat Management Plans (HMPs) summarized in Appendix N: Hatch Point HMP, Dolores Triangle HMP, and the Potash-Confluence HMP.
  - The Hatch Point HMP: Manage to benefit pronghorn and improve sagebrush habitat for sage-grouse and other wildlife species. Emphasize habitat management, change in livestock class from sheep to cattle, and maintenance of land treatments.
  - Potash-Confluence HMP: Manage to benefit desert bighorn sheep, but also include guidance for chukar partridge, bald eagle, and peregrine falcon. Water developments to benefit desert bighorn are to be maintained; under this HMP, 278,000 acres of land administered by the BLM are to be maintained in good condition and habitat is to be improved where needed. Eight specific management objectives were established (see Appendix N for details).
  - The Dolores Triangle HMP: Manage to benefit deer, elk, and bighorn sheep. Improve bald eagle, riparian and native and naturalized fish habitat through the installation of fencing and enclosures in Granite, Coates, Ryan, and Renegade Creeks by installing six in-stream structures (see Appendix N for details).
- Livestock grazing would not be authorized on the following allotments/areas (or portions of allotments/areas) in order to benefit wildlife resources:
  - A portion of the Kane Spring Allotment (that portion in Kane Spring Canyon between the open valley and the river; 558 acres and 0 AUMs).
  - An area along the Colorado River between Hittle and north of Dewey Bridge (400 acres, AUMs would remain the same).
  - Between The Creeks with 3,960 acres and 221 AUMs.
  - North Sand Flats with 5,860 acres and 798 AUMs.
  - South Sand Flats with 10,209 acres and 592 AUMs.
  - A portion of Arth's Pasture Allotment (Poison Spider area; approximately 6,200 acres and 425 AUMs).
- Support and implement current and future animal species Conservation Plans, Strategies and Agreements. Coordinate actions with UDWR and other involved entities. Support population and habitat monitoring.

Migratory Birds:

- Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," would be integrated into all activities with potential adverse impacts, wildlife management programs, and other resources including but not limited to riparian-wetland habitat, rangeland health standards and guidelines raptor protection, fire, special status species, off-site mitigation and habitat enhancement. Management actions would emphasize birds listed on the current USFWS "Birds of Conservation Concern" (2002f or as updated) and Utah Partners-in-Flight priority species. Habitats that would be emphasized are the Cisco Desert Bird Habitat Conservation Area, Colorado and Dolores River Bird Habitat Conservation Area, Green River Bird Habitat Conservation Area, and the Cottonwood and Willow Creek Bird Habitat Conservation Area (see Appendix N). As a supplement to complying with Executive Order 13186, the Bird Habitat Conservation Areas identified in the Coordinated Implementation Plan for Bird Conservation in Utah (Martinsen et al. 2005 or as updated), would receive priority for conducting bird habitat conservation projects, through cooperative funding initiatives such as the Intermountain West Joint Venture.
- Implement Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds" during all activities to protect habitat for migratory birds. Management would emphasize birds listed on the current USFWS "Birds of Conservation Concern" (2002 or as updated) and Partners-in-Flight priority species (as updated).
- As specific habitat needs and population distribution to "Birds of Conservation Concern" and Partners-in-Flight priority species are identified, BLM would use adaptive management strategies to further conserve habitat and avoid impacts to these species.
- Prioritize the maintenance and/or improvement of lowland riparian, wetlands, and low and high desert scrub communities which are the four most important and used habitat types by migratory birds in MPA.
- Prevent the spread of invasive and non-native plants, especially cheatgrass, tamarisk, and Russian olive. Strive for a dense under story of native species in riparian areas with a reduction in tamarisk and improvement of cottonwood and willow regeneration.
- During nesting season for migratory birds (May 1 – July 31), avoid surface-disturbing activities and vegetative-altering projects and broad-scale use of pesticides in identified occupied migratory bird habitat.

Management common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- Coordinate with UDWR and other partners to help accomplish the population and habitat goals and objectives of big game Herd Management Plans that are consistent with and meet the goals and objectives of this land-use plan.
- The BLM will approach compensatory mitigation on an "as appropriate" basis where it can be performed onsite, and on a voluntary basis where it is performed offsite, or, in accordance with current guidance.
- Restrict dispersed camping in riparian areas to protect riparian wildlife habitat. Restrictions could include limiting camping to designated sites or prohibiting camping.
- Implement a limited fire suppression policy and initiate prescribed fires where treatment by fire would increase vegetation productivity and increase forage for wildlife.
- Modify the grazing season of use or change class of livestock for individual allotments as necessary to accommodate forage needs for wildlife.

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- Predator management would continue to be coordinated with Animal and Plant Health Inspection Service (APHIS)-Wildlife Services and UDWR and would be conducted utilizing the guidance provided by the existing MOU with APHIS-Wildlife Services.
- BLM would continue to coordinate with, and provide support to UDWR for introduction/reintroduction of native or naturalized fish or wildlife species into historic or suitable habitats as determined appropriate.
- Introduction, transplantation, augmentation and re-establishment of both naturalized and native species would be considered and would include, but may not be limited to, pronghorn, desert bighorn sheep, wild turkey, bison, beaver, chukar, otter, and Colorado River cutthroat trout and other native and naturalized fish species, pursuant to guidance and direction provided in BLM's 1745 Manual.
- Raptors would be managed under the auspices of Best Management Practices (BMPs; see Appendix O), which would include implementation of spatial and seasonal buffers. These BMPs implement the USFWS's Guidelines for Raptor Protection From Human and Land-use Disturbances, with modifications allowed as long as protection of nests is ensured. Seasonal and spatial buffers are also listed in Appendix O. Cooperate with utility companies to prevent electrocution of raptors. Temporarily close areas (amount of time depends on the species) near raptor nest to rock climbers or other activities if the activity could result in nest abandonment.
- Support and implement where possible the Northern River Otter Management Plan; coordinate with UDWR to determine potential release sites; support population monitoring.
- Manage riparian areas to ensure a multi-aged, multi-layered structure, allowing for retention of snags and diseased trees. Provide multiple layers of vegetation (vertical structure) within 10 feet of the ground.
- Minor adjustments to crucial wildlife habitat boundaries periodically made by the Utah Division of Wildlife Resources (UDWR) would be accommodated through plan maintenance.

Pronghorn Habitat:

- Manage 78,476 acres of current pronghorn habitat that UDWR has designated in the La Sal (Hatch Point Herd) Wildlife Management Unit. Implement the Hatch Point HMP. Manage 743,524 acres of pronghorn habitat that UDWR has designated in the Cisco Desert and on the following allotments: Cisco, Cisco Mesa, Harley Dome, San Arroyo, Horse Canyon, Pipeline, Floy Creek, Athena, Little Grand, Corral Wash Canyon, Agate, Little Hole, Monument Wash, Highlands, 10-Mile Point, Big Flat, Ruby Ranch, Bar-X, Crescent Canyon, Squaw Park, and San Arroyo (see Map 2-24).
- Management of pronghorn habitat (see Map 2-25) would be done in coordination with UDWR and may include (but would not be limited to) the following actions:
  - Installing and improving year-round water resources within the La Sal Management Unit and the Cisco Desert Herd unit.
  - Supporting a change in class of livestock from sheep to cattle on the Hatch Point area. Changing class of livestock from cattle to sheep would not be allowed within pronghorn habitat.
  - Installing water developments every 2 square miles on summer and fawning areas.
  - Constructing fences that allow for pronghorn passage.
  - Dismantling un-needed fences.
  - Installing restrictive fencing to stop pronghorn passage onto highways.
  - Increasing forage through vegetation treatments on approximately 4,400 acres.

Bighorn Sheep Habitat:

- Film permits would comply with minimum impact criteria (see Appendix B) from April 1 through June 15 and from October 15 through December 15 within 123,490 acres of crucial bighorn sheep habitat (see Maps 2-25-B through 2-25-D).
- No change in class of livestock from cattle to sheep conversions would be considered in recognized bighorn habitat. (see Maps 2-26 and 2-28).
- Follow the recommendations found in the BLM Bighorn Sheep Rangeland Management Plan, as revised (1993b); the Utah BLM Statewide Desert Bighorn Sheep Management Plan, as revised (1986a); and the Revised Guidelines for the Management of Domestic Sheep and Goats in Native Wild Sheep Habitats (BLM 1998a).
- Support the current bighorn sheep population and manage to increase desert bighorn population (prior stable numbers) on 330,892 acres. Population goals would be reached by releases, by reestablishment, and through change of livestock class and installation of new water facilities (see Appendix N for details).
- Management of bighorn sheep habitat in coordination with UDWR would include: installing water developments every 5 square miles in or within 2 miles of escape terrain, precluding exotic ungulate, wild horses or burros within 10 miles of habitat, and constructing fences that allow for bighorn sheep passage (3 strands with bottom wire smooth) and dismantling un-needed fences.
- Manage 9,278 acres along the rim of Hatch Point as part of the Lockhart Bighorn Sheep habitat areas. Apply a timing limitation stipulation to oil and gas leases and other permitted uses, which would restrict surface-disturbing activities from April 1 through June 15 for lambing and from October 15 through December 15 for rutting (see Appendix C).
- Manage 317,523 acres of total desert bighorn sheep habitat on the following grazing allotments: Buckhorn, North River, Little Grand, Taylor, Ten Mile Point, Arth's Pasture, Spring Canyon Bottom, Big Flat, Kane Springs, Potash, Horsethief, Behind the Rocks, and Ruby Ranch.
- Support conversion of sheep AUMs to cattle on Hatch Point Allotment.*
- Improve desert bighorn habitat by installing and improving year-round water resources within all desert bighorn habitat and provide additional water sources at a minimum spacing of one water development in each 2 square mile area on lambing grounds.

Deer and/or elk:

- Manage UDWR current deer habitat of 534,329 acres in the Bookcliffs and 313,551 acres on the La Sal Mountains as mule deer habitat by improving or maintaining vegetative conditions to benefit both livestock and wildlife and by maintaining or improving the ecological condition of rangelands.
- Increase elk forage through vegetation treatments such as chemical, mechanical, and prescribed fire on approximately 40,000 acres of elk winter range (see Livestock Grazing).
- Manage crucial and high value deer and/or elk summer range (105,636 acres) within the Bookcliffs and La Sal Wildlife Management Unit by applying a timing limitation stipulation that would preclude surface-disturbing activities from May 15 to June 30 (see Appendix C; see Maps 2-27-B and Map 2-27-C/D.
- All forage on acquired state lands in upper Castle Valley within crucial deer winter range would be allocated to deer.

Pronghorn Habitat

Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
For pronghorn fawning habitat, exploration, drilling, and other development is prohibited from May 15 through June 15.	Protect current pronghorn habitat (822,001 acres) within Cisco Desert (743,524 acres) and Hatch Point (78,477 acres; the La Sal Wildlife Management Units: see Map 2-24) by applying a timing limitation stipulation that would preclude surface-disturbing activities from May 1 to June 15 (see Appendix C).	Protect pronghorn fawning habitat (293,741 acres) within Cisco Desert and on Hatch Point (the La Sal Wildlife Management Units) by applying a timing limitation stipulation that would preclude surface-disturbing activities from May 1 to June 15 (see Appendix C).	Protect pronghorn fawning habitat on Hatch Point (78,477 acres) by applying a timing limitation stipulation that would preclude surface-disturbing activities from May 1 to June 15 (see Appendix C).
Cisco Desert HMP: Improve pronghorn habitat by excluding livestock grazing activities from May 15 through June 20 or during extreme snow conditions. Change season of use on fawning grounds to reduce disturbance. **Hatch Point HMP:** Pronghorn fawning areas would exclude livestock grazing	Spring grazing would be adjusted on 188,975 acres on allotments within crucial pronghorn habitat in the Cisco Desert to encourage forb production. These allotments include: Athena, Cisco, Cisco Mesa, Crescent, Harley Dome, San Arroyo, Pipeline, and Bar X.	Spring grazing would be adjusted on a case-by-case basis on 188,975 acres on allotments within crucial pronghorn habitat in the Cisco Desert to encourage forb production. These allotments include Athena, Cisco, Cisco Mesa, Harley Dome, and San Arroyo.	No adjustments to season of use would be made.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

from May 1 till June 30. Changes in season of use (November 1 through June 1) number of livestock (27% reduction), change in livestock class from sheep to cattle, fencing, seeding, and rest/rotation to improve habitat are recommended. **Cisco Desert HMP:** Increase the percent browse and forb species on 6,375 acres of grass vegetation from less the 5% to 30% browse and forb. **Hatch Point HMP:** Implement rest/rotation on three pastures developed on the Hatch Point Allotment. One pasture to be grazed from November 1 to March 1, the second from March 1 to June 1, and the third to receive a year-long rest from grazing. A total of 69 acres were to be seeded to attain a combination of succulent forbs, grasses, and shrubs that would provide spring forage. Fencing would be utilized as a management tool to accomplish this.	Pronghorn fawning areas would not be grazed from May 1 till June 30 on Hatch Point. These allotments include: Hatch Point, Lisbon, and Windwhistle.	Develop, where applicable, a rest/rotation of pasture or other grazing management systems within allotments that have crucial pronghorn habitat to encourage forb production prior to fawning. Change in livestock class from sheep to cattle, fencing, seeding and rest/rotation to improve habitat would be encouraged.	
Desert Bighorn Sheep Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Avoid situating major ROWs within 48,245 acres in the Mineral Bottom, Potash and Westwater areas to protect crucial bighorn sheep habitat. Apply a Category 2 mineral leasing stipulation in order to protect 25,431 acres of bighorn sheep.	To protect lambing, rutting, and migration habitat (130,419 acres), apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C).	To protect lambing, rutting, and migration habitat (101,897 acres), apply a no surface occupancy stipulation for oil and gas leasing and preclude other surface-disturbing activities (see Appendix C). Within migration corridors pipeline construction and geophysical exploration for oil and gas development would be allowed outside lambing and rutting periods from June 16 through October 14 and from December 15 through March 31, respectively.	To minimize disturbance within bighorn lambing and rutting areas (46,319 acres) apply a timing limitation stipulation for oil and gas leasing and other surface-disturbing activities (see Appendix C). This limitation would preclude surface-disturbing activities from April 1 through June 15, and from October 15 through December 15.
Potash-Confluence HMP: Improve 42,500 acres of crucial bighorn sheep habitat by preventing surface disturbance during lambing and breeding seasons. Assist in the development of livestock manipulation techniques on Horsethief Point, Spring Canyon Bottom, and Ten-Mile Point Allotments to improve or maintain bighorn sheep habitat. Change season of use on the Potash Allotment to reduce competition on lambing and breeding grounds.	Manage 46,319 acres of lambing habitat (see Map 2-26-B) with the following prescriptions: • Camping would be allowed in designated campsites only. • No camping in Shafer Basin and Long Canyon. • Livestock use would be adjusted on North River and, Taylor Allotments (Dry Mesa Pasture).	Manage lambing areas and manage 46,319 acres (see Map 2-26-C) with the following prescriptions: • Camping would be allowed in designated campsites except for areas within the Green River riparian corridor, which remain open to unrestricted camping. • No camping in Shafer Basin and Long Canyon. • Livestock use would be adjusted on North River and, Taylor Allotments (Dry Mesa Pasture).	Same as the Proposed Plan with the exception that camping would not be restricted to designated campsites in lambing areas (see Map 2-26-D).
Rocky Mountain Bighorn Sheep Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
The 1990 amendment to the 1985 RMP recognized 194,560 acres of Rocky Mountain bighorn sheep habitat.	Manage the entire 458,242 acres of habitat for Rocky Mountain bighorn sheep that UDWR has designated from the Green River to the Colorado border according to the stipulations described in management common to all. This management would include improving or maintaining habitat and vegetative conditions to benefit bighorn sheep while maintaining or improving the ecological condition of rangelands (see Map 2-28).	Manage 310,726 acres of currently occupied Rocky Mountain bighorn habitat from the Green River to Pipeline Canyon according to stipulations described in management common to all. This management would include improving or maintaining habitat and vegetative conditions to benefit bighorn sheep while maintaining or improving the ecological condition of rangelands (see Map 2-28).	Manage 194,560 acres of occupied habitat defined in the 1985 RMP. (Same as Alternative A) according to stipulations described in management common to all. This management would include improving or maintaining habitat and vegetative conditions to benefit bighorn sheep while maintaining or improving the ecological condition of rangelands (see Map 2-28).
Any future proposal for a change in kind of livestock from cattle to sheep in Rocky Mountain bighorn habitat would be denied.	Support conversion of sheep to cattle on allotments that are within nine miles of the 458,242 acres of managed Rocky Mountain bighorn sheep habitat. Once conversion occurs, do not allow re-conversion (from cattle to sheep). Allotments include Agate, Bar-X, Cisco, Cisco Mesa, Corral Wash Canyon, Floy Creek, Harley Dome, Rattlesnake North, and San Arroyo.	Support conversion of sheep to cattle on allotments that are within nine miles of the 310,726 acres of managed Rocky Mountain bighorn habitat. Once conversion occurs, do not allow re-conversion (from cattle to sheep). This includes the Cisco and Cisco Mesa Allotments, San Arroyo, Winter Camp and Harley Dome.	Same as Alternative A.
Deer and/or Elk Habitat			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
In order to protect deer and/or elk winter range, exploration, drilling, and other development activity would be allowed only from May 16 to October 31 on 260,769 acres of deer and/or elk winter range.	Protect deer and/or elk crucial and high value winter habitat (635,774 acres) by applying a timing limitation stipulation for oil and gas leasing as well as other surface-disturbing activities (see Appendix C). This stipulation would preclude surface-disturbing activities from November 1 through May 15. (This acreage includes 240,258 acres in WSAs, which are already closed to leasing.)	Protect deer and/or elk crucial winter habitat (349,955 acres) by applying a timing limitation stipulation for oil and gas leasing as well as other surface-disturbing activities (see Appendix C). (This includes 73,160 acres in WSAs, which are already closed to leasing.) This limitation would preclude surface-disturbing activities from November 15 through April 15.	Protect deer and/or elk crucial winter habitat (349,955 acres) by applying a timing limitation stipulation for oil and gas leasing as well as other surface-disturbing activities (see Appendix C). (This includes 73,160 acres in WSAs, which are already closed to leasing.) This limitation would preclude surface-disturbing activities from December 1 through April 15.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Livestock Grazing Allotment Decisions Affecting Wildlife			
Allotments Not Available for Grazing: • Bogart with 14,751 acres and 209 AUMs. • Cottonwood with 27,193 acres and 900 AUMs. • Diamond with 19,112 acres and 588 AUMs. • Pear Park, with 14,202 acres. • Spring Creek, with 924 acres. • Beaver Creek with 1,351 acres and 0 AUMs.	**Allotments Not Available for Grazing:** • Bogart with 14,751 acres and 209 AUMs. • Cottonwood with 27,193 acres and 900 AUMs. • Diamond with 19,112 acres and 588 AUMs. • Pear Park, with 14,202 acres. • Spring Creek, with 924 acres. • Beaver Creek with 1,351 acres and 0 AUMs. • Professor Valley with 20,424 acres and 378 AUMs. • Ida Gulch with 3,624 acres and 112 AUMs. • River, with 388 acres and 7 AUMs. • Mill Creek, with 3,922 acres and 137 AUMs.	**Allotments Not Available for Grazing:** • Bogart with 14,751 acres and 209 AUMs. • Cottonwood with 27,193 acres and 900 AUMs. • Diamond with 19,112 acres and 588 AUMs. • Portions of Professor Valley along Highway 128. • Ida Gulch with 3,624 acres and 112 AUMs. • Portions of River along Highway 128. • Mill Creek with 3,922 acres and 137 AUMs. • Pear Park with 14,202 acres.	**Allotments Not Available for Grazing:** Mill Creek with 3,922 acres and 137 AUMs.
Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation: None.	**Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** None.	**Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** After performing rangeland health assessments, the resulting AUMs could be made available for grazing: • Spring Creek.	**Allotments Currently Not Available for Grazing that are to be Reconsidered for Allocation:** After performing rangeland health assessments, the resulting AUMs could be made available for grazing: • Pear Park (no domestic sheep would be allowed). • Spring Creek. • Bogart (no domestic sheep would be allowed). • Cottonwood (no domestic sheep would be allowed). • Diamond Canyon (no domestic sheep would be allowed).
Areas Currently Not Available for Grazing that are to be Reconsidered for Allocation: None.	**Areas Currently Not Available for Grazing that are to be Reconsidered for Allocation:** None.	**Areas Currently Not Available for Grazing that are to be Reconsidered for Allocation:** Beaver Creek.	**Areas Currently Not Available for Grazing that are to be Reconsidered for Allocation:** Beaver Creek.

WOODLANDS

Goals and Objectives:

- Manage forests and woodlands for healthy conditions that contribute to healthy habitat for animal and plant species, proper watershed functioning conditions, and riparian restoration and enhancement.
- Provide woodland products on a sustainable basis consistent with maintaining ecosystem health and other resource management objectives to meet local needs where such use does not limit the accomplishment of goals for the management of other important resources.
- Encourage, where feasible, the harvest of forest products in areas of proposed or existing vegetation treatments to lessen the need for additional treatment or land disturbance, and in areas that need restoration for ecological benefits.
- Identify, maintain, and restore forests with late successional characteristics to a pre-fire suppression condition. The MFO would adopt the USFS old-growth definitions and identification standards as per the USFS document "Characteristics of Old-Growth Forests in the Intermountain Region (April 1993)." In instances where the area of application in the previous document does not apply (e.g., *Pinus edulis*), use the document "Recommended Old-Growth Definitions and Descriptions, USDA Forest Service Southwestern Region (Sept. 1992)."

Management common to the PROPOSED PLAN and Draft RMP Alternatives A, B, and D:

- Permits for harvest of woodland products would continue to be sold to the public, consistent with the availability of woodland products and the protection of sensitive resource values.
- As needed, designate private and commercial wood gathering areas for the following uses: firewood, fence posts, Christmas tree cutting, green wood cutting, and plant gathering for landscaping.
- Use woodland harvest to assist in managing woodlands to accomplish goals outlined in the Fire Management Plan.
- Prohibit public fuelwood gathering in riparian areas.
- Permit sustainable harvest (including cutting of green willows, squawbush, and cottonwoods) for Native American traditional ceremonial use.

Management Common to the PROPOSED PLAN and Draft RMP Alternatives B and D:

- Additional areas may be closed to wood gathering and wood harvest as needed to protect sensitive resources.
- Follow national BLM Forest Health and Forest Management Standards and Guidelines to assess conditions and guide management actions for the forest and woodland resource.
- Provide for salvage harvest of wood in beetle-kill areas, when compatible with other resource objectives.

Table 2.1. MOAB PROPOSED PLAN and Draft RMP Alternatives

Areas Available for Woodland Harvest			
Alternative A (No Action)	**Alternative B**	**PROPOSED PLAN**	**Alternative D**
Provide 1,243,734 acres for woodland harvest and wood gathering. See Map 2-29-A for areas in which woodland harvest and wood gathering is prohibited (609,385 acres) to protect resources values.	Provide 958,124 acres for woodland harvest and wood gathering. See Map 2-29-B for areas in which woodland harvest and wood gathering is prohibited (863,250 acres) to protect resource values.	Provide 1,168,988 acres for woodland harvest and wood gathering. See Map 2-29-C for areas in which woodland harvest and wood gathering is prohibited (652,386 acres) to protect resource values.	Provide 1,243,734 acres for woodland harvest and wood gathering. See Map 2-29-D for areas in which woodland harvest and wood gathering is prohibited (609,385 acres) to protect resource values.

2.2 SUMMARY OF IMPACTS

Table 2.2 provides a comparative summary of the environmental impacts associated with the Proposed Plan and with each alternative.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
AIR QUALITY				
Cultural Resources, Paleontological Resources, Visual Resources, Lands and Realty, Livestock Management, Riparian Resources, Soil and Water, Special Designations, Special Status Species, Vegetation, Wildlife, and Woodlands	Incremental benefits due to restrictions and/or reductions in surface disturbing activities, grazing, vegetation disturbance, and riparian disturbance. Alternative A is generally the least restrictive of these activities, and therefore has the lowest associated potential benefit but is not expected to result in a substantial decrease in air quality.	Generally the most restrictive of the proposed alternatives and therefore has the highest potential for incremental benefits to air quality.	The Proposed Plan is less restrictive than Alternative B, but more beneficial than Alternatives A and D.	Alternative D is less restrictive than Alternative B and the Proposed Plan, but more beneficial than Alternative A.
Fire Management	Reduce fuel loads and wildfire severity would reduce air quality impacts. Limited short-term impacts would result from controlled burns and prescribed fire.	Same as Alternative A	Same as Alternative A	Same as Alternative A
Hazard Management	Small to negligible adverse impacts due to surface disturbance and operation of heavy equipment during remediation.	Same as Alternative A	Same as Alternative A	Same as Alternative A
Mineral Resources	Adverse emissions of atmospheric pollutants on both short-term and long-term durations. Alternative A would have the most mineral development activities, but is not expected to result in a substantial decrease in air quality or exceedance of state or federal air quality criteria.	Same as Alternative A, except that the least oil and gas development would occur under this alternative.	Same as Alternative A, except that the second least oil and gas development would occur under this alternative.	Same as Alternative A, except that the third least (or second most) oil and gas development would occur under this alternative.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
CULTURAL RESOURCES				
Cultural Resources	NHPA and BLM policy to identify resources, and avoid, minimize, or mitigate adverse impacts would apply.	Livestock grazing restrictions in high site density areas provide long-term benefits to cultural resources in restricted areas. 50,000 acres targeted for priority site identification studies; more than any other alternative. Greater focus on restoration of damaged sites than any other alternative. There would be mixed, long-term, beneficial and adverse impacts from site interpretation.	Livestock grazing restrictions in high site density areas (fewer than Alternative B) provide long-term benefits to cultural resources in restricted areas. 30,000 acres targeted for priority site identification studies; the second most of all alternatives. Second greatest focus on restoration of damaged sites of all alternatives. There would be mixed, long-term, beneficial and adverse impacts from site interpretation; more sites developed for public use than under Alternative B.	Same as the Proposed Plan except livestock grazing would be restricted in fewer areas, and fewer sites would be targeted for restoration. More sites would be allocated for public use than under any other alternative. 20,000 acres would be targeted for resource identification studies; less than any other action alternative.
Fire Management	Negative impacts from fuels treatments over 5,860 acres and non-fire fuels treatments over 1,347 acres every 10 years in high site-density areas.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Mineral withdrawals on 13,296 acres reduce opportunities for adverse impacts to cultural resources. Adverse impacts over 3,776 acres of high site density lands encompassed by designated utility corridors.	Same as Alternative A except 6,309 acres of high site density lands encompassed by designated utility corridors, and reduced opportunities for adverse impacts in WSAs or Was (exclusion areas) and ACECs (considered avoidance areas for rights-of-way).	Same as Alternative B except 28,400 acres of high site density lands encompassed by designated utility corridors.	Same as Alternative B except 29,983 acres of high site density lands encompassed by designated utility corridors.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Livestock Grazing	Reduced opportunities for long-term adverse impacts over 126,907 acres of existing grazing closures and 24,329 acres of high site density lands also closed to grazing. Long-term adverse impacts from trampling and rubbing over 273,890 acres of high site density lands.	Reduced opportunities for long-term adverse impacts over 153,797 acres of grazing closures, 3,263 acres of wildlife closures, and 29,758 acres of high site density lands closed to grazing. Long-term adverse impacts from trampling and rubbing over 272,818 acres of high site density lands This alternative has slightly greater benefit and lesser impact to cultural resources than any other alternative.	Same as Alternative B except that 114,235 acres of grazing closures would occur, with 25,177 acres of high site density land closed to livestock grazing and 277,399 acres of high site density lands open to grazing. This alternative has slightly higher overall potential for adverse impact than Alternative B but less than Alternatives A and D.	Same as Alternative B except that 52,214 acres of grazing closure would occur, with approximately 12,386 acres of high site density lands closed to livestock grazing and 290,190 acres of high site density lands would be open to grazing. This alternative has slightly higher overall potential for adverse impact than Alternative B and the Proposed Plan but less than Alternative A.
Minerals	Reduced of opportunities for direct and inadvertent impacts from ground disturbance and increased human activity over 458,665 acres closed to mineral entry, leasing, and development. Approximately 618 acres of disturbance could occur on high site density lands for oil and gas development. Approximately 407 acres of disturbance could occur on high site density lands for geophysical work. Adverse impacts possible over 1,467,758 acres of land available for salable minerals.	Same as Alternative A except: • An additional 41,488 acres of high site density lands closed to mineral entry, leasing, and development, • 401 acres of oil and gas disturbance on high site density lands, • 239 acres of geophysical disturbance on high site density lands, and • 836,137 acres of land available for salable minerals. This alternative has the least potential adverse impact and greatest beneficial impact to cultural resources.	Same as Alternative B except: • Approximately 527 acres of disturbance on high site density lands for oil and gas development. • Approximately 352 acres of disturbance on high site density lands for geophysical work. • 1,234,717 acres of land available for saleable minerals. This alternative has the second least potential adverse impact and second greatest beneficial impact to cultural resources s.	Same as Alternative B except: • Approximately 594 acres of disturbance on high site density lands for oil and gas development. • Approximately 396 acres of disturbance on high site density lands for geophysical work. • 1,387,473 acres of land available for saleable minerals. This alternative has the third least (second most) potential adverse impact and greatest beneficial impact to cultural resources.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Paleontological Resources	Limited long-term adverse impacts from collection of fossil materials. Limited long-term beneficial impacts from raising awareness about fossil collecting and preservation goals.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Recreation—SRMAs	Reduced long-term, adverse impacts over 49,543 acres of high site density lands managed as SRMAs.	Reduced long-term, adverse impacts over 217,994 acres of high site density lands managed as SRMAs.	Same as Alternative A except 160,885 acres of high site density lands would be managed as SRMAs. This would result in less protection from long-term adverse impacts to cultural resources than under Alternative B and more than Alternatives A and D.	Same as Alternative A except 74,278 acres of high site density lands would be managed as SRMAs.
Special Designations	Long-term benefits due to reduced surface disturbance over 243 acres of high site density lands managed as Outstanding Natural Area (ONA).	Same as Alternative A except up to 109,809 acres of high site density lands would be managed as ACECs with restrictions on surface disturbance.	Same as Alternative A except up to 19,029 acres of high site density lands would be managed as ACECs with restrictions on surface disturbance.	NO ACECs or ONAs would be designated.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Travel Management	1,049 acres of high site density lands closed to OHV use with long-term benefits to cultural resources. 208,757 acres of high site density lands where OHV use is limited to designated routes, with mixed long-term beneficial and adverse impacts to cultural resources. 92,628 acres of high site density lands open to cross country OHV use without designated routes, with long-term adverse impacts to cultural resources. Existing levels of direct and indirect impacts, primarily adverse, to cultural resources along travel routes would be maintained. This alternative has the least benefit and most potential for adverse impacts to cultural resources of all alternatives.	Same as Alternative A except the acreages are as follows: • 72,415 acres closed • 230,160 acres limited to designated routes • 0 acres open to cross country OHV use This alternative has the most long-term benefits for cultural resources and least potential for long-term adverse impacts of all alternatives. 327 linear miles of travel routes in high site density areas would be closed, providing long-term direct and indirect benefits to cultural resources. This alternative has the most benefit to cultural resources of all alternatives.	Same as Alternative B except as follows: • 69,215 acres closed • 232,875 acres limited to designated routes • 486 acres open to cross country OHV use 19 miles of designated motorcycle routes on high site density lands This alternative has the second most long-term benefits for cultural resources and second least potential for long-term adverse impacts of all alternatives. 238 linear miles of travel routes in high site density areas would be closed, providing long-term direct and indirect benefits to cultural resources. This alternative has the second most benefit to cultural resources of all alternatives.	Same as Alternative B except as follows: • 17,981 acres closed • 283,951 acres limited to designated routes • 643 acres open to cross country OHV use • 21 miles of designated motorcycle routes on high site density lands This alternative has the second least long-term benefits for cultural resources and second most potential for long-term adverse impacts of all alternatives. 214 linear miles of travel routes in high site density areas would be closed, providing long-term direct and indirect benefits to cultural resources. This alternative has the third most (second least) benefit to cultural resources of all alternatives.
Visual Resources	Long-term, indirect, benefits due to reduced surface disturbance over 349,101 acres of WSAs and WAs and 72,609 acres of high site density lands outside of WSAs and WAs managed as VRM Class I. This alternative has the least long-term benefit to cultural resources of all alternatives.	Same as Alternative A except 106,105 acres of high site density lands outside of WSAs, WAs, and WSRs and an additional 18,301 acres of high site density lands in WSRs managed as VRM Class I. This alternative has the most long-term benefit to cultural resources of all alternatives.	Same as Alternative B except 74,672 acres of high site density lands outside of WSAs, WAs, and WSRs and an additional 3,447 acres of high site density lands in WSRs managed as VRM Class I. This alternative has the second most long-term benefit to cultural resources of all alternatives.	Same as Alternative A except 72,703 acres of high site density lands outside of WSAs, WAs, and WSRs managed as VRM Class I. This alternative has the third most (second least) long-term benefit to cultural resources of all alternatives.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Non-WSA Lands with Wilderness Characteristics	There are no management actions for non-WSA lands with wilderness characteristics under Alternative A.	Limited, long-term, benefits to cultural resources from restrictions on woodcutting in non-WSA areas managed for wilderness characteristics. Management of 47,784 acres of high site density lands with restrictions on surface disturbance provide long-term benefits for cultural resources in those areas. This alternative has the most long-term benefit to cultural resources of all alternatives.	Same as Alternative B except: • Management of 12,773 acres of high site density lands with restrictions on surface disturbance provide long-term benefits for cultural resources in those areas. This alternative has the second most long-term benefit to cultural resources of all alternatives.	Same as Alternative A.
Woodlands	Reduced disturbance over 144,146 acres of high site density lands closed to use of woodland products.	Same as Alternative A except 183,677 acres of high site density lands closed to use of woodland products.	Same as Alternative A except 159,985 acres of high site density lands closed to use of woodland products.	Same as Alternative A except 144,146 acres of high site density lands closed to use of woodland products.
FIRE MANAGEMENT				
Fire Management	Reduced fuel loads and wildfire severity over 5,000 to 10,000 acres per year of prescribed fire and non-fire treatment areas concentrated in pinyon-juniper woodland and wildland/urban interfaces.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Slightly decreased risk of inadvertent fire starts due to limits on the number of people and vehicles associated with filming, and on the use of pyrotechnics and explosives.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Minerals	Mineral development-related surface disturbance and activities would slightly increase the risk of human-caused fires surrounding 6,765 acres of projected disturbance.	Same as Alternative A except 3,975 acres of projected disturbance in the MPA.	Same as Alternative A except 6,480 acres of projected disturbance in the MPA.	Same as Alternative A except 6,720 acres of projected disturbance in the MPA.
Recreation and Travel	Increased risk of human- and vehicle-caused wildland fires over 678,250 acres open to cross-country OHV travel,. Slightly reduced risk of wildfire over 29,654 acres would be closed to all OHV travel. Slightly reduced risk of human-caused fire over 151,252 acres closed to dispersed camping within SRMAs.	Slightly reduced risk of wildfire over entire MPA (closed to cross-country OHV travel), and 358,126 acres closed to all OHV travel. The impacts of limiting camping would be the same as Alternative A, except within 976,173 acres.	Fire risk would be slightly higher than Alternative B, with 1,866 acres open to cross-country OHV travel and 349,843 acres closed to OHV travel. The impacts of limiting camping would be the same as Alternative A, except within 658,642 acres.	Fire risks would be higher than Alternatives B and C (but lower than A), with 3,348 acres open to cross-country OHV travel and 29,654 acres closed to OHV travel. The impacts of limiting camping would be the same as Alternative A, except within 277,471acres.
Special Designations, Woodlands, Wildlife, Special Status Species	Alternative A is generally the least restrictive of vegetation treatments and woodland harvest and, therefore, has the lowest risk of fuel loading and catastrophic wildfire.	Alternative B is generally the most restrictive of vegetation treatments and woodland harvest and, therefore, has the highest risk of fuel loading and catastrophic wildfire.	The Proposed Plan is generally the most second restrictive of vegetation treatments and woodland harvest and, therefore, has the second highest risk of fuel loading and catastrophic wildfire.	Alternative B is generally the second least restrictive of vegetation treatments and woodland harvest and, therefore, has the second lowest risk of fuel loading and catastrophic wildfire.
HEALTH AND SAFETY				
Minerals	Hazardous materials risk from the use, generation, storage, transportation, and/or disposal of hazardous materials would be negligible given the small number of wells projected. Nevertheless, any mineral exploration and development would increase the potential for adverse and long-term hazardous materials risks in the planning area.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Abandoned Mine Land	Abandoned mine land site and area mitigation and reclamation priorities would assist in minimizing risks to health and safety.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
LANDS AND REALTY				
Lands and Realty	Alternative A would have the smallest impacts to the placement of future ROWs due to ROW exclusion and avoidance and restrictions on surface disturbance of any of the alternatives (353,293 acres closed to surface disturbing activities; 38,912 acres designated as NSO; and 389,605 acres with timing and controlled surface use limitations).	Alternative B would have the greatest impacts to the placement of future ROWs due to ROW exclusion and avoidance and restrictions on surface disturbance of any of the alternatives (672,724 acres closed to surface disturbing activities; 341,919 acres designated as NSO; and 544,412 acres with timing and controlled surface use limitation stipulations).	The Proposed Plan would have fewer impacts to the placement of future ROWs due to ROW exclusion and avoidance and restrictions on surface disturbance than Alternative B, but more so than Alternatives A or D (370,250 acres closed to surface disturbing activities; 217,480 acres designated as NSO; and 806,994 acres with timing and controlled surface use limitation stipulations).	Alternative D would have fewer impacts to the placement of future ROWs due to ROW exclusion and avoidance and restrictions on surface disturbance than Alternatives B and C, but greater impacts than Alternative A (355,146 acres closed to surface disturbing activities; 84,772 acres designated as NSO; and 590,442 acres with timing and controlled surface use limitation stipulations).
LIVESTOCK GRAZING				
Fire Management	Short-term, adverse impacts on livestock grazing in treated areas. Long-term, beneficial impacts from reduced risk of fire and improved forage.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Livestock Grazing	Adverse impacts to grazing from making 126,907 acres unavailable for grazing.	Adverse impacts to grazing from making 153,797 acres unavailable for grazing.	Adverse impacts to grazing from making 114,234 acres unavailable for grazing.	Adverse impacts to grazing from making 52,214 acres unavailable for grazing.
Minerals	Surface disturbing activities on 679 total acres annually under this alternative could lead to losses of AUMs and acres available to livestock grazing.	Surface disturbing activities on 426 total acres annually under this alternative could lead to losses of AUMs and acres available to livestock grazing.	Surface disturbing activities on 721 total acres annually under this alternative could lead to losses of AUMs and acres available to livestock grazing.	Surface disturbing activities on 743 total acres annually under this alternative could lead to losses of AUMs and acres available to livestock grazing.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation	Loss of AUMs from grazing restrictions at developed recreation sites.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Travel	Impacts resulting in potential loss of vegetation for livestock grazing from cross country OHV travel on 602,212 acres.	No impacts because cross country travel is not allowed.	Impacts resulting in potential loss of vegetation for livestock grazing from cross country OHV travel on 1,866 acres.	Impacts resulting in potential loss of vegetation for livestock grazing from cross country OHV travel on 3,064 acres.
Riparian	Short-tem negative impacts to livestock grazing when site closures are necessary; possible long-term beneficial impacts after a site is rehabilitated.	Same as Alternative A with eight additional sites excluded from livestock grazing.	Same as Alternative A with six additional sites excluded from livestock grazing.	Same as Alternative A.
Soils/Watershed	Temporary or permanent decreases in acres or AUMs available to livestock to mitigate damage to soils.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Vegetation	Short-term, adverse impacts on livestock grazing in areas that are closed following treatment. Long-term, beneficial impacts from improved forage.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Wildlife	Slight changes in grazing season of use in pronghorn and bighorn sheep habitat (using Rangeland Health Standards).	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
MINERAL RESOURCES				
Mineral Resources	Most beneficial impacts to mineral development with 1,427,949 total leasable acres under standard lease terms and special stipulations, 451 oil and gas wells, 2,397 acres geophysical exploration, and 1,467,768 salable acres.	Most adverse impact to mineral development with 808,096 total leasable acres under standard lease terms and special stipulations, 264 oil and gas wells, 1,404 acres geophysical exploration, and 808,097 salable acres. 11,207 acres with limiting designations.	Second most adverse impacts with 1,234,267 total leasable acres under standard lease terms and special stipulations, 432 oil and gas wells, 2,072 acres geophysical exploration, and 1,234,267 salable acres. 10,437 acres with limiting designations.	Second most beneficial impacts to mineral development with 1,387,473 total leasable acres under standard lease terms and special stipulations, 448 oil and gas wells, 2,329 acres geophysical, and 1,387,473 salable acres.
Soil and Water	Adverse impacts to mineral development on 313,800 acres of saline soils and 823,094 acres of high-limitations soils closed to surface disturbance.	Adverse impacts to mineral development on 330,142 acres of saline soils and 487,917 acres of high-limitations soils closed to surface disturbance, and 2 watersheds closed to mineral development.	Adverse impacts to mineral development on 330,142 acres of saline soils and 710,129 acres of high-limitations soils closed to surface disturbance, and 2 watersheds NSO for mineral development.	Adverse impacts to mineral development 487,917 acres of high-limitations soils closed to surface disturbance.
Special Designations	Adverse impacts to mineral development over 1,287 acres in Negro Bill Outstanding Natural Area.	Adverse impacts to mineral development within 301,115 acres designated as ACECs and limiting development.	Adverse impacts to mineral development within 30,563 acres designated as ACECs and limiting development.	No impact.
Visual Resources	Second-least adverse impacts to minerals development on 349,110 acres (of WSAs) managed as VRM Class I and 401,015 acres designated VRM Class II.	Most-adverse impacts to minerals development on 453,462 acres managed as VRM Class I and 373,647 acres designated VRM Class II.	Second-most adverse impacts to minerals development on 358,911 acres managed as VRM Class I and 365,567 acres designated VRM Class II.	Least adverse impacts to minerals development on 349,617 acres managed as VRM Class I and 245,773 acres designated VRM Class II.
Non-WSA Lands with Wilderness Characteristics	No non-WSA lands with wilderness characteristics would be managed.	Most adverse impacts to mineral development, with 266,485 acres managed to protect WC. These acres would be closed to oil and gas leasing.	Second-most adverse impacts, with 47,761 acres managed to protect WC.NSO for oil and gas leasing.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Wildlife and Fisheries	Least adverse impacts to mineral development over 503,574 acres of total habitat with restrictive stipulations over 227 days.	Most adverse impacts to mineral development with 1,553,233 acres total habitat with restrictive stipulations over 273 days.	Second most adverse impacts to mineral development with 1,379,134 acres total habitat with restrictive stipulations over 273 days.	Third most adverse impacts to mineral development (second least) with 590,442 acres total habitat with restrictive stipulations over 273 days.
NON-WSA LANDS WITH WILDERNESS CHARACTERISTICS				
Non-WSA Lands with Wilderness Characteristics	Adverse impacts to 94% of the non-WSA areas inventoried with wilderness characteristics. Adverse impacts would include major surface disturbing activities and degradation of the wilderness characteristics of the entire area. Approximately 81% would be open to mineral leasing with standard lease terms or with controlled surface use/timing limitation stipulations. In addition, 53% would be open to cross-country OHV use and 74% would be open to woodland harvest. Potential loss of wilderness characteristics on non-WSA lands across the entire area over the life of the plan.	Beneficial protection of naturalness and opportunities for solitude and primitive recreation across all non-WSA lands inventoried with wilderness characteristics. Beneficial management including closed to oil and gas leasing, NSO for other surface disturbing activities, retained in federal ownership, vehicle use limited to designated roads, woodland harvest prohibited, VRM Class II, and exclusion areas for ROWs. Therefore the entire inventory (266,485 acres) of non-WSA lands with wilderness characteristics would be preserved under this alternative.	Beneficial protection of naturalness and opportunities for solitude and primitive recreation across 18% of the non-WSA lands with wilderness characteristics (47,761 acres). Adverse impacts to naturalness and outstanding opportunities on 61% of the non-WSA lands with wilderness characteristics open to mineral leasing, 53% managed under VRM Classes III and IV, and 61% open to woodlands harvest. Potential degradation of the wilderness characteristics of those non-WSA lands not managed specifically to protect wilderness characteristics.	Adverse impacts to 87% (232,133 acres) of the non-WSA areas inventoried with wilderness characteristics (as described under Alternative A). Approximately 87% would be open to mineral leasing with standard lease terms or with controlled surface use/timing limitation stipulations. In addition, 74 % would be open to woodland harvest. Potential loss of wilderness characteristics on non-WSA lands across the entire area over the life of the plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
PALEONTOLOGICAL RESOURCES				
Fire Management, Lands and Realty, Livestock Grazing, Minerals, Special Designations, Travel, Non-WSA Lands with Wilderness Characteristics, and Woodlands	Long term direct and indirect adverse impacts from construction of roads, fire lines, prescribed burns, 21,701 acres of utility corridors, 1,695,621 acres (total) open to livestock grazing, 838,412 acres open to oil and gas development, 391,133 acres open to unrestricted OHV travel, and 760,344 acres open to woodland harvest in paleontologically sensitive areas/geologic units. Beneficial impacts from fossils recovered as a result of mitigation and designation of ACECs, WSRs, WSAs, WA. Designates the fewest acres of land as ACECs, WSAs and WSRs. 0 acres as WSRs, and 1,287 acres as ACEC. No acres designated to be managed for wilderness characteristics on non-WSA lands Has highest overall potential for adverse impacts.	Same as Alternative A, except: 38,633 acres of utility corridors, 1,668,732 acres (total) open to livestock grazing, 487,227 acres open to oil and gas development, no lands open to unrestricted OHV travel, and 614,848 acres open to woodland harvest in paleontologically sensitive areas/geologic units. 71,072 acres designated as WSRs, 610,703 acres as ACECs. 266,485 acres of non-WSA lands to be managed for wilderness characteristics. Has lowest potential for adverse impacts.	Same as Alternative A except: 101,359 acres of utility corridors, 1,708,294 acres (total) open to livestock grazing, 730,458 acres open to oil and gas development, 7 acres open to unrestricted OHV travel, and 737,198 acres open to woodland harvest in paleontologically sensitive areas/geologic units. 41,495 acres designated as WSRs, 63,781 acres as ACECs. 47,761acres of non-WSA lands to be managed for wilderness characteristics. Has second lowest potential for adverse impacts.	Same as Alternative A except: 123,132 acres of utility corridors, 1,770,314 acres (total) open to livestock grazing, 814,739 acres open to oil and gas development, 38 acres open to unrestricted OHV travel, and 760,198 acres open to woodland harvest in paleontologically sensitive areas/geologic units. 0 acres designated as WSRs, 35,042 acres as ACECs Has second highest potential for adverse impacts.
Paleontology	Long- and short-term direct and indirect beneficial impacts from mitigation of surface disturbing actions in paleontologically sensitive areas/geologic units; designation of some paleontologically sensitive sites as SRMAs; and enhanced educational, interpretive and scientific opportunities.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
RECREATION				
Air Quality	Long-term, beneficial impacts to scenic quality from interagency MOUs and BMPs controlling smoke, haze, and air pollutants.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Cultural	Long-term, adverse impacts on all users from least protection of cultural resources.	Protection-related actions applied to 50,000 acres of recreation/cultural resources would have long-term, beneficial impacts on recreation.	Impacts similar to Alternative B, but to a lesser degree, from protection of 30,000 acres of recreation/cultural resources.	Impacts similar to Alternative B, but to a lesser degree than the Proposed Plan.
Fire Management	Short-term, adverse impacts on recreation from surface disturbances, scenic quality degradation, and loss of vegetation. Long-term, beneficial impacts on recreation resources from reduced fire risks, enhanced wildlife habitat, and improved scenic quality.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Health and Human Safety	Negligible short-term impacts, with beneficial, long-term impacts from increased recreational opportunities for all users in remediated/reclaimed hazardous areas.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Long-term, beneficial impacts on all recreation user groups from protection of 70,237 acres of scenic and recreation resources in the Three Rivers and Westwater Mineral Withdrawal Areas.	Similar to Alternative A, but more beneficial impacts, from NSO leasing stipulations within the withdrawal areas.	Same as Alternative B.	Same as Alternative B.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Livestock Grazing	Direct and indirect, long-term, beneficial impacts on wildlife viewing and hunting from changes in allotment use and grazing exclusion in riparian areas. Grazing vegetation treatments on 67,125 acres would have short-term, adverse impacts on recreation, but long-term benefits from reduced fire risks, enhanced wildlife habitat, and improved scenic quality.	Beneficial, long-term, indirect impacts to wildlife viewing and hunting from forage treatments on 46,307 acres and exclusion of grazing in 4,673 acres of riparian areas.	Impacts slightly less beneficial than Alternative B, with riparian grazing exclusion on 1,497 acres.	Same beneficial impacts from forage treatments as Alternative B, but less beneficial riparian protection than Alternatives B or C. Slightly more beneficial than Alternative A.
Minerals	Indirect and direct, short-term and long-term, adverse impacts on recreational opportunities from surface-disturbing impacts to natural resources from noise, intrusive night lighting, soil erosion, and cross-country geophysical activities.	Impacts similar to Alternative A, except that fewer acres of RFD predicted development (56% of Alternative A) would reduce the adverse impacts to recreation.	Impacts similar to Alternative A, with slightly reduced adverse impacts from RFD predicted development (96% of Alternative A).	Impacts negligibly less adverse than Alternative A.
Recreation, Book Cliffs SRMA	Minor, adverse impacts to recreation resources and users from resource use conflicts.	Long-term, beneficial impacts to recreation resources and non-mechanized from reduced conflicts and preservation of resources in 348,140-acre Undeveloped SRMA. Mechanized users would be adversely restricted to 18 miles of routes.	SRMA would not be established, with impacts to the same as Alternative A.	SRMA would not be established, with impacts to the same as Alternative A.
Recreation, Cameo Cliffs SRMA	Minor impacts to resources from OHV surface disturbances along designated routes. Adverse impacts to non-motorized users from continued use of the 15,597-acre SRMA as a focus area for OHVs.	Beneficial, long-term impacts on resources and on motorized and non-motorized users from resource protection, expanded recreational opportunities, additional facilities, and reduced user conflicts within the 15,597-acre SRMA.	Same as Alternative B.	Same as Alternative B.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation, Canyon Rims SRMA	Potential long-term, adverse impacts from minerals leasing, VRM III objectives, and user conflicts within the 101,531-acre SRMA. Long-term, beneficial resource protection impacts from travel route designation, camping restrictions.	Long-term, beneficial impacts from reduced user conflicts for motorized, mountain biking, and non-mechanized users within the SRMA from management of focus areas and increased recreational opportunities.	Same as Alternative B.	Impacts similar to Alternative A, but with more beneficial impacts to scenic drivers and hikers.
Recreation, Colorado Riverway SRMA	Long-term, beneficial impacts for all user groups from continued management for reduced user conflicts and restrictions on surface disturbances within the 17,983-acre SRMA.	Long-term, beneficial impacts from resource protection, reduced user conflicts from additional facilities, additional focus areas, and restricting camping to designated areas in the 103,467-acre SRMA. Long-term, adverse impacts to specialized, river floating groups.	Impacts similar to Alternative B, but with more beneficial impacts to all user groups.	Beneficial impacts to recreation from designated of a 79,126-acre SRMA, but long-term, adverse impacts from user conflicts because of management of fewer, and smaller, focus areas, and fewer facilities.
Recreation, Dolores River Canyons SRMA	Long-term, adverse impacts to resources from lack of management prescriptions for the area, creating the likelihood of user conflicts and resource degradation.	Long-term, adverse impacts on motorized and mountain biking users. Beneficial, long-term impacts to resources and users within the 31,661-acre SRMA from expanded recreational opportunities for boating and hiking, and a reduction in user conflicts.	Same as Alternative B.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation, Labyrinth Rims/Gemini Bridges/Dee Pass SRMAs	Beneficial, short-term impacts to resources from maintained opportunities and facilities, and maintained protection of resources. Long-term, adverse impacts to resources and all user groups from lack of management prescriptions to protect resources from increased visitation, increased recreation demands.	Long-term, beneficial impacts on recreation through focus areas for non-motorized and motorized users within the 300,650-acre SRMA and the increased number of facilities that would reduce user conflicts and surface disturbances. Long-term, adverse impacts on motorized, specialized and mountain biking groups from user conflicts in SRMA areas without focus area management.	Impacts similar to Alternative B, but more beneficial, through focus areas for scenic driving, non-motorized, motorized, specialized, and mountain biking users within the 300,650-acre SRMA.	Impacts similar to Alternative A, except for increased long-term, beneficial motorized recreational opportunities within the 60,939-acre Dee Pass SRMA and the White Wash Open OHV area.
Recreation, Lower Gray Canyon SRMA	Long-term, beneficial impacts along Lower Gray Canyon from continued management under the Desolation-Gray Management Plan.	Long-term, beneficial impacts on resources from continued management under the current management plan and from increased opportunities within the 3,759-acre SRMA.	Same as Alternative B, with the same management prescriptions.	Same as Alternative A, as the SRMA would not be designated.
Recreation, Sand Flats SRMA	Short-term, beneficial impacts from adequate management of current levels of user needs and demands. Long-term, adverse impacts from lack of adequate management to address over-crowding, increasing user demands, and increasing user conflicts.	Long-term, beneficial protection of resource values within the 6,246-acre SRMA. Beneficial impacts on mountain bikers, but adverse impacts on OHV users from prohibitions on Slickrock Trail use.	Impacts similar to Alternative B, except for beneficial impacts to OHV motorcycle user from access to the Slickrock Trail and reduced beneficial impacts on mountain bikers.	Impacts similar to the Proposed Plan, except more beneficial, long-term recreational opportunities for mountain biking within the free-ride area.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation, South Moab SRMA	Long-term, adverse impacts to motorized, mountain biking, and non-mechanized users from inadequate management to address user needs, demands, resource impacts, user displacement, and resource impacts.	Long-term, beneficial impacts on scenic driving, mountain biking, and non-mechanized users from reduced conflicts, reduced displacement, protection of resources, and expanded recreational opportunities within focus areas of the 63,399-acre SRMA. Long-term, adverse impacts on specialized (motorized) users from reduced opportunities.	Impacts similar to Alternative B, except for additional beneficial impacts to specialized users from opportunities on Potato Salad Hill.	Same as Alternative A.
Recreation, Two Rivers SRMA	Short-term, beneficial impacts on river recreation from continued management. Long-term, adverse impacts on river recreation from inadequate management to address increasing user demands, resource impacts, user conflicts.	Long-term, beneficial impacts on river and non-mechanized users from enhanced river and shoreline recreation opportunities, increased facilities, focus areas, and permit system modification within the 29,839-acre SRMA. Short-term, adverse impacts on river opportunities from permit limits.	Impacts similar to Alternative B, but more beneficial to recreation users from more river opportunities under less restrictive permit limits.	Impacts similar to the Proposed Plan, except for long-term, adverse impacts from lack of river focus area and potential degradation of river experiences by increasing permit numbers and group sizes within the 14,056-acre SRMA.
Recreation, Utah Rims SRMA	Long-term, adverse impacts from continued management allowing OHV noise, surface disturbances, and from intensifying user conflicts between mountain bikers, motorized OHV, and non-mechanized users.	Long-term, beneficial impacts from reduced OHV impacts, additional facilities, and reduced user conflicts within the 15,424-acre SRMA.	Impacts similar to Alternative B, except more benefits from increased opportunities from expanded 7 system and single-track (motorcycle) opportunities.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation, Moab ERMA	Long-term, adverse impacts on recreation from inadequate management of intensifying user conflicts along Kokopelli's Trail.	Adverse impacts to users of Kokopelli's Trail similar to Alternative A. Long-term, beneficial impacts from additional facilities and opportunities to reduce user conflicts and meet user demands.	Impacts similar to Alternative B, except more beneficial impacts from additional mountain biking opportunities on 1,365-acre Upper Fisher Mesa.	Similar to the Proposed Plan, but to a lesser degree, from reduced acres managed for recreation.
Recreation, Special Recreation Permits	Long-term, beneficial impacts on recreation from current management by providing recreational opportunities for commercial and private groups, and protecting resources.	Similar to Alternative A, but to a greater degree, from emphasis on resource protection while managing for a wide range of opportunities.	Impacts similar to Alternative B, but to a greater degree, from more specific permit stipulations to protect resources.	Impacts similar to the Proposed Plan, but to a less beneficial degree, from reduced resource protection. Short-term, beneficial impacts from providing permits (and opportunities) to large groups, but long-term, adverse impacts from increased likelihood of resource degradation and loss of recreation values.
Riparian	Long-term, adverse impacts on recreation from continued degradation of riparian areas that would reduce opportunities to enjoy riparian areas.	Long-term, beneficial impacts to recreation experiences and opportunities from improved riparian areas through livestock grazing controls and limits on recreational use of these areas. Long-term, adverse impacts from reduced OHV opportunities from riparian area protection.	Same as Alternative B.	Same as Alternative B.
Soils/Watershed	Negligible impacts on recreation resources or resource users.	Long-term, beneficial impacts from maintained scenic quality in Castle Valley from reducing surface disturbances in the watershed, and from restrictions on steep slopes.	Same as Alternative B.	Impacts same as Alternative B, but to a lesser degree, because Castle Valley surface disturbance-restricting stipulations would not be applied.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Special Designations, ACECs	Long-term, adverse impacts from lack of prescriptions to protect recreation resource values in areas proposed as ACECs under other alternatives. Continued long-term, beneficial impacts on motorized OHV users within Ten Mile Wash and White Wash.	Long-term, beneficial impacts on recreation resources within 610,086 acres designated as ACECs from NSO protection from minerals development, and from restrictions on motorized use. Long-term, adverse impacts on specialized, motorized, and mountain biking users from reduced recreational opportunities in some areas. Long-term, beneficial impacts on scenic, mountain biking, and non-mechanized users from expanded opportunities in some areas.	Impacts similar to Alternative B in 63,232 acres proposed as ACECs (11% of Alternative B area) and areas not proposed as ACECs, except for long-term, adverse impacts to all recreation users within Canyon Rims, and long-term, beneficial impacts from expanded opportunities for motorized OHV users in White Wash.	Long-term, adverse impacts on all users and recreation resources from lack of protection to scenic resources because no ACECs would be designated.
Special Designations, Wild and Scenic Rivers	Negligible impacts to recreation along 46 miles of eligible river segments of the Colorado and Dolores Rivers. Impacts on recreation along the remaining MPA river segments would be adverse in the short-term and long-term from lack of protection from intensifying use, user conflicts, and potential surface disturbances.	Long-term, beneficial impacts on recreation resources and on all user groups along 287.5 miles of river corridor determined to be suitable for recommendation as Wild and Scenic.	Long-term beneficial impacts as compared to Alternative B, because 127.3 river miles would be suitable for recommendation.	Impacts similar to Alternative A, except no river segments would be suitable for recommendation, with adverse impacts on resources and river-related recreation.
Special Designations, WSAs	Beneficial, long-term impacts to recreation because WSAs have been and would continue to be managed to protect their wilderness values. Adverse impacts from managing OHV as limited to inventoried routes.	Same as Alternative A, except for adverse, minor impacts to motorized OHV users from use limited to designated routes.	Same as Alternative B.	Same as Alternative B.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Special Status Species	Long-term, beneficial impacts on opportunities from continued protection of wildlife and plants for recreational sightseeing and nature study.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Travel Management, OHV	Long-term, adverse impacts to recreation from intensifying user conflicts and displacement, noise, from surface disturbances, and destruction of recreation-related cultural resources. Long-term, beneficial impacts to motorized OHV opportunities from unrestricted cross-country travel on 620,212 acres.	Long-term, beneficial impacts to non-motorized users and resources from OHV route designation and elimination of all cross-country travel. Beneficial impacts from reduced user conflicts. Long-term, adverse impacts to motorized OHV users from travel opportunities limited to designated routes within 1,475,074 acres and 3,278 miles of B and D class routes.	Impacts on resources and user groups would be similar to Alternative B, except that the adverse impacts to motorized users would be reduced by limiting OHV travel to designated routes within 1,481,334 acres and along 3,653 miles of B and D class routes, 123 miles of single-track routes, with 1,866 acres open to cross-country travel.	Long-term, beneficial impacts on motorized OHV users from opportunities along designated routes. Impacts on resources similar to Alternative B, except that OHV travel limited to designated routes would be permitted on 1,762,083 acres, 3,805 miles of B and D class routes, 219 miles of single-track routes, with 3,064 acres open to cross-country travel.
Travel Management, Mountain Biking	Long-term, adverse impacts to mountain biking recreation from inadequate management to address increasing user conflicts, increasing user demand, and user displacement.	Long-term, beneficial impacts from 75 new miles of routes managed for mountain biking recreation, by increasing opportunities, and reducing conflicts and displacement.	Impacts similar to Alternative B, except 150 new miles would be designated for mountain biking recreation.	Impacts similar to Alternative B, except 300 new miles would be designated for mountain biking recreation.
Travel Management, Non-Mechanized	Long-term, adverse impacts to non-mechanized recreation from inadequate management to address increasing user conflicts, increasing user demand, and user displacement.	Long-term, beneficial impacts from 25 new miles of routes managed for non-mechanized recreation, by increasing opportunities, and reducing conflicts and displacement.	Impacts similar to Alternative B, except 50 new miles would be designated for non-mechanized recreation.	Impacts similar to Alternative B, except 100 new miles would be designated for non-mechanized recreation.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Vegetation	Short-term, adverse impacts on recreation from surface disturbances, scenic quality degradation, and loss of vegetation. Long-term, beneficial impacts on recreation resources from enhanced wildlife habitat and improved scenic quality.	Same as Alternative A, except that drought management would have short-term, adverse impacts on motorized and mountain biking opportunities.	Same as Alternative B.	Same as Alternative B.
Visual	Long-term, beneficial impacts on recreation resources and all user groups because Alternative A would attempt to manage recreation-related scenic quality as determined by the VRM inventory.	Long-term, beneficial impacts to all recreational users and resources from managing more acres than determined by the VRM inventory for VRM I.	Long-term, adverse impacts to recreational users and resources from fewer acres managed for high scenic quality than determined by the VRM inventory.	Adverse impacts similar to the Proposed Plan, but to a greater degree, from fewer acres managed for high scenic quality than determined by the VRM inventory.
Non-WSA Lands with Wilderness Characteristics	Long-term, adverse impacts to motorized and non-motorized users from lack of management to preserve non-WSA lands with wilderness characteristics areas.	Long-term, beneficial impacts on resources and on motorized and non-motorized users from maintained opportunities within 266,485 acres of non-WSA areas with wilderness characteristics.	Impact similar to Alternative B, but to a lesser degree, from management of 47,761 acres of non-WSA lands for wilderness characteristics (20% of the area under Alternative B).	Same as Alternative A.
Wildlife and Fisheries	Short-term, adverse impacts on opportunities for motorized, mountain biking, and specialized users in the Potash-Confluence HMP (42,500 acres) from actions to protect wildlife.	Long-term, adverse impacts on dispersed camping opportunities in riparian areas to protect habitat, and in Shafer Basin and Long Canyon (13,500 acres) to protect bighorn sheep habitat.	Same as Alternative B.	Similar impacts as Alternative B, but to a lesser degree, from more opportunities for dispersed camping in bighorn sheep habitat.
RIPARIAN RESOURCES				
Fire Management	Long-term, beneficial impacts due to reduction in catastrophic fire risk.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Lands and Realty	No impacts unless exceptions are granted in which case they would be mitigated.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Livestock Grazing	Beneficial impacts from excluding grazing on 9% of MPA's riparian areas.	Beneficial impacts from excluding grazing on 34% of MPA's riparian areas.	Beneficial impacts from excluding grazing on 12% of MPA's riparian areas.	Same as Alternative A.
Mineral Resources	No impacts unless exceptions are granted in which case they would be mitigated.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Recreation and Travel	Adverse impacts in the form of disturbance of vegetation and soils; introduction of weeds; and potential for fire due to 2,100 acres of riparian areas being open to OHVs. Beneficial impact from managed recreation use on 141,234 acres of SRMA. Adverse impacts (forms described above) due to high number of river users and few limitations on camping.	Beneficial impacts from reductions in vegetation and soil disturbance and introduction of weeds; reduced fire potential from closing all riparian areas to OHVs or limiting travel. Beneficial impact from managed recreation use on 976,173 acres of SRMA. Reduced disturbance by river users relative to Alternative A.	OHV impacts the same as Alternative B. Beneficial impact from managed recreation use on 658,642 acres of SRMA. Impacts from river users less than Alternative A and more than Alternative B.	OHV impacts the same as Alternative B. Beneficial impact from managed recreation use on 277,471 acres of SRMA. Impacts from river users less than Alternative A and more than Alternatives B and C.
Riparian Resources	Under all alternatives, beneficial impacts from maintenance of PFC; guidance on pipeline crossings; No Surface Occupancy stipulations in riparian and floodplain areas; prohibition of public wood gathering; and weed control measures. Beneficial impacts from excluding grazing on 9% of MPA's riparian areas.	Same as Alternative A, plus beneficial impacts from excluding grazing on 17% of MPA's riparian areas and prioritization of 17 watersheds for Watershed Management Plans (WMP).	Same as Alternative A, plus beneficial impacts from excluding grazing on 12% of MPA's riparian areas and prioritization of 8 watersheds for Watershed Management Plans (WMP).	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Soil and Water	Beneficial impacts due to a controlled surface use stipulation restricting surface disturbing activities in 100-year floodplains, under all alternatives. No impacts from WMPs.	Same as Alternative A, plus beneficial impacts to riparian management from prioritizing 17 watersheds for WMPs.	Same as Alternative A, plus beneficial impacts to riparian management from prioritizing 8 watersheds for WMPs.	Same as Alternative A.
Special Designations	Beneficial protection from designation of Negro Bill ONA. WSR eligible sections would be managed to protect ORVs which may offer indirect protections to riparian resources.	Greatest beneficial protection from designation of 12 ACECs. Beneficial protection of riparian resources by declaring 71,300 acres suitable for some level of WSR designation.	Second greatest beneficial protection from designations of 5 ACECs. Beneficial protection of riparian resources by declaring 41,236 acres suitable for some level of WSR designation.	No ACEC s designated, thus no riparian benefit. Adverse impacts to riparian resources from listing all eligible river segments (except Salt Wash) as "not suitable" for WSR designation.
Special Status Species	Beneficial enhancement (or reduction of degradation) of riparian areas designated for recovery of Special Status Species.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Vegetation	Beneficial enhancement of riparian health through removal of invasive species and replacement with native species.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Non-WSA Lands with Wilderness Characteristics	No specific management of non-WSA lands with lands with wilderness characteristics is proposed; so no direct impacts to riparian resources would occur.	Beneficial protection from the prohibition of surface disturbance, off road travel, and new ROWs on 266,485 acres of non-WSA lands managed to maintain wilderness characteristics.	Beneficial protection from the prohibition of surface disturbance, off road travel, and new ROWs on 47,761 acres of non-WSA lands managed to maintain wilderness characteristics.	No non-WSA lands would be managed for wilderness characteristics, so adverse impacts to riparian resources would be possible.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Wildlife	Benefits from reduced livestock impacts due to exclosures under Dolores Triangle Habitat Management Plan (Appendix N). Beneficial reduction of vegetation and soil disturbance and reduced spread of weeds due to camping restrictions in riparian wildlife habitats. Beneficial improvement in riparian habitat for migratory bird management.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Woodlands	Beneficial reduction in disturbance due to prohibition on public fuelwood gathering under all alternatives.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
SOCIOECONOMIC RESOURCES				
Cultural	Socioeconomic impacts resulting from cultural resource management decisions would continue.	Long-term beneficial social and economic impacts related to cultural resource visitation and subsequent revenue generation would be greatest because the identification, preservation, and restoration of sites would be highest under this alternative.	Similar to Alternative B with slightly fewer prioritizations that would reduce adverse impacts to cultural sites.	With the fewest amount of prioritizations and greatest opportunity for surface disturbing activities, adverse impacts to social and economic conditions resulting from cultural resources would be greatest under this alternative.
Lands and Realty	Socioeconomic impacts would remain similar to current conditions.	About 318,709 acres (outside WSAs) would be rights-of-way exclusion areas, resulting in potential adverse economic impacts.	About 25,306 acres (outside WSAs) would be rights-of-way exclusion areas, resulting in potential adverse economic impacts.	Socioeconomic impacts would remain similar to current conditions.
Livestock Grazing	Socioeconomic impacts would remain similar to current conditions.	The additional 26,890 acres unavailable for grazing would not alter socioeconomic impacts compared to Alternative A.	The additional 12, 673 acres unavailable for grazing would not alter socioeconomic impacts compared to Alternative A.	Similar to Alternative A. The additional 74,693 acres available for grazing would not alter socioeconomic impacts compared to Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Minerals	Economic benefits (taxes, royalties, bonus payments and annual rent payments) from minerals development would be long-term and beneficial to local communities. Estimated annual royalty revenue: oil – $200, 980, gas – $1,624,244 Employment would remain similar to current conditions with minor beneficial impacts to the local economy. Long-term production jobs would likely continue at current rates. Estimated annual property tax benefit from oil and gas production - $574,000 Estimated annual severance tax benefits to State from oil and gas production in the Moab Planning Area - $1,356,000, based on relative share of total State production (State of Utah data, February, 2008.)	Long-term economic benefits from minerals development would be slightly less under this Alternative, thus having a negligible to minor impact in comparison to the other Alternatives. Estimated annual royalty revenue: oil – $100,490, gas – $937,050. Estimated annual property tax benefit from oil and gas production - $321,440 Estimated annual severance tax benefits to State from oil and gas production in the Moab Planning Area is likely to be about 45% less than A, due to decreased production opportunities.	Long-term beneficial socioeconomic impacts slightly less than Alternative A, but greater than Alternative B. Estimated annual royalty revenue: oil – $200,980, gas – $1,561,750 Estimated annual property tax benefit from oil and gas production - $551,000 Estimated annual severance tax benefits to State from oil and gas production in the Moab Planning Area would be similar to A, since estimated production would be only slightly less than A.	Long-term beneficial socioeconomic impacts same as Alternative A, but greater than Alternatives B and C. Estimated annual royalty revenue: oil – $200, 980, gas – $1,624,244 Estimated annual property tax benefit from oil and gas production - $574,000 Estimated annual severance tax benefits to State from oil and gas production in the Moab Planning Area would be similar to A, since estimate production would be similar to A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation and Travel Management	Long-term beneficial impacts from tourist-related spending (approx. $2 million in sales tax revenue annually) and employment (2000 jobs) would continue. With no designation of focus areas and 3 SRMAs, user conflicts are likely to escalate and adversely impact visitor experience. Economic contributions from OHV users would be similar to current conditions. There could be a potential decrease in social well-being and contribution to the local economy from recreationists seeking non-motorized opportunities. There could be possible degradation of other resources that could adversely impact recreation opportunities and visitation in the long term.	Slight decrease in revenue generation and tourist-related employment due to emphasis on non-motorized recreation. With 11 SRMAs and 22 focus areas, user conflicts would likely decrease, having long-term beneficial impacts on visitor experience. Decreased OHV user satisfaction due to emphasis on non-motorized users. Potential decrease in OHV visitation with corresponding potential increase in non-motorized recreation. Adverse economic impacts to businesses focusing on OHV use, but positive economic benefits to businesses focusing on non-motorized recreation. Potential increase in second home and retirement relocation, with corresponding benefits to businesses involved in this market. Potential adverse impact to local residents from increases in housing costs and changes to local customs and culture.	Emphasis on a balance of recreational uses could lead to greatest opportunity for revenue generation and a range of employment opportunities in the region. Socioeconomic impacts would be long-term and beneficial. With 10 SRMAs and 30 focus areas, the greatest opportunity for reduction in user conflicts and satisfactory visitor experiences for all recreation types is emphasized under this Alternative. Greatest potential for social and economic benefits to the extent that user conflicts are reduced, and that sufficient opportunities exist for both motorized and non-motorized recreation.	Slight decrease in revenue generation and tourist-related employment due to emphasis on motorized recreation. With 6 SRMAs and 10 focus areas, user conflicts may decrease, having long-term beneficial impacts on visitor experience. Decreased non-motorized user satisfaction due to emphasis on motorized users. Social and economic benefits to OHV users and associated businesses higher than under the Proposed Plan, but less than under current conditions. Social and economic benefits to non-motorized recreationists less than under the Proposed Plan, but greater than under current conditions.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Special Designations	Opportunities for adverse socioeconomic impacts resulting from the designation of ACECs would be negligible as no ACECs are designated. With 63 river miles designated as eligible for WSR status, socioeconomic impacts would be negligible.	Opportunities for adverse impacts to socioeconomics resulting from the designation of ACECs would be minor, as 92,056 acres would be excluded from oil and development. WSR designation on 340 river miles could have long-term beneficial economic impacts related to tourism-related revenues.	Opportunities for adverse socioeconomic impacts resulting from the designation of ACECs are likely to be minor as 29,205 acres of ACECs would have major restrictions on oil and gas development. An additional 34,027 acres of ACECs are excluded from development due to their WSA status. WSR designation would have most of the beneficial impacts of tourism-related revenue in comparison to Alternative B, as the major recreational rivers are included (Colorado, Dolores and Green).	Similar to Alternative A. Potential adverse and/or beneficial impacts of WSR designation are negligible as no miles are designated.
Visual	Negligible to minor impacts due to VRM restrictions on minerals development.	Slightly greater VRM restrictions on minerals development than Alternative A.	Slightly less VRM restrictions on minerals development than Alternative A.	Slightly less VRM restrictions on minerals development than Alternative A, but greater than the Proposed Plan.
Non-WSA Lands with Wilderness Characteristics	No impacts, as no non-WSA lands would be managed for wilderness characteristics.	Adverse economic impacts from reduction in oil and gas development on 266,485 acres of non-WSA lands with wilderness characteristics. Possible increases in revenues from primitive recreation opportunities.	Negligible adverse economic impacts from reduction in oil and gas development on 47,761 acres of non-WSA lands with wilderness characteristics. Possible increases in revenues from primitive recreation.	No impacts, as no non-WSA lands would be managed for wilderness characteristics.
SOIL AND WATER				
Cultural Resources	No new impacts on soil and water resources.	Beneficial removal of grazing from 42 miles of perennial stream.	Same as Alternative B.	Beneficial removal of grazing from 28 miles of perennial stream.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Fire Management	Short term adverse increased sedimentation and runoff. Long-term beneficial reduction of catastrophic fire risk, reduced frequency/number of high-intensity fires, fewer hydro-phobic soils, increased infiltration, decreased flood magnitude, less erosion and sedimentation.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Human Health and Safety	Beneficial long-term reduction of water quality-related threats to public health and/or the environment where Abandoned Mine Lands (AMLs) are rehabilitated.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Utility corridors have the potential to adversely impact soils on up to 32,502 acres.	Utility corridors have the potential to adversely impact soils on up to 65,865.	Utility corridors have the potential to adversely impact soils on up to 173,099 acres.	Utility corridors have the potential to adversely impact soils on up to 204,168 acres.
Livestock Grazing	Reduced saline soil erosion due to 84,949 acres of sensitive soils being unavailable for grazing. Alternative A would provide more protection for sensitive soils than Alternatives C and D but less than Alternative B.	Reduced saline soil erosion due to 106,752 acres of sensitive soils being unavailable for grazing. Alternative B represents the greatest, short- and long-term, beneficial impacts to soil and water resources.	Reduced saline soil erosion due to 80,178 acres of sensitive soils being unavailable for grazing.	Reduced saline soil erosion due to 43,999 acres of sensitive soils being unavailable for grazing. Least protective of sensitive soils of all the alternatives.
Minerals	Potential for adverse disturbance of up to 41% of sensitive soils by mineral resource development.	Potential for adverse disturbance of up to 26% of sensitive soils by mineral resource development.	Potential for adverse disturbance of up to 38% of sensitive soils by mineral resource development.	Potential for adverse disturbance of up to 40% of sensitive soils by mineral resource development.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Recreation	Adverse impacts to 620,212 acres of soils open to cross country OHV travel and associated surface disturbance. Greatest adverse impacts to soil and water resources due to lowest level of recreation management (141,234 acres of SRMA).	No soils open to cross-country OHV use. Beneficial impacts from the greatest level recreation management (976,173 acres of SRMA).	Adverse impacts to 1,866 acres of soils open to cross country OHV travel and associated surface disturbance. Management of recreation impacts would be less than Alternative B and more than Alternatives A and D (658,642 acres of SRMA).	Adverse impacts to 3,096 acres of soils open to cross country OHV travel and associated surface disturbance. Management of recreation impacts would be less than Alternatives B and C and more than Alternative A (277,471 acres of SRMA).
Riparian	Least beneficial impacts from least protective riparian management.	Greatest beneficial impacts from development and implementation of WMPs in the greatest number of watersheds, management of livestock grazing on most acres, and grazing exclusion on portions of nine allotments protecting 28 miles of perennial stream.	Fewer benefits from WMPs than under Alternative B, but more than Alternatives A and D. Fewer benefits from livestock grazing management than Alternative B, but more than Alternatives A and D.	Same as Alternative A.
Soils/Water Resources	Adverse impacts due to oil and gas leasing and other surface-disturbing activities in the Castle Valley or the Mill Creek watersheds. Beneficial impacts over 313,800 acres of saline soils and 823,094 acres of high-limitations soils closed to surface disturbance.	Beneficial impacts due to closure of Castle Valley and Mill Creek municipal watersheds for mineral resource development and other surface-disturbing activities. Beneficial impacts over 330,142 acres of saline soils and 487,917 acres of high-limitations soils closed to surface disturbance.	Same as Alternative B, except areas within the municipal watersheds would be no surface occupancy for surface disturbing activities, and 330,142 acres of saline soils and 710,129 acres of high-limitations soils would be closed to surface disturbance.	Impacts regarding the Castle Valley r and the Mill Creek municipal watersheds would be the same as under Alternative A. Beneficial impacts over 487,917 acres of high-limitations soils closed to surface disturbance.
Special Designations	Minor beneficial impacts from protective management of 5,400 acres of sensitive soils are within 1/4 mile of two currently eligible WSR segments.	Greatest beneficial protection of soil and water with all 14 proposed areas managed as ACECs, limits on surface disturbance over at least 40,800 acres of sensitive soils due to WSR designation.	Moderate beneficial protection with 5 of the 14 proposed areas managed as ACECs, limits on surface disturbance over at least 25,900 acres of sensitive soils due to WSR designation.	No beneficial impacts to sensitive soils.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
SPECIAL DESIGNATIONS				
All Potential ACECs (613,077 acres)	None of the 14 Potential ACECs would be designated, with the exception of the existing 1,375 acre Negro Bill Outstanding Natural Area, which would continue to be protected. Relevant and important values, resources, and natural systems in the 13 potential ACECs that would not be designated could be at risk of irreparable damage due to the potential for adverse impacts except for those portions of potential ACECs that are in existing WSAs (approximately 306,000 acres), which would continue to be protected.	All of the 14 Potential ACECs would be designated. Special management provisions would be applied to 613,077 acres and relevant and important values, resources, and natural systems would be protected, and hazards addressed.	Five of the Potential ACECs would be designated. Special management provisions would be applied to 63,232 acres, and the relevant and important values, resources, and natural systems in these areas would be protected (and hazards addressed). In most cases the relevant and important values in 9 potential ACECs would be protected from long-term adverse impacts by other proposed management actions.	None of the 14 Potential ACECs would be designated. Some of the relevant and important values, resources and natural systems in the potential ACECs could be at risk of irreparable damage due to the potential for adverse impacts.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Behind the Rocks	Not designated. Relevant and important values within the Behind the Rocks WSA (12,635 acres) would be protected. Of the 5,201 acres outside the WSA: About 2,549 acres are closed to oil and gas leasing thereby providing protection to relevant and important values; About 1,958 acres are NSO for oil and gas leasing thereby providing protection to relevant and important values; and About 694 acres would be open to oil and gas leasing, resulting in about 7.3 acres of surface disturbance due to oil and gas development. These acres would also be open to cross country OHV use thereby impacting relevant and important values.	About 17,836 acres designated, including 12,635 acres within the WSA. All relevant and important values would be protected by managing as either closed or NSO for oil and gas leasing and other surface disturbing activities. In addition, 17,836 acres would be managed as closed to woodlands harvest and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values.	About 5,201 acres (outside the WSA) would be designated. The ACEC would be NSO for oil and gas leasing and other surface disturbing activities. In addition, the 5,201acres would be managed as closed to woodlands harvest and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values.	Not designated. Relevant and important values within the Behind the Rocks WSA (12,635 acres) would be protected. About 5,201 acres outside the WSA would be open to oil and gas leasing and other surface disturbing activities. This would result in about 7.0 acres of surface disturbance due to oil and gas development. However, there would be beneficial impacts to relevant and important values from limiting OHV travel to designated routes.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Book Cliffs	Not designated. Relevant and important values within Book Cliffs WSAs (250,207 acres) would be protected. Of the 54,045 acres outside the WSAs: All 54,045 acres are open to oil and gas leasing, with adverse impacts to relevant and important values possible from oil and gas development. There is a projected disturbance of 841 acres. There would be additional adverse impacts on these 54,045 acres from woodland harvest, open OHV use, and ROWs.	About 304,252 acres designated, including 250,207 acres within the WSAs. All relevant and important values would be protected by managing as either closed or NSO for oil and gas leasing and other surface disturbing activities. In addition, the entire 304,252 acres would be managed as closed to woodlands harvest, managed as an SRMA, and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values. Greatest beneficial impacts to relevant and important values under this alternative.	Not designated. Relevant and important values within the WSAs (250,207 acres) would be protected. About 54,045 acres outside the WSAs would be open to oil and gas leasing and other surface disturbing activities. This would result in about 806 acres of surface disturbance due to oil and gas development. There would be a beneficial impact by limiting OHV use to designated routes.	Same as the Proposed Plan.
ACEC, Canyon Rims	Not designated. About 23,400 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 33 acres of surface disturbance due to oil and gas development.	About 23,400 acres designated. The area would be closed or NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values.	Not designated. About 23,400 acres would be open to oil and gas leasing with a controlled surface use stipulation, which could result in adverse impacts to relevant and important values. There would be about 24 acres of surface disturbance due to oil and gas development.	Same as the Proposed Plan except mineral leasing disturbance would be 32 acres.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
	Additional adverse impacts from surface disturbance associated with ROWs could occur. The 23,400 acres would also limit OHV travel to existing routes, benefiting relevant and important values, but to a lesser degree than would limit travel to designated routes. Beneficial impacts would result from SRMA and VRM II management. Least protective of all the alternatives.	Additional adverse impacts from surface disturbance associated with ROWs could occur. Beneficial impacts would result from limiting OHV travel to designated routes and from SRMA and VRM II management. Greatest beneficial impacts to relevant and important values under this alternative.	Additional adverse impacts to view shed from VRM III management in portions of the area. Additional adverse impacts from surface disturbance associated with ROWs could occur. Beneficial impacts from SRMA management and from limiting OHV travel to designated routes.	
ACEC, Cisco White-tailed Prairie Dog Complex	Not designated. About 117,481 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 1,249 acres of surface disturbance due to oil and gas development. Least protective of all alternatives.	About 117,481acres designated. The area would be managed as NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial protections from management of livestock grazing to maximize seed production and from limiting OHV travel to designated routes. Greatest beneficial impacts to relevant and important values under this alternative.	Same as Alternative A except there would be beneficial impacts from requirements for a 660- foot buffer around known active prairie dog colonies and changes in livestock use (except for seasons of use) to maximize seed production. Additional beneficial impacts from limiting OHV travel to designated routes.	Same as the Proposed Plan except for adverse impacts from not managing livestock grazing to maximize seed production.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Colorado River Corridor	Not designated. Relevant and important values within the Negro Bill WSA (7,280 acres) would be protected. Of the 43,203 acres outside the WSA, about 31,276 acres would be open to oil and gas leasing, resulting in about 35 acres of surface disturbance due to oil and gas development. These acres would also be open to cross country OHV use thereby impacting relevant and important values. The Three Rivers withdrawal for locatable minerals would have beneficial impacts to relevant and important values. Least protection of relevant and important values under this alternative.	About 50,483 acres designated, including 7,280 acres within the WSA. All relevant and important values would be protected by managing as either closed or NSO for oil and gas leasing and other surface disturbing activities. In addition, the 50,483 acres would be managed as closed to woodlands harvest, managed as an SRMA, and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values. Additional beneficial impacts from VRM I and SRMA management and from the Three Rivers withdrawal for locatable minerals. Greatest beneficial impacts to relevant and important values under this alternative.	Not designated. Relevant and important values within the Negro Bill WSA (7,280 acres) would be protected. Of the acreage outside the WSA, the majority would be managed as closed or NSO for oil and gas leasing and other surface disturbing activities, providing beneficial impacts to relevant and important values. The northwest corner of the Potential ACEC would be open to oil and gas leasing and other surface disturbing activities. This would result in about 26 acres of surface disturbance due to oil and gas development. Restrictions on river-based camping, limiting OHV travel to designated routes. SRMA management, VRM II management, and the Three Rivers withdrawal for locatable minerals, would also have beneficial impacts.	Same as the Proposed Plan except that more of the acreage is open to oil and gas leasing and other surface disturbing activities, resulting in greater impacts to relevant and important values.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Cottonwood-Diamond Watershed	Not designated. Relevant and important values within the Book Cliffs (Coal, Flume, and Spruce) WSAs (34,004 acres) would be protected. The 1,825 acres outside the WSAs are open to oil and gas leasing, with adverse impacts to relevant and important values possible from oil and gas development projected at about 1 acre of surface disturbance.	About 35,830 acres designated, including 34,004 acres within the WSAs. All relevant and important values would be protected by managing as either closed or NSO for oil and gas leasing and other surface disturbing activities. In addition, the 35,830 acres would be managed as closed to woodlands harvest, livestock grazing would be excluded, and SRPs would be withheld until the area is rehabilitated. The area would be managed as an SRMA, and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values. Greatest beneficial impacts to relevant and important values under this alternative.	Same as Alternative B.	Same as Alternative A except beneficial impacts from limiting OHV travel to designated routes.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Highway 279/Shafer Basin/Long Canyon	Not designated. About 11,466 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 19 acres of surface disturbance due to oil and gas development. There would be beneficial impacts from NSO management for oil and gas leasing on 2,034 acres. Some beneficial impacts from limiting OHV travel to existing routes but not as protective as limiting OHV travel to designated routes.	About 13,500 acres designated. The area would be closed or NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from limiting OHV travel to designated routes, and from SRMA and VRM I management. Greatest beneficial impacts to relevant and important values under this alternative.	Same as Alternative B except that area would be NSO for oil and gas leasing and other surface disturbing activities, and the area would be managed as VRM II. There would be virtually no difference in impacts as compared to Alternative B.	Same as Alternative A except the area would be managed as VRM III resulting in slightly greater protections than under Alternative A.
ACEC, Labyrinth Canyon	Not designated. About 8,528 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 12 acres of surface disturbance due to oil and gas development. Some beneficial impacts from limiting OHV travel to existing routes but not as protective as limiting OHV travel to designated routes. This alternative would offer the least beneficial protection to relevant and important values.	About 8,528 acres designated. The area would be closed or NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from limiting OHV travel to designated routes, and from SRMA and VRM I management. Greatest beneficial impacts to relevant and important values under this alternative.	Same as Alternative A except the area would be managed as VRM II and OHV travel would be limited to designated routes rather than existing routes, thereby offering slight more beneficial protections.	Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Mill Creek Canyon	Not designated. Relevant and important values within the Mill Creek WSA (9,780 acres) would be protected. The 3,721 acres outside the WSA would be open to oil and gas leasing, resulting in about 3 acres of surface disturbance due to oil and gas development. Some beneficial impacts from limiting OHV use to existing routes but not as protective as and limiting OHV travel to designated routes. This alternative would offer the least beneficial protection to relevant and important values.	About 13,501 acres designated, including 9,780 acres within the WSA. All relevant and important values would be protected by managing as either closed or NSO for oil and gas leasing and other surface disturbing activities. The 13,501 acres would be managed as VRM I, closed to woodlands harvest and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values. Additional beneficial impacts from limiting grazing, maintaining a 3 cfs flow in the South Fork of Mill Creek, and recreation restrictions such as closures to vehicle based camping. Greatest beneficial impacts to relevant and important values under this alternative.	About 3,721 acres (outside the WSA) would be designated. The ACEC would be NSO for oil and gas leasing and other surface disturbing activities. In addition, the 3,721 acres would be managed as closed to woodlands harvest and OHV travel limited to designated routes, which would have beneficial impacts to relevant and important values. Same impacts as Alternative B but for a lesser area and less beneficial impacts from VRM II management rather than VRM I.	Same as Alternative A with greater beneficial impacts from limiting OHV travel to designated routes, managing as VRM II, and only allowing grazing in Mill Canyon allotment.
ACEC, Negro Bill ONA	The 1,375-acre ONA was designated in the Grand RMP.	Not designated.	Not designated.	Not designated.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Ten Mile Wash	Not designated. About 4,980 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 7 acres of surface disturbance due to oil and gas development. Some beneficial impacts from limiting OHV travel to existing routes but not as protective as limiting OHV travel to designated routes. This alternative would offer the least beneficial protection to relevant and important values.	About 4,980 acres designated. The area would be NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from eliminating motorized travel in the canyon, closing it to woodland harvest, and SRMA and VRM II management. Greatest beneficial impacts to relevant and important values.	About 4,980 acres designated. Same as Alternative B except motorized travel in the canyon would be allowed on designated routes instead of being closed. This would offer less beneficial protections than Alternative B.	Same as Alternative A except slightly greater beneficial impacts from limiting motorized travel to designated routes and not allowing campfires outside of designated sites.
ACEC, Upper Courthouse	Not designated. About 11,529 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 19 acres of surface disturbance due to oil and gas development. Some beneficial impacts from limiting OHV travel to existing routes but not as protective as limiting OHV travel to designated routes. This alternative would offer the least beneficial protection to relevant and important values.	About 11,529 acres designated. The area would be NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from limiting OHV travel to designated routes, closing it to woodland harvest, and SRMA and VRM II management. Greatest beneficial impacts to relevant and important values.	Not designated. The majority of the Potential ACEC would be open to oil and gas leasing and other surface disturbing activities. This would result in about 11 acres of surface disturbance due to oil and gas development. The relict plant mesa tops would be NSO for oil and gas leasing and other surface disturbing activities, protecting some relevant and important values. Beneficial impacts from limiting motorized travel to designated routes, closures to woodland harvest, and SRMA management.	Same as the Proposed Plan except mesa tops would not be NSO for oil and gas leasing and other surface disturbing activities, and there would be no SRMA management.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Westwater Canyon	Not designated. Relevant and important values within West-water WSA (5,069 acres) would be protected. The existing Westwater Withdrawal would protect relevant and important values. Some beneficial impacts from limiting OHV travel to existing routes but not as protective as limiting OHV travel to designated routes.	About 5,069 acres designated. Same beneficial impacts as Alternative A with additional benefits from limiting OHV use to designated routes. Greatest beneficial impacts to the relevant and important values.	Same as Alternative A, but OHV travel limited to designated routes.	Same as Alternative A, but OHV travel limited to designated routes.
ACEC, White Wash	Not designated. About 2,988 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 11 acres of surface disturbance due to oil and gas development. Adverse impacts from open OHV travel. Least beneficial protections of all the alternatives.	About 2,988 acres designated. The area would be NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from limiting OHV travel to designated routes, restrictions on vehicle based camping, and from SRMA management. Greatest beneficial impacts to relevant and important values under this alternative.	Not designated. Same impacts as Alternative A except additional beneficial impacts from limiting OHV travel to designated routes in portions of the ACEC (1,122 acres), and closing the area to woodland product use. Adverse impacts from managing the area as VRM III and from about 1,866 acres open to cross country OHV use.	Not designated. Same impacts as Alternative A except additional adverse impacts from VRM III management.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
ACEC, Wilson Arch	Not designated. About 3,700 acres would be open to oil and gas leasing, which could result in adverse impacts to relevant and important values. There would be about 26 acres of surface disturbance due to oil and gas development. Beneficial impacts from SRMA management and limiting OHV travel to designated routes. Least beneficial protections of all the alternatives.	About 3,700 acres designated. The area would be NSO for oil and gas leasing and other surface disturbing activities. This would provide beneficial protections to relevant and important values. Beneficial impacts would result from limiting OHV travel to designated routes, closing the area to woodland harvest, restrictions on vehicle based camping, and from SRMA and VRM I management. Greatest beneficial impacts to relevant and important values under this alternative.	Not designated. The majority of the Potential ACEC would be open to oil and gas leasing and other surface disturbing activities. This would result in about 26 acres of surface disturbance due to oil and gas development. Beneficial impacts from limiting motorized travel to designated routes, closures to woodland harvest, and SRMA management.	Not designated. Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
All eligible Wild and Scenic River (WSR) segments	Continued case-by-case protection of all 13 eligible rivers involving BLM lands would result in the sustaining of the free-flowing nature, outstandingly remarkable values (ORVs), and tentative classifications of these rivers until suitability determinations are made.	All of the 13 eligible rivers would be found suitable for inclusion into the Wild and Scenic River System. All segments on BLM lands would be directly and indirectly managed in such a manner the outstandingly remarkable values, free-flowing nature, and tentative classification of these rivers would be sustained and enhanced.	The Green, Dolores, and Colorado Rivers would be found suitable for inclusion into the Wild and Scenic River System. BLM lands along these rivers would be directly and indirectly managed in such a manner that the free- flowing nature, ORVs, and tentative classifications of these rivers would be sustained and enhanced. Ten rivers would be found not suitable. No direct protections would be afforded any of these eligible rivers. Any protections to the ORVs or tentative classification would be indirect, resulting from management associated with other resource programs. Because no direct protections would be afforded, there is potential that to the free-flowing nature, ORVs and tentative classification of these rivers could be severe enough to preclude these rivers from any future opportunities for W&SR consideration. However, the restrictions from other resource programs would afford greater protection to these rivers than does Alternative D.	None of the 13 eligible rivers would be found suitable for inclusion in the Wild and Scenic River System. No direct protections would be afforded any eligible rivers. Any protections to the free-flowing nature, ORVs and tentative classifications of these rivers would be indirect, resulting from management associated with other resource programs. Because no direct protections would be afforded, there is a potential that impacts to the free-flowing nature, ORVs and tentative classification of these rivers could occur and be severe enough to preclude the rivers from any future opportunities for W&SR consideration. None of the 13 eligible rivers would be found suitable for inclusion in the Wild and Scenic River System. No direct protections would be afforded any eligible rivers. Any protections to ORVs or tentative designations would be indirect resulting from management associated with other resource programs. Because no direct protections would be afforded, there is a potential that impacts could occur on ORVs and tentative designations that could be severe enough to preclude them from any future opportunities for WSR consideration.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
WSR, Beaver Creek	About 7.7 miles and 2,268 acres would be managed as eligible for WSR consideration.	About 7.7 miles and 2,268 acres would be managed to preserve Wild (Segment 1) and Scenic (Segment 2) qualities.	Although found not suitable, 7.7 miles and 2,268 acres would be managed as NSO for oil and gas leasing to preserve non-WSA lands with wilderness characteristics. Therefore, impacts to ORVs, free flowing nature and tentative classification would be minimal.	Not suitable. Some areas of Beaver Creek could be impacted by surface disturbing activities. Therefore, impacts to ORVs, free flowing nature and tentative classification could occur.
WSR, Colorado River	About 69.3 miles and 24,288 acres would be managed as eligible for WSR consideration.	About 69.3 miles and 24,288 acres would be managed to preserve Scenic (Segments 1, 3 and 5), Wild (Segments 2 and 6), and Recreational (Segment 4) qualities.	About 68.1 miles and 23,763 acres would be managed to preserve Scenic (Segments 3a and 6), Wild (Segment 2), and Recreational (Segments 3b, 4 and 5) qualities. About 1.2 miles and 525 acres would be found not suitable. However, these lands would be managed as NSO for oil and gas leasing and withdrawn from locatable minerals, thereby protecting eligibility for WSR consideration.	Although found not suitable, 69.3 miles and 24,288 acres would be managed as NSO for oil and gas leasing and withdrawn from locatable minerals, thereby protecting eligibility for WSR consideration.
WSR, Cottonwood Canyon	About 10.4 miles and 2,938 acres would be managed as eligible for WSR consideration.	About 10.4 miles and 2,938 acres would be managed to preserve Scenic qualities.	Although found not suitable, 10.4 miles and 2,938 acres would be managed for protection of riparian resources and the WSA's on either side of the river would protect the ORVs, free flowing nature, and tentative designation.	Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
WSR, Dolores River	About 22.1 miles and 6,823 acres would be managed as eligible for WSR consideration.	About 22.1 miles and 6,823 acres would be managed to preserve Scenic (Segments 1 and 3) and Wild (Segment 2) qualities.	About 22.1 miles and 6,823 acres would be managed preserve Recreational (Segments 1 and 3) and Scenic (Segment 2) qualities.	Although found not suitable, 22.1 miles and 6,823 acres would be managed as NSO for oil and gas leasing and withdrawn from locatable minerals, thereby protecting eligibility for WSR consideration.
WSR, Green River	About 75.3 miles and 13,393 acres would be managed as eligible for WSR consideration.	About 75.3 miles and 13,393 acres would be managed to preserve Scenic (Segment 4) Wild (Segments 1 and 5) and Recreational (Segments 2 and 3) qualities.	About 64.8 miles and 10,976 acres would be managed to preserve Wild (Segment 1), Recreation (Segment 2), and Scenic (Segment 4a) qualities. About 10.5 miles and 2,417 acres would be found not suitable. However, the lands along the river would be managed as NSO for oil and gas leasing and withdrawn from locatable minerals, thereby protecting eligibility for WSR consideration.	Although found not suitable, 75.3 miles and 13,393 acres would be managed as NSO for oil and gas leasing and withdrawn from locatable minerals, thereby protecting eligibility for WSR consideration.
WSR, Mill Creek	About 6.0 miles and 1,864 acres of would be managed as eligible for WSR consideration.	About 6.0 miles and 1,864 acres would be managed to preserve Recreational (Segment 1) and Scenic (Segment 2) qualities.	Although found not suitable, 4.6 miles and 1,292 acres are within the WSA, providing protection for eligibility for WSR consideration. An additional 1.4 miles and 572 acres not within the WSA would be managed as NSO for oil and gas leasing, thereby protecting eligibility for WSR consideration.	Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
WSR, Negro Bill Canyon	About 7.4 miles and 1,949 acres would be managed as eligible for WSR consideration.	About 7.4 miles and 1,949 acres would be managed to preserve Recreational (Segment 2) and Wild (Segment 1) qualities.	Although found not suitable, 7.2 miles and 1,687 acres are within the WSA, providing protection for eligibility for WSR consideration. An additional 0.2 miles and 262 acres not within the WSA would be managed as NSO for oil and gas leasing thereby protecting eligibility for WSR consideration.	Same as the Proposed Plan.
WSR, North Fork Mill Creek	About 11.2 miles and 3,027 acres would be managed as eligible for WSR consideration.	About 11.2 miles and 3,027 acres of the waterway on BLM lands would be managed to preserve Wild qualities.	Although found not suitable, 11.2 miles and 1,687 acres are within the WSA, thereby protecting eligibility for WSR consideration.	Same as the Proposed Plan.
WSR, Onion Creek	About 12.5 miles and 3,146 acres would be managed as eligible for WSR consideration.	About 12.5 miles and 3,146 acres would be managed to preserve Recreational (Segment 2) and Wild (Segment 1) qualities.	Although found not suitable, 12.5 miles and 3,146 acres would be managed as NSO for oil and gas leasing to preserve non-WSA lands with wilderness characteristics. Therefore, impacts to ORVs, free flowing nature and tentative designation would be minimal.	Not suitable. Some areas of Onion Creek could be impacted by surface disturbing activities. Therefore, impacts to ORVs, free flowing nature and tentative designation could occur.
WSR, Professor Creek	About 7.3 miles and 1,936 acres would be managed as eligible for WSR consideration.	About 7.3 miles and 1,936 acres would be managed to preserve Wild qualities.	Although found not suitable, 7.3 miles and 1,936 acres would be managed as NSO for oil and gas leasing to preserve non-WSA lands with wilderness characteristics. Therefore, impacts to ORVs, free flowing nature and tentative designation would be minimal.	Not suitable. Some areas of Professor Creek could be impacted by surface disturbing activities. Therefore, impacts to ORVs, free flowing nature and tentative designation could occur.
WSR, Rattlesnake Canyon	About 31.6 miles and 8,371 acres would be managed as eligible for WSR consideration.	About 31.6 miles and 8,371 acres would be managed to preserve Wild qualities.	Although found not suitable, 31.6 miles and 8,371 acres are within the WSA thereby protecting eligibility for WSR consideration.	Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
WSR, Salt Wash	About 0.3 miles and 96 acres would be managed as eligible for WSR consideration.	About 0.3 miles and 96 acres would be managed as NSO for oil and gas leasing, protecting ORVs. The suitability decision would be deferred until the NPS makes a suitability determination on the portion in Arches National Park.	Same as Alternative B.	Same as Alternative B.
WSR, Thompson Canyon	About 5.5 miles and 1,620 acres of would be managed as eligible for WSR consideration.	About 5.5 miles and 1,620 acres would be managed to preserve Wild qualities.	Although found not suitable, 5.5 miles and 1,620 acres would be managed as NSO for oil and gas leasing to preserve non-WSA lands with wilderness characteristics. Therefore, impacts to ORVs, free flowing nature and tentative designation would be minimal.	Not suitable. Some areas of Thompson Canyon could be impacted by surface disturbing activities. Therefore, impacts to ORVs, free flowing nature and tentative designation could occur.
WSAs	**There would be beneficial impacts to WSAs under all alternatives from management under the IMP.** There would be potential for adverse impacts in areas where there are valid existing rights. VRM Class I would apply to all WSAs under all alternatives.	See A.	See A.	See A.
WSAs, Miles of designated way/route	82.5	0	3.1	16
SPECIAL STATUS SPECIES				
Fire Management	Long term beneficial impacts from reduced weedy and invasive species. Short term adverse effects from surface disturbance, trampling, and crushing.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Health and Safety Decisions	Potentially adverse loss of bat habitat. Benefits to fish species due to reduced threat of groundwater contamination.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Adverse removal of individual plants, surface disturbance, and habitat degradation due to construction within ROWs and utility corridors.	Same as Alternative A, but more adverse impacts from utility corridors, and less adverse impacts from other ROWs.	Same as Alternative B, but with more acreage available for utility corridors (and therefore greater impacts).	Same as Alternative B, but Alternative D would have the greatest impacts due to the greatest acreage available for utility corridors.
Livestock Grazing	Alternative A, would have the second largest total area excluded from grazing. This alternative would have the second most beneficial effects on Special Status species.	Alternative B provides the largest area (riparian and total) excluded from grazing, which would have long-term, beneficial effects on native vegetation in excluded areas.	The Proposed Plan provides the third largest area (riparian and total) excluded from grazing, which would have long-term, beneficial effects on native vegetation in excluded areas.	Alternative D would have the smallest area excluded from grazing among all alternatives. It would make Cottonwood and Diamond watersheds available for grazing.
Minerals	Possible adverse impacts include direct mortality, surface disturbance, habitat degradation, and habitat fragmentation due to mineral development and exploration. This alternative has the highest risk of adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the lowest risk of adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the second lowest risk of adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the second highest risk of adverse impacts.
Non-WSA Lands with Wilderness Characteristics	No acres managed as Non-WSA lands with wilderness characteristics.	Beneficial impacts from managing 266,485 acres to maintain naturalness, providing habitat protection for Special Status species.	Beneficial impacts from managing 47,761 acres to maintain naturalness, providing habitat protection for Special Status species.	No acres managed as Non WSA lands with wilderness characteristics.
Recreation	Adverse impacts to habitat quantity and quality from the greatest amount of mechanized recreational use and the least restriction on recreational use.	Least adverse impacts to habitat due to greatest management of recreation and focus on non-motorized uses.	Slightly less adverse impacts than Alternative B due to slightly less focus on non-motorized recreation.	Less adverse effects on SS species that Alternative A, but more than Alternatives B and C due to management of recreation and motorized uses.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Riparian	Vegetation treatments would result in long-term beneficial reductions of weed populations and restoration of native vegetation, as well as Short-term adverse crushing and removal of native vegetation during the treatment process. Adverse impacts from OHV use and grazing in riparian areas.	Same as Alternative A, expect that riparian areas would be closed to livestock grazing or subject to seasonal restrictions, lessening adverse surface disturbance. This alternative would be more beneficial than Alternatives A and D.	Same as Alternative A, except the riparian acres excluded would be less than under Alternative B.	Same as Alternative A.
Soils/Watershed	Greatest potential for adverse effects on steep-slope vegetation located in disturbance areas.	Least potential for adverse effects due to restriction of surface-disturbing activities on slopes greater than 30% and closure of the Castle Valley watershed to oil and gas leasing.	Same as Alternative B except that the Castle Valley watershed would have an NSO stipulation applied to oil and gas leasing (instead of being closed).	Same as Alternative A.
Special Designations	No ACECs or WSRs would be designated, so no beneficial protection would occur.	Beneficial management of 85,825 acres of federally listed SS species habitat as ACECs, and 44,227 acres of federally listed Special Status species habitat as WSRs.	Beneficial management of 16,345 acres of federally listed SS species habitat within the designated ACECs, and 79,910 acres of federally listed Special Status species habitat within the WSRs.	Same as Alternative A.
Special Status Species	Alternative A would not manage for the Gunnison and greater sage-grouse or for the white-tailed and Gunnison prairie dog beyond what is required by law. This alternative would be the most detrimental for these species and other Special Status species utilizing these habitats.	Alternative B would provide the most acres of protected habitat for the Gunnison and greater sage-grouse and for the white-tailed and Gunnison prairie dog in the MPA. This would indirectly provide protection for other Special Status species utilizing similar habitats.	The Proposed Plan would provide the second least acres of protected habitat for Special Status species.	Alternative D would provide the fewest number of acres of surface disturbance restrictions in Special Status species habitat, which would result in a greater potential for adverse effects on other species utilizing these habitats.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Travel Management	Greatest adverse impact from surface disturbance and human-caused disturbance due to closure of the least (7,558 acres) federally listed SS species habitat to OHVs.	Least adverse impact from surface disturbance and human-caused disturbance due to closure of the most (22,946 acres) federally listed SS species habitat to OHVs.	Second least adverse impact from surface disturbance and human-caused disturbance due to closure of the second most (17,666 acres) federally listed SS species habitat to OHVs.	Second greatest adverse impact from surface disturbance and human-caused disturbance due to closure of the second least (10,627 acres) federally listed SS species habitat to OHVs.
Vegetation	Negligible adverse disturbance from seed gathering and plant collection. Beneficial wildlife habitat improvement from treatment of tamarisk and Russian olive.	Same as Alternative A except for additional long term beneficial effects from replacing lost sagebrush steppe habitat deemed essential to wildlife.	Same as Alternative A except for additional long term beneficial effects from replacing lost sagebrush steppe habitat deemed essential to wildlife.	Same as the Proposed Plan.
Visual Resources	Greatest adverse surface disturbance due to the smallest area subject to VRM Class I and II restrictions, and the second smallest area subject to VRM Class III and IV restrictions.	Least adverse surface disturbance due to the largest area subject to VRM Class I and II restrictions and the smallest area subject to VRM Class III and IV restrictions.	Second least adverse surface disturbance due to the second largest area subject to VRM Class I and II restrictions and the second largest area subject to VRM Class III and IV restrictions.	Second greatest adverse surface disturbance due to the second smallest area subject to VRM Class I and II restrictions and the largest area subject to VRM Class III and IV restrictions.
Wildlife	Least beneficial impacts from special conditions placed on 257,228 acres of wildlife habitat. (Note: some acreage may overlap).	Greatest beneficial impacts from special conditions placed on 2,004,942 acres of wildlife habitat (Note: some acreage may overlap).	Second greatest beneficial impacts from special conditions placed on 1,041,055 acres of wildlife habitat. (Note: some acreage may overlap).	Second least beneficial impacts from special conditions placed on 875,825 acres of wildlife habitat. (Note: some acreage may overlap).
Woodlands	Short-term, adverse disturbance and long-term habitat degradation over 1,243,743 acres of pinyon-juniper habitat open to woodland harvest.	Short-term, adverse disturbance and long-term habitat degradation over 1,071,335 acres of pinyon-juniper habitat open to woodland harvest.	Short-term, adverse disturbance and long-term habitat degradation over 1,212,886 acres of pinyon-juniper habitat open to woodland harvest.	Same as Alternative A.
TRAVEL MANAGEMENT				
Air Quality	Short-term, adverse travel delays or detours during dust abatement or road maintenance.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Cultural	No prescriptions address travel opportunities under this alternative.	Short- and long-term adverse impacts from reduced or prohibited access to closed cultural sites.	Same as Alternative B.	Same as Alternative B.
Minerals	Minor long-term beneficial increase in travel opportunities along minerals access roads.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
ACECs/Wild and Scenic Rivers	Negligible to minor reduction of travel opportunities in these areas.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
WSAs/Wilderness Areas	Long-term adverse impacts from closure of 29,654 acres of WSAs to OHVs.	Long-term adverse impacts from closure of 354,015 acres of WSAs to OHVs.	Long-term adverse impacts from closure of 279,110 acres of WSAs to OHVs.	Long-term beneficial impacts from OHV access to all WSAs.
Travel Management and Recreation, Mountain Biking and Non-mechanized travel	Long-term, adverse impacts from inadequate management to address current conditions and trends.	Long-term, beneficial impacts from decreased conflicts between mountain bikers and motorized users, and from 75 miles of additional proposed routes bike routes and 25 miles of proposed non-mechanized routes.	Same as Alternative B, except that 150 additional miles of bike routes and 50 additional miles of non-mechanized routes would be proposed.	Same as Alternative B, except that 300 additional miles of bike routes and 100 additional miles of non-mechanized routes would be proposed.
Travel Management and Recreation, Motorized (OHV)	Negligible to minor impacts on motorized travel.	Long-term adverse impacts from 347,424 acres closed to OHV use.	Slightly less adverse impacts than Alternative B, with 339,298 acres closed to OHV use.	Less adverse impacts than Alternatives B or C, with 57,351 acres closed to OHV use.
Travel Management and Recreation, Road	Long-term, beneficial impacts from unimpeded travel along 4,673 miles of D-Class roads.	Long-term, adverse impacts from route closures, with travel designated along 2,144 miles of D-Class roads.	Impacts similar to Alternative B, except that 2,519 miles of routes would be designated along D-Class roads.	Impacts similar to C, except that 2,671 miles of routes would be designated along D-Class roads.
Vegetation	No impacts to travel from vegetation decisions.	Minor short-term adverse impacts from area closures under drought management plan.	Same as Alternative B.	Same as Alternative B.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
VEGETATION RESOURCES				
Fire Management	Long-term, beneficial reduction of invasive species. Short-term, adverse trampling and loss of vegetation from treatments.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Lands and Realty	Beneficial, long-term impacts from minerals withdrawals. Long-term, adverse impacts from energy facility development, 32,502 acres within utility corridors, and ROWs.	Same as Alternative A, except greater adverse impacts in ROWs and utility corridors (65,865 acres).	Same as Alternative A, except greater adverse impacts in ROWs and utility corridors (173,099 acres).	Same as Alternative A, except greater adverse impacts in ROWs and utility corridors (204,168 acres).
Livestock Grazing	Long-term, beneficial impacts from vegetation treatments to expand forage for livestock and wildlife.	Similar impacts to Alternative A.	Similar impacts to Alternative A.	Similar impacts to Alternative A.
Minerals	Direct, adverse, long-term impacts from minerals exploration and development. 10,184 acres of disturbance projected) which could eliminate vegetation on these acres.	Same as Alternative A, but with fewer acres of disturbance projected (6,382 acres) which could eliminate vegetation on these acres.	Same as Alternative A , but with fewer acres of disturbance projected (9,750 acres) which could eliminate vegetation on these acres.	Same as Alternative A , but with fewer acres of disturbance projected (10,083 acres) which could eliminate vegetation on these acres.
Non-WSA with Wilderness Characteristics	Long-term, adverse impacts to vegetation from permitted surface disturbances.	Long-term, beneficial impacts from reduced vegetation disturbance on 266,485 acres.	Same as Alternative B, except to a lesser degree, from protection on 47,761 acres.	Same as Alternative A.
Recreation	Minor short- and long-term, adverse impacts from motorized and non-motorized travel. Beneficial limitations on camping sites within 132,832 acres of SRMA.	Same as Alternative A, except additional beneficial restrictions on cross-country OHV impacts and dispersed camping impacts within 982,399 acres of SRMA.	Same as Alternative B, except reduced beneficial restrictions on cross-country OHV impacts, and reduced dispersed camping impacts within only 982,399 acres of SRMA.	Same as Alternative A except for increased acreage open to motorized travel and OHV cross-country use. Decreased impacts on 272,522 acres of SRMA
Riparian	Compliance with the BLM National Riparian Policy would result in long-term, beneficial impacts to riparian vegetation.	Same as Alternative A, but with greater benefits from the application of CSU stipulations within 100 meters of riparian areas.	Same as Alternative B.	Same as Alternative B.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Soils/Watershed	Indirect, beneficial impacts from reduced soil erosion and subsequent impacts to plant communities, and reduced invasive weed establishment.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A, except greater impacts due to lack of timing restrictions.
Special Designations	Beneficial reduction of surface disturbance in 1,375-acre Negro Bill ONA.	Long-term beneficial reduction of surface disturbing activities in ACECs (613,077 acres).	Same as Alternative B except 63,232 acres would be designated as ACECs.	No acreage designated as ACEC, so no beneficial impacts.
Special Status Species	Long-term, beneficial impacts from sensitive species habitat protection, which would preserve vegetation.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Travel Management	Long-term adverse loss of vegetation and productivity, and spread of weeds. 620,212 acres open to cross country travel.	Greatly reduced impacts from OHV use compared to Alternative A, with zero acres open to cross country travel.	Same as Alternative B, except 1,086 acres open to cross country travel.	Same as Alternative B, except 3,045 acres open to cross country travel.
Vegetation	None specified.	Long-term, beneficial impacts to vegetation resources through conservation and reclamation measures.	Same as Alternative B except for fewer acres of sagebrush-steppe habitat that would be reclaimed.	Same as Alternative B except for fewer acres of sagebrush-steppe habitat that would be reclaimed.
Wildlife	Long-term, beneficial surface-disturbance activities and vegetation-altering projects.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Woodland	Short-term, adverse trampling of understory vegetation and long-term adverse introduction of weed species.	Same as Alternative A, except lesser impacts (107,321 fewer acres open to woodland harvest).	Same as Alternative A.	Same as Alternative B, expect slightly more acres open to woodland harvest.
VISUAL RESOURCES				
Class I	349,110 acres	453,462 acres	358,911 acres	349,617 acres
Class II	401,015 acres	373,647 acres	365,566 acres	245,773 acres
Class III	800,782 acres	784,246 acres	829,158 acres	956,724 acres
Class IV	271,356 acres	210,532 acres	268,133 acres	269,641 acres

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Scenic Quality/Viewshed, Canyon Rims	Short-term and long-term minerals-related degradation of scenic quality in VRM III areas.	Scenic quality protection from additional 6,867 acres of VRM II; Approximately 41% of area subject to minerals disturbance.	Impacts similar to Alternative B but to a lesser degree, because more area (68 more acres than Alternative A) would be subject to disturbance under VRM III than determined by the VRM inventory. Approximately 73% of area subject to minerals disturbance.	Impacts similar to Alternative A, as 95% of the area could be subject to minerals disturbances.
Scenic Quality/Viewshed, Onion Creek	No scenic quality degradation because of management under VRM II.	Same as Alternative A, except management under VRM I would provide more visual resource protection.	Same as Alternative A.	Same as Alternative A.
Scenic Quality/Viewshed, Richardson Amphitheater/Fisher Towers	Potentially adverse impacts to Arches NP viewshed from minerals activities.	Impacts similar to Alternative A, except greater visual resource protection from proposed VRM I objectives.	Impacts similar to Alternative B, but to a lesser degree, from no VRM I management.	Same as the Proposed Plan.
Scenic Quality/Viewshed, Colorado Riverway/Highway 128	Potentially adverse impacts to Arches NP viewshed from minerals activities. Mitigation would reduce fugitive dust impacts to viewshed to minor levels.	Long-term, beneficial impacts to visual resources from increased protection under VRM I and VRM II Management Classes.	Same as Alternative B, but to a lesser degree, because fewer acres managed under VRM I and II.	Impacts similar to Alternative B but to a lesser degree because fewer acres managed under VRM I and II.
WILDLIFE AND FISHERIES RESOURCES				
Fire Management	Short-term adverse impacts due to habitat disturbance and stream sedimentation. Long-term beneficial impacts due to reduced fuel loading, reduced fire risk, and diversified habitat.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Health and Safety	Adverse displacement and habitat reduction of bats. Reclamation would benefit aquatic species by improving water quality.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Lands and Realty	Under all alternatives, wildlife would benefit from continued mineral withdrawals on 78,333 acres. Utility corridors would disturb up to 32,183 acres of desert shrub wildlife habitat.	Same as Alternative A. Utility corridors would disturb up to 64,539 acres of desert shrub wildlife habitat.	Same as Alternative A. Utility corridors would disturb up to 170,996 acres of desert shrub wildlife habitat.	Same as Alternative A. Utility corridors would disturb up to 201,656 acres of desert shrub wildlife habitat.
Livestock Grazing	Management under Utah Standards for Rangeland Health would benefit wildlife, particularly in riparian and aquatic habitats. Grazing in riparian areas would increase salinity and sedimentation.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
	Beneficial exclusion of livestock grazing and increased forage on 126,907 acres. Cottonwood, Diamond and Bogart allotments not available for grazing, with beneficial impacts for deer and/or elk. Short-term adverse and long-term beneficial impacts from vegetation treatments on 67,125 acres.	Same as Alternative A, but livestock exclusion from 153,797 acres. Cottonwood, Diamond and Bogart allotments not available for grazing, with beneficial impacts for deer and/or elk. Same as A, but vegetation treatments would occur on 46,307 acres.	Same as Alternative A, but livestock exclusion from 114,234 acres. Cottonwood, Diamond and Bogart allotments not available for grazing with beneficial impacts for deer and/or elk. Vegetation treatments would be the same as under Alternative B.	Same as Alternative A, but livestock exclusion from 52,214 acres. Cottonwood, Diamond and Bogart allotments available for grazing with adverse impacts for deer and/or elk in crucial winter range. Could reduce herd sizes and viability. Vegetation treatments would e are the same as under Alternative B.
Minerals	Adverse impacts include direct mortality, surface disturbance, habitat degradation, and habitat fragmentation due to mineral development and exploration. This alternative has the highest disturbance and adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the lowest adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the second lowest adverse impacts.	Same as Alternative A, except that less mineral development and exploration would occur. This alternative would have the second highest adverse impacts.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Non-WSA Lands with Wilderness Characteristics	Alternative A would not implement any specific non-WSA lands with wilderness characteristics, so no beneficial impacts to wildlife would occur.	Beneficial closure to surface disturbing activities, and new ROWs over 266,485 acres to maintain wilderness characteristics on non-WSA lands.	Same as Alternative B, except over 47,761 acres and with an NSO stipulation for all surface disturbing activities.	No non-WSA lands would be managed to maintain wilderness characteristics, so no beneficial impacts to wildlife would occur.
Recreation	Adverse impacts including noise, vehicle traffic, trampling of vegetation, habitat fragmentation, and other human-related disturbances. Greatest impacts due to greatest amount of mechanized recreational use and the least restriction on recreational use.	Same as Alternative A. Least adverse impacts to habitat due to greatest management of recreation and focus on non-motorized uses.	Same as Alternative A. Slightly less adverse impacts than Alternative B due to slightly less focus on non-motorized recreation.	Same as Alternative A. Less adverse effects on wildlife species than Alternative A, but more than Alternatives B and C due to management of recreation and motorized uses.
Riparian	Vegetation treatments would result in long-term beneficial reductions of weed populations and restoration of native vegetation, as well as Short-term adverse crushing and removal of native vegetation during the treatment process. Adverse impacts from OHV use and improper grazing in riparian areas.	Same as Alternative A, expect that some riparian areas would be unavailable for livestock grazing, lessening adverse surface disturbance. This alternative would be more beneficial than Alternatives A and D.	Same as Alternative B.	Same as Alternative A.
Soils/Watershed	Benefit impacts from compliance with Utah Standards for Rangeland Health and NSO stipulations applied within 100-year floodplains and within 100 feet of natural springs or public water reserves.	Same as Alternative A, except reduced impacts to aquatic by prohibiting surface-disturbing activities on slopes greater than 30 percent and closing the Castle Valley and Mill Creek watersheds to oil and gas leasing.	Same as Alternative B, except The Proposed Plan would apply an NSO stipulation to the Castle Valley and Mill Creek watersheds. More beneficial than Alternative A, but less beneficial than Alternative B.	Same as the Proposed Plan.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Special Designations	Beneficial habitat protection in 1,375 acres in Negro Bill ONA, and short-term protection along eligible WSR segments managed to preserve their wild and scenic qualities.	Beneficial habitat protections in 613,005 acres designated as ACECs and the most river segments found suitable as WSRs; most beneficial to wildlife.	Beneficial habitat protections in 63,232 acres designated as ACECs and the second most river segments found suitable as WSRs; second most beneficial to wildlife.	Alternative D would not designate any ACECs or find any WSRs suitable, and would therefore not benefit wildlife.
Special Status Species	No impacts beyond special status species decisions required by law that would affect wildlife.	Beneficial wildlife habitat protection over 469,162 acres managed as special status species habitat.	Beneficial wildlife habitat protection over 306,976 acres managed as special status species habitat.	Beneficial wildlife habitat protection over 74,792 acres managed as special status species habitat.
Travel Management	Beneficial closure of 5,060 acres to OHV use, which is more than Alternative D, but fewer than Alternatives B or C.	Beneficial closure of 346,812 acres to OHV use, which is the most of any alternative.	Beneficial closure of 338,847 acres to OHV use, which is more than Alternatives A and D, but fewer than Alternative B.	Beneficial closure of 56,970 acres to OHV use, which is more than Alternative A, but fewer than Alternatives B and C.
	Adverse disturbance on 620,212 acres open to cross-country OHV use, which is more than any other alternative.	No areas would be open to cross-country OHV use.	Wildlife would be adversely impacted on 1,866 acres open to cross-country OHV use.	Wildlife would be adversely impacted on 3,064 acres open to cross-country OHV use.
	About 6,199 miles of road would be utilized, potentially fragmenting the most wildlife habitat.	About 3,328 miles of road to be designated; 122 miles for motorcycle use; potentially fragmenting the least wildlife habitat	About 3,693 miles of road to be designated; 282 for motorcycle use, potentially fragmenting more habitat than Alternative B but less than Alternatives A and D.	About 3,855 miles of road to be designated; 340 for motorcycle use, potentially fragmenting more habitat than Alternatives B or C, but less than Alternative D.
Vegetation	Under all alternatives, seed gathering and plant collection could have short-term, direct, adverse impacts on wildlife species and habitat. Restoration of riparian areas would have short-term, adverse effects on wildlife, but would have long-term, beneficial impacts.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
	Not Applicable-wasn't addressed.	Beneficial maintenance of sagebrush wildlife habitat by reclaiming sagebrush.	Beneficial maintenance of sagebrush wildlife habitat by reclaiming sagebrush.	Same as the Proposed Plan.
Visual Resources	Reduction of habitat/surface disturbance over 750,125 acres designated as VRM Class I or II; second most beneficial.	Reduction of habitat/surface disturbance over 827,093 acres designated as VRM Class I or II; most beneficial.	Reduction of habitat/surface disturbance over 724,587 acres designated as VRM Class I or II; second least beneficial.	Reduction of habitat/surface disturbance over 595,390 acres designated as VRM Class I or II; least beneficial.
Wildlife	Wildlife would benefit from the removal of grazing from 124,512 acres. Least acres managed with development restrictions to benefit wildlife, providing the least benefit to wildlife and fisheries resources.	Beneficial impacts from the removal of grazing from 134,491 acres. Beneficial impacts to pronghorn, bighorn sheep, deer, elk, and raptors from specific habitat and cooperative management. Greatest number of acres managed with development restrictions to benefit wildlife, providing the greatest benefit to wildlife and fisheries.	Beneficial impacts from the removal of grazing from 109,903 acres. Second greatest number of acres managed with development restrictions to benefit wildlife, benefiting wildlife more than Alternatives A and D, but less than Alternative B.	Beneficial impacts from the removal of grazing from 51,179 acres. Adverse impacts could result from grazing Cottonwood, Diamond and Bogart allotments Second least number of acres managed with development restrictions to benefit wildlife, benefiting wildlife more than Alternative A, but less than Alternatives B and C.
Woodland	Beneficial reduction of human disturbance and habitat degradation over 601,146 acres closed to woodland harvest; least beneficial.	Beneficial reduction of human disturbance and habitat degradation over 863,227 acres closed to woodland harvest; most beneficial.	Beneficial reduction of human disturbance and habitat degradation over 646,694 acres closed to woodland harvest; second most beneficial.	Same as Alternative A.
WOODLANDS RESOURCES				
Fire Management	Short-term and long-term, adverse impacts to woodland productivity from soil erosion, invasive species from surface disturbances. Long-term, beneficial impacts from reduced wildland fire risks.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.

Table 2.2. Impacts Summary Table

Management Action	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Non-WSA Lands with Wilderness Characteristics	No impacts on woodland harvesting because non-WSA lands with wilderness characteristics areas are unspecified.	Long-term, adverse impacts on woodland harvesting opportunities from closure of 224,125 acres to woodland harvest (not closed by other decisions).	Impacts similar to Alternative B, but greatly reduced, from closure of 15,478 acres.	Same as Alternative A.
Recreation	Long-term, adverse impacts to woodland harvesting from harvesting restrictions on 180,657acres in SRMAs.	Similar to Alternative A, from harvesting prohibitions on 234,590 acres in SRMAs.	Impacts similar to Alternative B from harvesting prohibitions on 255,555acres in SRMAs.	Impacts similar to Alternative B from harvesting prohibitions on 180,657acres in SRMAs.
Special Designations	WSAs – long-term, adverse impacts from harvesting prohibitions within WSAs and designated wilderness areas. ACECs – negligible impacts on woodland harvesting.	WSAs – same impacts as Alternative A. ACECs – long-term, adverse impacts from harvesting prohibitions on 55,050 acres within ACECs.	WSAs – same impacts as Alternative A. ACECs – long-term, adverse, impacts from harvesting prohibitions on 15,478 acres within ACECs.	WSAs – same impacts as Alternative A. ACECs – No designation of ACECs under this alternative.
Woodlands	Long-term, beneficial impacts from selective harvesting and salvage to reduce wildland fire risks, and improve woodland ecological conditions on 1,243,734 acres.	Impacts similar to Alternative A, but to a lesser degree, because fewer acres would be open to woodland harvesting and salvage 958,124 acres). Long-term adverse and beneficial impacts to harvesting from protection of riparian resources and other sensitive resources: adverse impacts from harvesting restrictions, but beneficial impacts to sustainable use of the resource.	Impacts similar to Alternative A, but to a lesser degree, because fewer acres would be open to woodland harvesting and salvage (1,168,988 acres). Impacts from harvesting restrictions within sensitive resource areas similar to Alternative B.	Impacts would be similar to Alternative A because impacted acreages would be the same. Impacts from harvesting restrictions within sensitive resource areas similar to Alternative B.

2.3 Alternatives Considered but Eliminated from Analysis

2.3.1 Livestock Grazing Adjustments Alternative

During scoping and comment on the Draft EIS it was suggested that BLM consider adjustments to livestock numbers, livestock management practices, and the kind of livestock grazed on allotments within the Moab Field Office to benefit wildlife and protect and promote land health including soils, hydrologic cycles and biotic integrity.

BLM policy regarding adjustments to the levels of livestock use authorized is to monitor and inventory range conditions under existing stocking levels and make adjustments to livestock use as indicated by this data to help assure that Rangeland Health Standards (RHS) and resource objectives are met. Regulations at 43 CFR 4130.3 require that the terms and conditions under which livestock are authorized "ensure conformance with the provisions of subpart 4180" (Standards for Rangeland Health) and further that "livestock grazing use shall not exceed the livestock carrying capacity of the allotment". It would be inappropriate and unfeasible to estimate and allocate the available forage, design specific management practices and determine if changes to the kind of livestock are necessary for each allotment in the Moab Field Office or in the area as a whole in the RMP/EIS. Such changes would not be supportable considering the type and amount of data required and the analysis necessary to make such changes.

According to BLM policy decisions regarding authorized livestock use levels and the terms and conditions under which they are managed is an implementation decision (H-1610-1, Appendix C, Page 15). BLM assesses RHS, conducts monitoring and inventories, and evaluates this data on a periodic basis, normally on an allotment and/or watershed basis. After NEPA analysis, necessary changes to livestock management and implementation of Utah's Guidelines for Rangeland Management are implemented through a proposed decision in accordance with 43CFR 4160. These decisions determine the exact levels of use by livestock in conformance with the LUP and to meet resource objectives and maintain or enhancing land health. For these reasons this alternative has been dismissed from further consideration in this land-use plan revision.

2.3.2 No Grazing Alternative

An alternative that proposes to make the entire planning area unavailable for grazing would not meet the purpose and need of this RMP/Draft EIS. The National Environmental Policy Act (NEPA) requires that agencies study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. No issues or conflicts have been identified during this land-use planning effort which requires the complete elimination of grazing within the planning area for their resolution. Where appropriate, removal of livestock and adjustments to livestock use have been incorporated into the alternatives on an allotment or area basis to address issues identified in this planning effort. Since the BLM has considerable discretion through its grazing regulations to determine and adjust stocking levels, seasons-of-use, and grazing management activities, and to allocate forage to uses of the public lands in RMPs, the analysis of an alternative to entirely eliminate grazing is not needed.

An alternative that proposes to make the entire planning area unavailable for grazing would also be inconsistent with the intent of the Taylor Grazing Act, which directs the BLM to provide for

livestock use of BLM lands, to adequately safeguard grazing privileges, to provide for the orderly use, improvement, and development of the range, and to stabilize the livestock industry dependent upon the public range.

The Federal Land Policy and Management Act (FLPMA) requires that public lands be managed on a "multiple use and sustained yield basis" (FLPMA Sec. 302(a) and Sec. 102(7)) and includes livestock grazing as a principal or major use of public lands. While multiple use does not require that all lands be used for livestock grazing, complete removal of livestock grazing on the entire planning area would be arbitrary and would not meet the principle of multiple use and sustained yield.

Livestock grazing is and has been an important use of the public lands in the planning area for many years and is a continuing government program. Although the Council on Environmental Quality (CEQ) guidelines for compliance with NEPA require that agencies analyze the No Action Alternative in all EISs, for purposes of this NEPA analysis, the No Action Alternative is to continue the status quo, which includes livestock grazing (CEQ Forty Most Asked Questions, Question 3). For this reason and those stated above, a no grazing alternative for the entire planning area has been dismissed from further consideration in this RMP/EIS.

2.3.3 NO LEASING ALTERNATIVE

During scoping and/or the comment period for the DRMP/EIS, it was suggested that BLM should address a "No-Leasing Alternative" because the "No-Leasing Alternative" is the equivalent of the "No Action Alternative" that must be analyzed in all EISs.

The "No-Leasing Alternative" in an RMP revision is actually an action alternative because where lands have already been leased, the no-action for NEPA purposes continues to allow for (honor) valid existing rights. Proposing a "No-Leasing Alternative" would require revisiting existing leases and either buying them back from the leasee, or allowing them to expire on their own terms. The first option (buying back), is outside the scope of any RMP. This is a political decision that BLM has no authority to undertake in planning. As a result, BLM does not regularly include a "No-Leasing Alternative".

The purpose and need for the land-use plan is to identify and resolve potential conflicts between competing resource uses rather than to eliminate a principle use of the public lands in the Moab Field Office Area. Leasing of the public lands for oil and gas exploration and production is required by the Mineral Leasing Act of 1920, as amended, and BLM's current policy is to apply the least restrictive management constraints to the principal uses of the public lands necessary to achieve resource goals and objectives. A field office-wide "No-Leasing Alternative" would be an unnecessarily restrictive alternative for mineral exploration and production on the public lands.

The National Environmental Policy Act (NEPA Section 102 (E)) requires that agencies "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources". No issues or conflicts have been identified during this land-use planning effort which requires the complete elimination of oil and gas leasing within the planning area for their resolution. BLM's Land-use Planning Handbook (BLM MANUAL Rel. 1-1693), Appendix C. item H. requires that land-use plans identify areas as open or unavailable for leasing.

Given the potential range of decisions available in the DRMP/DEIS, the analyzed alternatives include no leasing for certain areas; but a field office-wide "No-Leasing Alternative" is not necessary in order to resolve issues and protect other resource values and uses.

As mentioned above, a "No-Leasing Alternative" should not be confused with the "No Action Alternative" for purposes of NEPA compliance. Leasing and No Leasing on the public lands has previously been analyzed in several NEPA documents. In 1973, the Department of Interior published the Final Environmental Impact Statement on the Federal Upland Oil and Gas Leasing Program (USDI, 1973). The proposed action was to lease Federal lands for production of oil and natural gas resources. Alternatives included the No Action Alternative, which at initiation of the program was "No Leasing". To supplement that EIS, BLM prepared a series of Environmental Assessments (then titled "Environmental Analysis Records or EARs") including the Grand Resource Area Oil and Gas Program Environmental Analysis Record (EAR), 1988 which addressed oil and gas leasing for the public lands in the Moab Field Office area. Alternatives again included the No Action or "No Leasing" alternative. The outcome was a category system for leasing which categorized all public and Forest Service lands into four groups: 1) open to leasing with standard lease stipulations, 2) Special Stipulations to address special concerns, 3) No surface occupancy and 4) No Leasing. Since completion of the EAR in 1988 oil and gas leasing in the Moab Field Office Area has been an ongoing federal program under the established categories.

The Council on Environmental Quality (Section 1502.14(d) of NEPA) requires the alternatives analysis in an EIS to "include the alternative of no action", but explains that there are two distinct interpretations of "no action" that must be considered, depending on the nature of the proposal being evaluated. "The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity. To construct an alternative that is based on no management at all would be a useless academic exercise. Therefore, the "no action" alternative may be thought of in terms of continuing with the present course of action until that action is changed." (CEQ Forty Most Asked Questions, Question 3). Therefore, for the MFO DRMP/DEIS, the "No-Action Alternative" is to continue the *status quo* which is to lease under the oil and gas stipulations (formerly categories) established in the Grand Resource Area RMP.

2.3.4 THE RED ROCK HERITAGE TRAVEL PLAN ALTERNATIVE

An alternative that proposes to remove all travel routes from all areas proposed for wilderness by external groups from the Travel Plan that would accompany this RMP would not meet the purpose and need of this RMP/Draft EIS. NEPA requires that agencies study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.

On September 7, 2004, BLM received a Travel Plan alternative from Red Rock Heritage (RRH). The narrative explains the philosophy and objectives underlying its plan and offers rationale for not designating specific routes for motorized travel within the BLM Travel Plan. RRH emphasizes that the primary objective of its plan is a "fair allocation of recreational opportunities" between motorized and non-motorized uses. RRH specifically states that the best practical alternative for comparing travel plans on this dimension is by "measuring the

percentage of the field office area within various distances of the nearest motorized trail." RRH suggests that the appropriate percentage to achieve this goal is approximately 25%.

Near the end of their narrative, RRH provides data with such computations at varying distances from motorized routes, contrasting its plan with the BLM-verified Grand County inventory. It is important to note that the Grand County Travel Plan was approved unanimously by the Grand County Council. This plan recommends elimination of approximately 2,000 miles of inventoried "D" roads from motorized travel. BLM feels that the Grand County Travel Plan is a better basis of comparison to the RRH plan, and not the County inventory.

BLM agrees with RRH that an equitable allocation between non-motorized and motorized recreation is a desirable outcome of the BLM Travel Plan. BLM believes, however, that the RRH plan is not a viable alternative, for several reasons:

1. The RRH plan's roadless polygons match almost identically with wilderness proposals submitted by SUWA and/or other citizens' groups. To achieve this roadlessness, RRH has recommended for closure virtually all roads within these proposed wilderness polygons, without specific mention or regard for purpose and need.[1] This results in several hundred miles of County "B" roads being recommended for closure. BLM has determined that these roads, which are constructed, regularly maintained by mechanical means, and serve specific purposes and needs, need to be included in all alternatives of the BLM Travel Plan.
2. RRH includes SITLA lands in all its analyses. BLM cannot mange travel on SITLA lands, and BLM confines its analysis to public lands managed by the MFO.
3. RRH focuses their analyses on lands south of I-70, which leaves out those portions of the MPA where opportunities for non-motorized recreation are most available. BLM believes this division is arbitrary, and will focus its analyses on the entire MPA.
4. RRH analyses are done only in comparison to the Grand County route inventory. BLM's analyses will encompass the travel plans carried forward under the alternatives considered in the Draft EIS.
5. RRH states that any travel plan presented as an alternative to its plan should "achieve the same degree of balance (i.e., 25% of the MPA more than a mile from a road, 12% more than two miles, etc.)." BLM agrees that an equitable allocation between motorized and non-motorized use is a desirable outcome of the BLM travel plan. However, the BLM cannot justify using an unsubstantiated percentage to achieve this goal.
6. RRH uses only a portion of what is commonly referred to as the Recreation Opportunity Spectrum (ROS). RRH limits its ROS analysis to physical separation, but ROS also looks at such facets as topography and social interactions (e.g., likelihood of meeting others) within the broader analysis. The MFO chose not to use ROS as a management tool for decision making in this RMP because the varied topography of the MPA results in ROS analysis, using physical separation only, misrepresenting opportunities for primitive, non-motorized recreation. The RRH Travel Plan mirrors the Red Rock Wilderness proposal, which encompasses over 46% of public lands in the MPA. RRH assumes that lands without access would be eligible to be considered for the protection of their wilderness characteristics. This is a false assumption; for instance, within close proximity to the city of Moab, primitive

[1] Per BLM Instruction Memorandum 275, Change 1 (9/29/03), BLM is prohibited from establishing new wilderness areas. BLM *may* choose to manage certain areas to protect wilderness characteristics, but is not required to do so.

recreation opportunities are available in 3 WSAs and within Arches and Canyonlands National Parks.

7. In its narrative, RRH discusses numerous specific routes, as well as areas, that it recommends that BLM not designate as available for motorized travel. Rather than discuss each route or area individually, several general comments are appropriate:
   - Almost all of these routes and areas lie within RRH wilderness proposals. In its comments, there is repeated emphasis on the need to set aside areas for non-motorized recreation and, if necessary, to "create a rare remote and wild area." Current BLM policy prohibits the creation of new wilderness study areas, although it does allow managing areas to protect wilderness characteristics. Several of the areas cited in RRH's proposal were found by BLM in 1999 to lack wilderness character. Many of the specific routes identified by RRH were either described as roads in the BLM 1999 inventory or described as roads at the time of the establishment of the original WSAs. Roads, by definition, are an impact on wilderness characteristics.
   - Other resource concerns are usually mentioned (e.g., wildlife, sensitive soils, riparian), but no specific data is presented to support the contention (unstated) that a particular existing route is causing the problem cited.
   - Several of the routes specified are county B roads, which are constructed and maintained and receive regular use.

For the reasons outlined above, the RRH Travel Plan in total is eliminated from further analysis.

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3.0 AFFECTED ENVIRONMENT

This chapter presents the existing or baseline environment for the Moab Resource Management Plan (RMP). This chapter focuses on specific areas where there is new information or analysis relevant to the decision to be made. As such, it addresses environmental conditions that may have changed since the last RMP was completed as well as key findings and new information identified in the Analysis of Management Situation for the Moab Field Office (MFO; 2004d).

3.1 PROJECT AREA OVERVIEW

3.1.1 GEOGRAPHIC SETTING

The Moab planning area (MPA) is located in the Colorado Plateau physiographic province (BLM 2002a), which is located in southeastern Utah, and is bounded by the East Tavaputs Plateau and Book Cliffs to the north, the Colorado border to the east, Harts Draw and Lisbon Valley to the south, and the Green River to the west. Elevations within the MPA range from 3,871 near the confluence of the Green and Colorado Rivers to 12,721 feet at the summit of Mount Peale (located in the Manti LaSal National Forest).

3.1.2 CLIMATE

Like most of the MPA, the southeastern section experiences wide temperature variations between seasons and climate varies widely with altitude (World Climate 2003). The average annual precipitation is 13.9 inches. In the higher elevations, precipitation comes in the form of snow, with large accumulations in the late fall and winter. Snowmelt in the higher elevations is generally complete by mid to late June. Afternoon thunderstorms, often resulting in flash flooding, are common from late spring through early fall. Summer high temperatures in the upper elevations often reach 85 °F, with lows in the 50s. Lower elevation high temperatures can reach over 100 °F. Winters are cold, with highs averaging 30 °F to 50 °F, and lows averaging 0 °F to 20 °F.

The average annual precipitation of the northern section of the MPA is 9.2 inches, most of which comes in the form of late spring rains and fall thunderstorms. Dry air, high elevations (4,000 to 6,000 feet), and winter snowfall combine to create a cold desert climate. Maximum summer temperatures hover in the high 90s, cooling off to the low 60s at night. Winter high temperatures are generally in the high 30s, with nighttime temperatures dipping into the low teens.

The western section of the MPA receives an average of 9.2 inches of precipitation a year. Most of this moisture comes in the form of melting winter snows. Dry air, high elevations (4,000 to 6,000 feet) and winter snowfall combine to create a cold desert climate. Most precipitation falls in late summer and early autumn thunderstorms. Maximum summer temperatures in the higher elevations range from 85 °F to 90 °F; low elevation maximum summer temperatures can reach over 100 °F. Winters are cold and relatively dry, with highs around 40 °F and lows in the low to mid teens.

The middle section of the MPA (near Moab) receives an average of 9.0 inches of precipitation per year, most of which comes in the form of late spring rains and fall and winter snows. Maximum summer temperatures average 95 °F. Winter high temperatures average 50 °F, and lows average 21 °F.

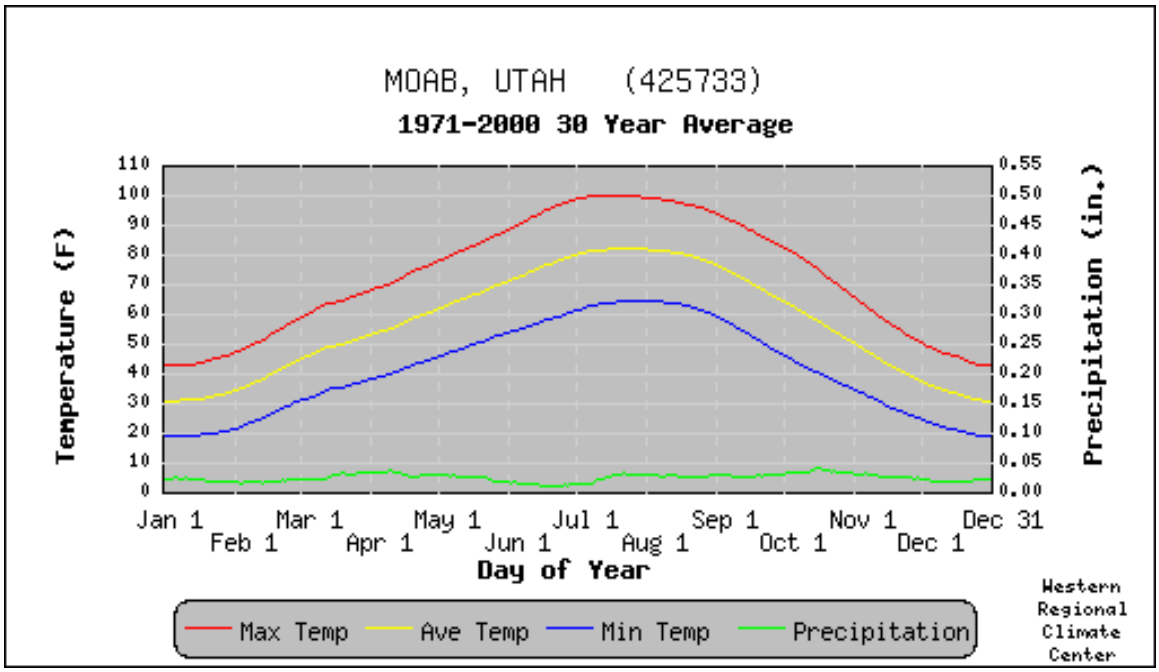
Across the planning area, summer precipitation is often in the form of short, intermittent thunderstorms, while winter precipitation results in accumulated snow pack that infiltrates the soil and recharges the aquifers. Air temperature and precipitation data collected from 1889 through 2003 for three locations in the MPA are displayed in Table 3.1 and Figure 3.1 (WRCC 2004). Peak elevation temperature and precipitation information was not available.

The planning area has been experiencing drought for much of the last five years, with extreme low water conditions occurring during the summer of 2002, when the Palmer Drought Severity Index (PDSI) reached near-record severity based on the last 100 years of instrumental data (NCDC 2004). The low water conditions have resulted in an increase of wind-blown dust and associated particulates in the MPA and adjacent areas. The effects of the drought on the affected environment are discussed in Section 3.2 – Air Quality and Section 3.17 – Vegetation.

Table 3.1. Temperature and Precipitation Data Available for Three Locations in the Moab Planning Area (MPA; WRCC 2004)

Temperature (°F)								
Station	**General Location**	**Elevation (feet)**	**Summer Means**		**Winter Means**		**Extremes**	
			High	**Low**	**High**	**Low**	**High**	**Low**
Thompson	Northern	6,100	90.1	60.8	41.0	18.3	108.0	-23.0
Moab	Middle	4,025	95.3	59.9	45.9	20.9	114.0	-24.0
La Sal	Southern	7,125	83.5	51.1	38.5	14.4	101.0	-25.0

Precipitation (inches)							
Station	**Mean**				**Annual**		
	Winter	**Spring**	**Summer**	**Fall**	**Mean**	**High**	**Low**
Thompson	1.9	2.5	2.1	2.7	9.2	14.8	2.0
Moab	2.0	2.4	2.1	2.6	9.0	16.4	4.3
La Sal	2.5	3.0	3.8	4.7	13.9	20.1	6.5



- Max. Temp. is the average of all daily maximum temperatures recorded for the day of the year between the years 1971 and 2000.
- Ave. Temp. is the average of all daily average temperatures recorded for the day of the year between the years 1971 and 2000.
- Min. Temp. is the average of all daily minimum temperatures recorded for the day of the year between the years 1971 and 2000.
- Precipitation is the average of all daily total precipitation recorded for the day of the year between the years 1971 and 2000.

Figure 3.1. Thirty-year precipitation and air temperature plots for Moab, Utah (WRCC 2004).

3.2 Air Quality

3.2.1 Introduction

Meteorological and topographical characteristics within the MPA and the surrounding lands affect the transport, deposition and dispersion of emissions within the planning area and region. The effects of both emissions and management decisions within the area influences air quality throughout the area, not just within the boundaries of the planning area.

The MPA has been experiencing drought for much of the last five years, with extreme low water conditions manifest during the summer of 2002, when the Palmer Drought Severity Index (PDSI) reached near-record severity based on the last 100 years of instrumental data (NCDC 2004). The low water conditions have resulted in an increase of wind-blown dust and associated particulates in the MPA and adjacent areas.

When the air temperature near the ground is lower than the air temperature above, a phenomenon called an inversion occurs. Inversions may occur in winter when snow accumulation on the ground combines with short daylight hours to impede the sun's ability to warm the lower atmosphere. In most areas of the planning area, inversions are a fairly typical winter occurrence,

but usually inversions dissipate rapidly when early morning sunlight warms the air near the ground surface. In areas where the local topography acts to pool and trap cold air (deep valleys surrounded by steep mountains) however, cold temperatures associated with stationary or slow moving high pressure systems can last for days or (rarely) even weeks and create inversions that result in poor air quality due to a lack of circulation.

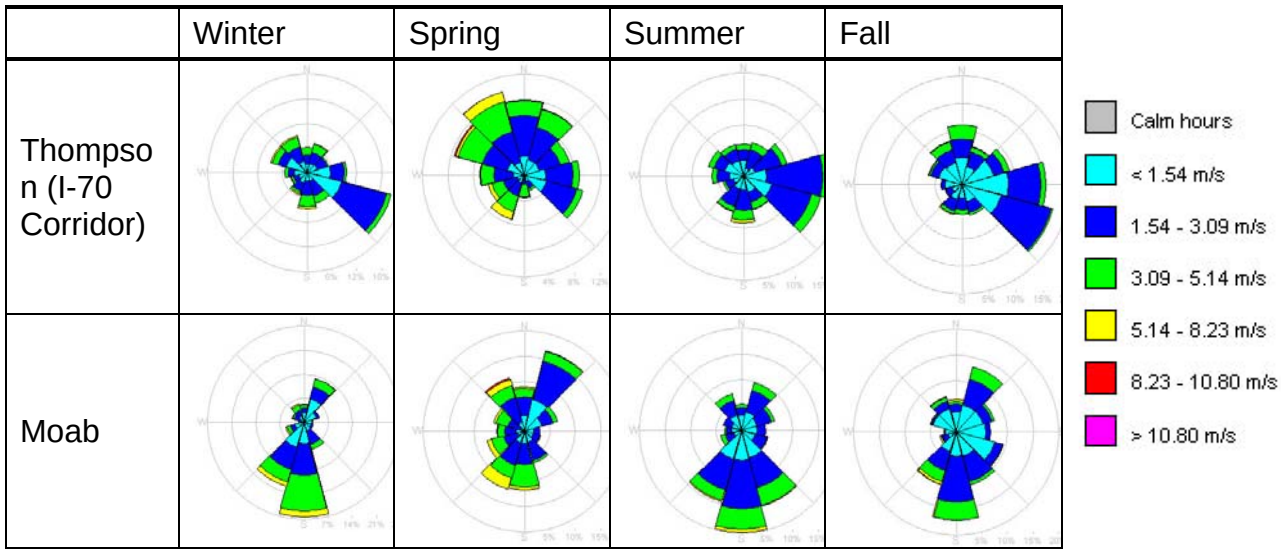
Inversions can hinder air pollutant dispersion by preventing emissions from mixing with the ambient air in the vertical direction. The mixing height of the atmosphere is the height above the surface through which free vertical mixing occurs. Mixing height is often bounded by an inversion layer in the atmosphere. The dispersion of air pollutants is generally confined within the mixing height of the atmosphere. High mixing heights promote emissions dispersion and result in low ground level pollutant concentration. On the other hand, low mixing heights often trap emissions and result in high ground level concentrations. Areas such as Moab (located in a lower valley) can experience inversions during the winter season.

Air pollutant dispersion is also dependent on the wind. The pollutant path is determined by the wind direction, and the speed of transport is determined by the wind speed. Wind direction in the MPA is highly influenced by the local terrain. For example, the winds along the Interstate 70 (I-70) corridor in Grand County tend to blow from the west and the northwest in the spring and blow from the east and the southeast in other seasons (1996 mesoscale model [MM5] data as processed in the CALMET model, Trinity and Nicholls 2006). The city of Moab is located on the flanks of the La Sal Mountains. The winds in Moab predominately blow from the south or southwest.

Figure 3.2 presents the windroses for two cities in the planning area. Windroses are graphical representations of wind magnitude, frequency, and direction for a given location. As can be seen from the seasonal windroses, the wind patterns in the area vary widely by seasons and local terrain. Therefore, dispersion and transport of pollutants are also variable in this region depending on the locations.

3.2.1.1 Existing Air Quality

The Code of Federal Regulations (CFR) sets National Ambient Air Quality Standards (NAAQS) in Title 40 of CFR, Part 50 (40 CFR 50). The purpose of primary NAAQS is to protect the welfare of the most sensitive people such as elderly and asthmatic individuals (with a margin of safety), while the purpose of secondary NAAQS is to protect vegetation, soil, etc. An area that does not meet the NAAQS is designated as a non-attainment area on a pollutant-by-pollutant basis. The MPA is located in an area designated as attainment or unclassified for all pollutants (EPA 2003a). Table 3.2 presents the existing ambient air quality in the MPA (EPA 2003b). The NAAQS apply to six pollutants: carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), ozone (O3), and particulates whose diameter are smaller than 10 µm (microns; PM10) or smaller than 2.5 µm (PM2.5).



Data Source: 1996 Mesoscale Model (MM5) data processed using the CALMET meteorological model. The observed data from various meteorological stations are used to generate the CALMET windfield. Meteorological stations include Grand Junction, Montrose County Airport, Price/Carbon, etc.

Figure 3.2. Seasonal windroses in the MPA.

Table 3.2. Ambient Air Quality Data for the MPA

Pollutant	Averaging Period [a]	NAAQS	Monitored Concentration	Monitored Location (City, County, State)
CO	1-hour	35.0 ppm [b]	2.8 ppm [n]	Grand Junction, Mesa Co., CO
	8-hour	9.00 ppm [b]	1.8 ppm [n]	Grand Junction, Mesa Co., CO
NO_2	Annual	0.053 ppm	0.003 ppm [k]	La Plata Co., CO
			0.016 ppm [k]	Bloomfield, San Juan Co., NM
SO_2	3-hour	0.50 ppm [b,c]	0.082 ppm [i]	Shiprock, San Juan Co., NM
	24-hour	0.14 ppm [b]	0.013 ppm [i]	Shiprock, San Juan Co., NM
	Annual	0.03 ppm [b]	0.002 ppm [k]	Shiprock, San Juan Co., NM
Ozone	1-hour	0.12 ppm [d]	0.086 ppm [i]	La Plata County, CO
			0.077 ppm [i]	Mesa Verde NP, Montezuma Co., CO
			0.082 ppm [i]	Island-in-the-Sky, Canyonlands NP, UT

Table 3.2. Ambient Air Quality Data for the MPA

Pollutant	Averaging Period [a]	NAAQS	Monitored Concentration	Monitored Location (City, County, State)
	8-hour	0.075 ppm [e]	0.055 ppm [j]	La Plata County, CO
			0.073 ppm [j]	Mesa Verde NP, Montezuma Co., CO
			0.070 ppm [j]	Island-in-the-Sky, Canyonlands NP, UT
PM_{10}	24-hour	150 µg/m³ [f]	118 µg/m³ [o]	Grand Junction, Mesa Co., CO
	Annual	50 µg/m³	37 µg/m³ [k]	Grand Junction, Mesa Co., CO
$PM_{2.5}$	24-hour	35 µg/m³ [g]	22 µg/m³ [m]	Grand Junction, Mesa Co., CO
	Annual	15 µg/m³ [h]	9.5 µg/m³ [k]	Grand Junction, Mesa Co., CO

[a] The concentration values listed in this table are based on the monitored concentrations in 2007 provided by the EPA AirData database (URL: http://www.epa.gov/oar/data/).

[b] Not to be exceeded more than once per year.

[c] SO_2 3-hour standard is a secondary NAAQS that sets limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

[d] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1. As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

[e] The 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008)

[f] Not to be exceeded more than once per year on average over 3 years.

[g] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).

[h] To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.

[i] Concentration is the maximum values detected at the monitored location in 2007 according to the EPA AirData database.

[j] Concentration is the 3 year average of 4th maxima detected at the monitored location in 2005, 2006, and 2007 according to the EPA AirData database.

[k] Concentration is the arithmetic mean at the monitored location in 2007 according to the EPA AirData database.

[m] Concentration is the 3-year average of the 98th percentile of the 24-hour values collected in 2005, 2006, and 2007 according to the EPA AirData database.

[n] Concentration is the 2nd maximum value detected at the monitored location in 2007 according to the EPA AirData database.

[o] Concentration is the 3-year average of the 2nd maxima detected at the monitored location in 2005, 2006 and 2007 according to the EPA AirData database.

Applicable air quality criteria also include the criteria for prevention of significant deterioration, known as PSD increments. A PSD increment is the maximum increase in ambient concentrations of a certain pollutant that is allowed to occur above a base-year concentration for that pollutant. Federal Mandatory Class I areas with pristine air quality, such as wilderness areas and national parks, are accorded the strictest protection. Only very small incremental increases in concentration are allowed to maintain the very clean air quality in these areas.

In Utah, five areas have been designated as PSD Class I areas; all are national parks and are under the administration of the National Park Service (NPS). These areas are Arches National Park, Bryce Canyon National Park, Canyonlands National Park, Capitol Reef National Park, and Zion National Park. PSD Class II areas are essentially all areas that are not designated Class I, and moderate incremental increases in concentration are allowed, although the concentrations are not allowed to reach the concentrations set by Federal standards (NAAQS). Air quality data for Class I areas within the planning area are also included, where available.

The data listed are the most recent available data for each pollutant. If there is no monitor located within the boundary of the MPA, the data from the nearest representative monitor(s) were chosen. Most of the available monitoring stations are located east or southeast of the planning area. As outlined in Table 3.2 of this chapter, the air quality in and near the MPA meets the NAAQS by a large margin with the exception of ozone which is just under the 8-hour NAAQS at Canyonlands National Park.

A recent assessment of air quality in National Parks around the country found that ozone concentrations and ammonium deposition increased significantly at Canyonlands National Park between 1995 and 2004 (GPRA 2005). The same report, however, found improvements in nitrate and sulfate deposition, although these improvements were not found to be statistically significant (GPRA 2005). In 2005, Canyonlands National Park did not meet a National Park Service internal air quality goal (called Ia3), which incorporates visibility, atmospheric deposition, and ozone concentration targets.

3.2.1.2 Global Climate Change

On-going scientific research has identified the potential impacts of climate changing pollutants on global climate. These pollutants are commonly called "greenhouse gases" and include carbon dioxide, CO_2; methane; nitrous oxide; water vapor; and several trace gas emissions. Through complex interactions on a regional and global scale, these emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although climate changing pollutant levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO_2 concentrations to increase dramatically, and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO_2 concentrations also lead to preferential fertilization and growth of specific plant species.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Figure 3.3 demonstrates that northern latitudes (above 24° N) have exhibited temperature increases of nearly 1.2°C (2.1°F) since 1900, with nearly a 1.0°C (1.8°F) increase since 1970. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of these "greenhouse gases" are likely to accelerate the rate of climate change.

The Intergovernmental Panel on Climate Change (IPCC) has recently completed a comprehensive report assessing the current state of knowledge on climate change, its potential

impacts, and options for adaptation and mitigation. At printing of this PRMP/FEIS, this assessment is available on the IPCC web site at http://www.ipcc.ch/. According to this report, global climate change may ultimately contribute to a rise in sea level, destruction of estuaries and coastal wetlands, and changes in regional temperature and rainfall patterns, with major implications to agricultural and coastal communities. The IPCC has suggested that the average global surface temperature could rise 1 to 4.5 degrees Fahrenheit (°F) in the next 50 years, with significant regional variation. The National Academy of Sciences (2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer models indicate that such increases in temperature will not be equally distributed globally, but are likely to be accentuated at higher latitudes, such as in the Arctic, where the temperature increase may be more than double the global average (BLM 2007). Also, warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. Vulnerabilities to climate change depend considerably on specific geographic and social contexts.

BLM recognizes the importance of climate change and the potential effects it may have on the natural environment. Several activities occur within the planning area that may generate emissions of climate changing pollutants. For example, oil and gas development, large fires, and recreation using combustion engines, can potentially generate CO_2 and methane. Wind erosion from disturbed areas and fugitive dust from roads along with entrained atmospheric dust has the potential to darken glacial surfaces and snow packs resulting in faster snowmelt. Other activities may help sequester carbon, such as managing vegetation to favor perennial grasses and increase vegetative cover, which may help build organic carbon in soils and function as "carbon sinks".

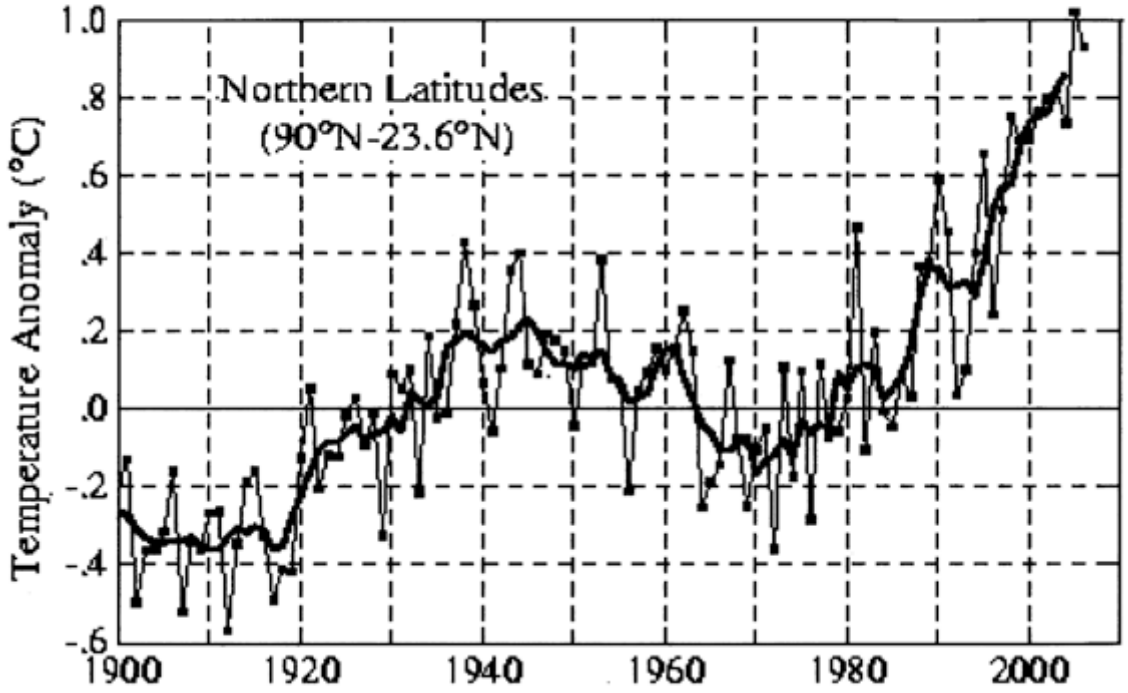


Figure 3.3. Annual Mean Temperature Change for Northern Latitudes (24–90° N).

3.2.1.3 VISIBILITY IN CLASS I AREAS

Visibility is "the clarity with which distant objects are perceived" (EPA 2001a) and is affected by pollutant concentrations, plume impairment, regional haze, relative humidity, sunlight, and cloud characteristics. A natural visual range without any man-made air pollutants would be 140 miles in the western states (EPA 2001a). Aerosols (small particles made of solid and/or liquid molecules dispersed in the air) are the pollutants that most often affect visibility in the Class I areas. Five key contributors to visibility impairments are sulfate, nitrate, organic carbon, elemental carbon, and crustal materials. Their contributions to visibility impacts in the Canyonlands National Park, a Class I area within the MPA, are summarized in Table 3.3 (EPA 2001a).

The 1977 Clean Air Act (CAA) included legislation to prevent future and remedy existing visibility impairment in Class I areas. In 1985, the United States Environmental Protection Agency (EPA) established a collaborative monitoring program called the Interagency Monitoring of Protected Visual Environments (IMPROVE) to monitor visibility in Class I areas. The IMPROVE network has operated a monitor in the Canyonlands National Park, located near the western boundary of the MPA since 1988. The most-impaired days in Canyonlands National Park exhibit visual distances between 61 and 80 miles and show improvements over the decade of 1988 to 1997 of approximately 35%. The mid-range days have visual distances of 78 to 109 miles and show no significant change. The least-impaired days have visibility ranges from 107 to 144 and also demonstrate improvements over the decade of approximately 25% (EPA 2003c). The visibility trend from 1990 to 2004 in the Canyonlands National Park is summarized in Figure 3.4. A more recent assessment of visibility in the Canyonlands National Park indicates that the improvement trend in visibility has continued through 2004, although the trend was measured in different units and was not found to be statistically significant (GPRA 2005).

Table 3.3. Summary of Visibility Impairment Pollutants Measured in the Canyonlands National Park [a]

Pollutant	Contribution [b]	Emission Sources
Sulfate	34%	Fossil fuel combustion and forest fires.
Crustal Material	27%	Fugitive dust from roads, agricultural and forestry operations, and wind erosion.
Organic Carbon	22%	Wood burning, open burning, vehicle exhaust, and wildfires and prescribed burning.
Elemental Carbon	10%	Vehicle exhaust, wood burning, and wildfires and prescribed burning.
Nitrate	7%	Motor vehicle exhaust. Secondary sources include fossil fuel combustion and prescribed burning.

[a] Data source: U.S. EPA. 2001a. Visibility in Mandatory Federal Class I Areas (1994-1998)- A Report to Congress. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

[b] Contributions are calculated by pollutant concentrations regularly measured in the Canyonlands National Park. Light extinction coefficients and visibility indices are then calculated from these values.

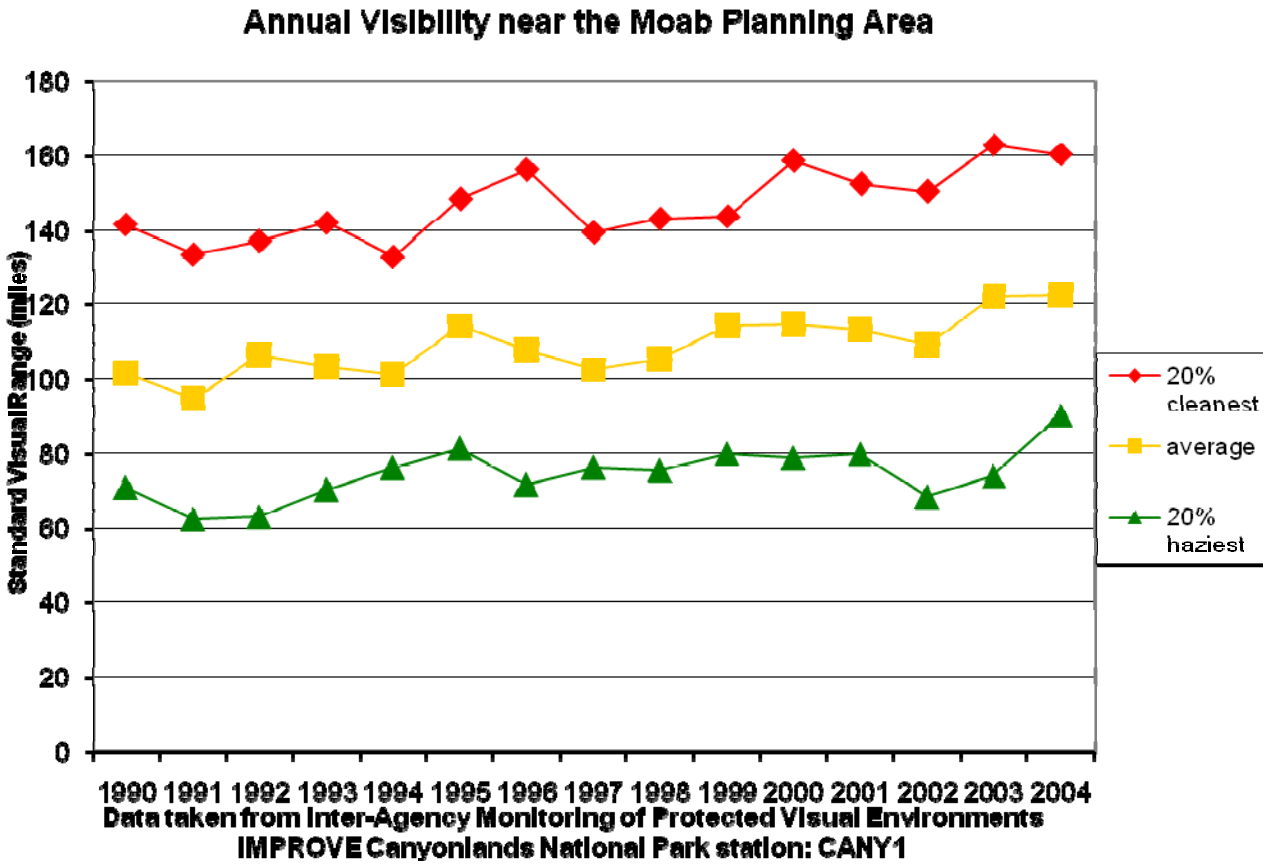


Figure 3.4. Trend in air pollution impacts on visibility observed in Canyonlands National Park, Utah, 1990 through 2004 (EPA 2003c).

3.2.2 Status of Emissions

The MPA encompasses all of Grand County and the northern portion of San Juan County. These lands are included in the MPA boundary. Currently, emission sources within the MPA consist mostly of oil and gas development facilities and some mineral processing facilities as identified in Table 3.4.

Table 3.4. 2005 Emissions Inventory for Grand and San Juan Counties, Utah.

County	Source	2005 Emissions (tpy)						
		CO	NOx[b]	PM_{10}	$PM_{2.5}$	SOx[c]	VOC[d]	HAPs[e]
Grand County	Area source	206.1	15.6	429.7	87.6	3	285.3	
	Non-road mobile	2,962.00	175.7	36.6	30	7.6	904.5	

Table 3.4. 2005 Emissions Inventory for Grand and San Juan Counties, Utah.

County	Source	2005 Emissions (tpy)						
		CO	NOx[b]	PM_{10}	$PM_{2.5}$	SOx[c]	VOC[d]	HAPs[e]
	On-road mobile	8,118.10	1,042.00	380.8	78.2	16.4	572.1	
	Point source	224.5	377.8	4.2	4.2	0.3	68.7	
	Biogenics	6,596.10	-	-	-	-	34,972.80	
	Total Grand County	18,106.80	1,611.20	851.3	199.9	27.3	36,803.40	18.8
San Juan County	Area source	517.2	35.4	1,108.60	223.9	34.7	516.8	
	Non-road mobile	1,868.30	59.2	21.3	19.6	11	546.1	
	On-road mobile	6,656.80	1,057.90	398.7	88.9	21.3	470.4	
	Total San Juan County	9,042.20	1,152.50	1,528.60	332.4	67	1,533.30	9.9
Regional Total		**27,149.10**	**2,763.70**	**2,379.80**	**532.3**	**94.3**	**38,336.70**	**28.7**

[a] Emission inventory data from 2005 State Summary of Emissions by Source. URL: www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05/State_List.htm
[b] Nitrogen oxides - one of the main ingredients involved in the formation of ground-level ozone.
[c] Sulfur oxides - contribute to respiratory illness, atmospheric deposition, and the formation of atmospheric particles that can cause visibility impairment.
[d] VOC (volatile organic compounds) refers to any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate that participates in atmospheric photochemical reactions. Also a precursor to ozone.
[e] HAPs (hazardous air pollutants) are generally defined as those pollutants that are known or suspected to cause serious health problems. Section 112(b) of the Clean Air Act identifies a list of 188 pollutants as HAPs. The emissions inventory for HAPs available from the State of Utah only includes those reported by stationary industrial sources.

The 2005 emissions inventory available from the Utah Department of Environmental Quality, Division of Air Quality (UDAQ) was used to characterize base-year emissions in San Juan and Grand County. Emissions are summarized by source type for criteria pollutants including area source, non-road mobile, on-road mobile, point sources, and biogenics. The emission inventory for hazardous air pollutants only includes emissions from stationary industrial sources.

3.2.2.1 Additional Sources Of Emissions

The seasonal windroses presented in Figure 3.2 for the I-70 corridor and Moab (in the MPA) show that prevailing wind speeds rarely exceed 5 m per sec., and vary seasonally in direction. Due to prevailing wind direction in the planning area, emission sources located in Price, Utah represent a very minor potential for air quality impacts to the northern portion of the planning

area in the spring only; emission sources in Page, Arizona, and Las Vegas, Nevada represent essentially no potential for air quality impacts to the planning area as they are located downwind nearly year-round.

As stated previously, current air quality in the MPA is, with the exception of ozone, consistently below the NAAQS by a large margin, as shown in Table 3.2. Observed ozone concentrations in the vicinity of the MPA are less than, but near the NAAQS. The UDEQ indicated that ozone concentrations in Class I areas of the western states have shown significant increases in the past decade and are approaching the NAAQS level (Personal communication between Brock LeBaron, UDEQ, and Trinity Consultants, August 8, 2003). Although the exact sources contributing to the high ozone concentrations have not been verified at this time, studies indicate that oil and gas development activities contribute to the rise in ozone concentrations in production areas (Katzenstein et al. 2003).

Additional, short-term air quality impacts have been observed over the last two years along I-70 and U.S. Highway 191 (U.S. 191) in southeastern Utah due to severe wind blown dust ("blowout") conditions. Blowout refers to the dusty conditions due to wind picking up dust in significant quantities, creating the brown-out conditions along the roadways for stretches of up to several miles long. There have been increasing numbers of highway closures and accidents related to the blowout from the Mancos Shale landscapes adjacent to I-70 and U.S. 191. The dust problem has resulted in multiple car pile-ups and will likely result in fatalities in the future (Jackson 2003). A preliminary study conducted by BLM indicated that possible causes of the increasing blowout conditions are: loss of vegetation; wind erosion; natural sand particles; topography; and human disturbance related activities such as road construction, off highway recreational vehicles, pipeline and power transmission development, livestock concentration areas, fires, and arroyo cutting (Jackson 2003). BLM has initiated a process to identify areas of concern and determine appropriate management actions.

Additional concerns focus on mobile source emissions specific to visitation and traffic within the MPA. Current Easter weekend visitation in the Moab area is greater than 20,000 visitors. Most recreational visitors engage in motorized activities that represent emission sources in addition to the highway vehicles utilized for transportation. There are more than two million visitors annually to the planning area.

Prescribed fire and naturally caused fires also present a concern to air quality. Prescribed burning is a useful tool for resource management and may be used to achieve a variety of objectives such as restoring a fire-dependent ecosystem, enhancing forage for cattle, improving wildlife habitat, preparing sites for reforestation, or reducing hazardous fuel loads. Fire, for any of these reasons, will produce smoke and other air pollutants. Some short-term air pollutant releases are necessary to achieve the many benefits of prescribed burning. Short-term effects on air quality from prescribed burns include a general increase in particulate matter, CO2 and ozone precursor emissions. Land managers recognize that smoke management is critical to avoid air quality intrusions over sensitive areas or visibility problems. Vegetation management is an active part of fire management techniques and long-term effects of prescribed burning include a reduction in particulate matter, CO2 and ozone precursor emissions specific to wildfire in unmanaged areas.

As a result of careful management, there is usually less smoke from a prescribed fire than from a wildfire burning over the same area.

3.3 Cultural Resources

3.3.1 Introduction

Cultural resources are defined as those fragile and nonrenewable remains of human activity, occupation, or endeavor (including both prehistoric and historic remains) representing a part of the continuum of events from the earliest evidence of people to the present day. These resources consist of 1) physical human-made artifacts, features, structures and sites; 2) areas where significant events occurred (although evidence of the event may no longer remain); and 3) the environment immediately surrounding the actual resource.

The MPA has a wide variety of environmental settings and resources and has long been used by humans. The planning area encompasses a large and diverse assemblage of prehistoric archaeological sites, historic archaeological sites and localities, and locations of traditional religious and cultural importance to various Indian tribes. For BLM management purposes, these remains take the form of sites, artifacts, buildings, structures, ruins, features, and natural landscapes with particular cultural importance. With a few exceptions, these remains must be at least 50 years old. In the case of natural landscapes, the period of traditional use of that landscape must also be at least 50 years old.

Because cultural resources have intrinsic values (e.g., scientific, traditional, or public interpretation values) that must be managed, planning and implementing management practices related to cultural resources involves a multiple resources approach. NEPA, NHPA (as amended), and other Federal legislation require that the BLM assess the impacts of a proposed action to cultural resources. In compliance with Section 106 of the NHPA, this review includes Records Searches and Class III inventories.

In the MPA, records searches, reviewing contractor generated cultural resource inventory reports and site forms, and conducting in-house Class III cultural resource inventories compose the vast majority of the workload. Records searches, which focus on compiling all known cultural resource management information about certain parcels of land, are completed for all projects. Class II and III inventories are completed for any proposals that have the potential to disturb surface soils. These two inventories have provided the majority of information regarding cultural resources present in the planning area.

3.3.2 Resource Overview

3.3.2.1 Culture History of the Moab Planning Area

Occupation of southeastern Utah is divided into several distinct and temporally bounded time periods. The creation of distinct time periods has, in large part, been driven by differences in artifact assemblages through time. In many instances, this type of fine-scale division is informative. As new sites and artifacts are routinely being discovered, however, these divisions

are susceptible to significant revision. The dates provided here serve only as general time-frame markers; any new dating technology advances or new discoveries will likely alter these date ranges. Nevertheless, five broad time periods will serve as temporal foundations for explaining human behavior in this area. An outline of these five periods and their associated behavioral trends is detailed below. These periods are defined temporally, behaviorally, and technologically. For additional information, a detailed overview of the prehistory and history of the region included in the MPA is presented in *Grand Resource Area Class I Cultural Resource Inventory* (Horn et al. 1994).

The basic periods include the Paleoindian, Archaic, Formative, and Late Prehistoric Stages, and the Historic period. The Historic period is further subdivided into Indian/White Interaction, Spanish Exploration, Fur Trade and Early Indian Trade, U.S. Government Exploration and Survey Expeditions, Initial Euroamerican Settlements, Ranching, Farming, Transportation, Communication, Towns and Settlements, Mining, Water Control, Speculative Ventures, Civilian Conservation Corps, Military, Federal Land Management, Antisocial Activities, and Ethnic Diversity themes.

3.3.2.1.1 PREHISTORIC CULTURE HISTORY

3.3.2.1.1.1 Paleoindian Stage

The Paleoindian Stage (ca. 10,000 to 7,800 B.C.) is the earliest stage of culture history evident in the region and represents the adaptation to late Pleistocene environments. It is characterized by small groups of relatively mobile hunting and gathering peoples who used most sites only briefly. The Paleoindian tool kit typically included large, lanceolate (Clovis, Folsom, and Plano) projectile points (Schroedl 1991), spurred end scrapers, gravers and borers, and crescents (Frison 1978:78; Schroedl 1991). This stage is further split into three traditions including the Clovis (10,000 to 9,000 B.C.), Folsom (9,000 to 8,300 B.C.), and Plano (8,300 to 7,800 B.C.).

3.3.2.1.1.2 Archaic Stage

Late in the Pleistocene Epoch, the climate became warmer and drier which resulted in the expansion of desert vegetation zones and a concurrent retreat of cooler and moister vegetation zones to higher elevations. Changes in the climate caused a reduction in the distribution of Pleistocene wildlife, in some cases to the extinction of animals that were typically adapted to the cooler, moist climates. With changing climates came the expansion and modification of artifact assemblages as people adapted to a wider, more dispersed wildlife and plant resource base. The artifact assemblage associated with the Archaic Stage (7,800 B.C. to 500 B.C.) is typified as including large projectile points with side and corner notching and stemmed points (Humboldt Concave Base, Pinto series, McKean, Northern Side-notched, Sudden Side-notched, Mallory Side-notched, Gatecliff Contracting-stem, and possibly San Rafael Stemmed varieties) (Holmer 1978), as well as basketry, cordage, netting, matting, fur clothing, tumplines as carrying devices, sandals, and atlatl darts.

3.3.2.1.1.3 Formative Stage

The Formative Stage (500 B.C. to ca. A.D. 1200) is characterized by the reliance on domesticated corn and squash, an increasing tendency for people to establish long-term village sites rather than continually moving about the landscape, substantial habitation structures, ceramics, and bow and arrow technology in the latter traditions. Two major traditions occur in the region: the Fremont tradition north of the Colorado River, the Anasazi tradition to the south of the Colorado River. A third—the Gateway Tradition—has been used by a few archaeologists to identify archaeological sites that contain both Fremont and Anasazi manifestations (Horn et al. 1994:123).

The Fremont adapted to the changing environment by using hunting and gathering subsistence styles of survival along with some horticultural farming. The variability of Fremont sites have caused archaeologists to classify Fremont manifestations as regional variants characterized by differing settlement and subsistence strategies. Those variants associated with the MPA include the Uinta Basin and San Rafael. Generally, the artifact assemblage associated with the Fremont includes gray, coiled pottery types distinguished by specific temper materials and decorative styles (Madsen 1977), one-rod-and-bundle basketry, leather moccasins constructed from the hock of a deer or mountain sheep, and ornate clay figurines with trapezoidal bodies (Horn et al. 1994:213).

The Anasazi people, whose homeland centered in the Four Corners area of the American Southwest, have been identified as a sedentary, horticultural based group whose focus on corn, beans, and squash encompassed the later period. The Anasazi tradition has been subdivided into periods (from earliest to most recent): Basketmaker II, Basketmaker III, Pueblo I, Pueblo II, and Pueblo III. The Basketmaker II period marked the transition from a hunting and gathering lifestyle to a more sedentary occupation of regional areas. In the MPA, sites associated with the Basketmaker II tradition have been documented as well as sites linked to the Puebloan traditions. Numerous storage cists, masonry structures, pit structures with storage features, and lookout structures have been recorded plus a range of pottery types indicative of the Anasazi time period; however, the documented artifacts do not provide a continuous spectrum of use. The lack of artifact assemblage continuity and lack of documented kilns, may be more indicative of trading networks than of actual occupation by Anasazi groups.

3.3.2.1.1.4 Late Prehistoric Stage

During the Late Prehistoric Stage, it is commonly believed that the Utes were the primary occupants of eastern Utah and western Colorado (Horn et al. 1994:130). Linguistic and archaeological evidence (especially ceramics) indicate that the Utes immigrated to the region by approximately A.D. 1100. Other evidence characteristic of Ute occupation includes sparse lithic scatters with low quantities of crude brownware ceramics, rock art, and occasional wickiups. In addition to the fingertip-impressed brownware ceramics, other diagnostic artifacts include locally designated Uncompahgre Brown Water and Desert Side-notched and Cottonwood triangular projectile points (Buckles 1971). As Utes interacted more with local Europeans during the late seventeenth and eighteenth centuries, varying quantities of Euroamerican artifacts such as sheet metal cone tinklers, tin cans, metal and glass projectile points, weaponry, and equestrian tack

become part of the artifact assemblage. Sites containing diagnostic Ute artifacts have been reported in all parts of the MPA.

The Navajo homeland is located south of the MPA, in the southeastern corner of Utah, northeastern Arizona, and in northwestern New Mexico (Brugge 1983). Although the Navajo homeland lies south of the planning area, historic records mention Navajo inhabitants farming parts of Spanish Valley in 1855. Based on additional references, these farmers may have resided in Spanish Valley until the 1870s.

The Hopi Tribe also claims traditional affiliation with the planning area. Small amounts of yellow ware pottery have been found at three sites in the planning area. In addition to ceramics, Hopi elders have identified rock art panels that contain Puebloan motifs. Although there is a paucity of Hopi-related ceramics, the tribe maintains ancestral ties to the planning area.

3.3.2.1.2 Historic Culture History to ca. 1950

Historic cultural resources in the MPA can be classified into one or more themes: Indian/White Interactions, Spanish Exploration, Fur Trade and Early Indian Themes, U.S. Government Exploration and Survey Expeditions, Initial Euroamerican Settlement, Ranching, Farming, Transportation/Railroads, Communication, Towns and Settlements, Mining, Mineral Exploration, Mineral Processing, Water Control, Speculative Ventures, Civilian Conservation Corps, Military, Federal Land Management, Antisocial Activities, and Ethnic Diversity (Horn et al. 1994). For a comprehensive discussion of the historic period in the region, see Horn et al. (1994).

Numic-speaking Utes primarily occupied the MPA during the time of European contact. Contacts with Spaniards increased during the late 1700s and the early 1800s. Use of the Old Spanish Trail started decades before this as Indian thoroughfares and the Spanish capitalized on this existing route. The Old Spanish Trail connected missions in southern California to the New Mexico trade centers of Taos and Santa Fe on the east. As cultural interactions with traders and travelers increased, changes occurred with Native American populations. The influx of Euroamericans into the MPA eventually fostered conflicts with long-time Indian inhabitants that resulted in the creation of reservations and the movement of traditional peoples off their ancestral lands. Nonetheless, seasonal aboriginal uses of what are now Federal lands continued through the 1930s as groups continued to exploit resources in the canyons and adjacent mountains. Many sites that are Native American in origin may include various historic artifacts, in particular food cans. A thorough investigation of the artifacts and their use/reuse may provide insights as to who left the artifacts.

Exploration of the MPA is first mentioned in the 1765 accounts of Juan Maria Antonio de Rivera who led an expedition through what is now Grand County. Although traders and early travelers probably traversed through the MPA, very few left lasting records and the Robidoux and Denis Julien inscriptions remain the only lasting links between modern times and the fur trapper/trader era. U.S. government-sponsored exploration and survey expeditions in the middle to late nineteenth century and continued use of the Old Spanish Trail eventually resulted in Euroamerican settlement of the area by Mormon settlers in 1855. As population increased,

homesteads occupied locations where perennial springs promised consistent water for crops, livestock, and household uses. Camps, homestead remains, corrals, cellars, dugouts, privies and transportation routes in the form of trails may provide insights into early occupation and use of the land encompassed by the planning area.

Euroamericans, dependent upon ranching and farming, continued to expand and settle in various places in the planning area. Numerous towns sprang up throughout the planning area. Physical remains dating from early town-building and isolated settlement activities dot the landscape and provide the planning area with a rich historical archaeological record.

The economic backbone of the planning area in the mid-nineteenth century focused on livestock ranching with cattle dominating the industry until the 1890s when sheep became a viable option. The remains of sheep camps, line camps, and stock driveways all indicate the pervasiveness of the livestock industry in Grand County.

The naturally warm climate fostered the growth of fruit orchards, and by 1910, Moab was renowned for its fruit, especially peaches. The need to control water—the essential component of survival in southeastern Utah—became critical. The pleas to protect farm lands from seasonal floods were addressed during the 1930s when the Civilian Conservation Corps (CCC) spent many man-hours building flood control contour dams throughout the Grand and Spanish valleys. Remnants of CCC camps, and numerous water control structures as well as farmer-constructed irrigation systems can be found throughout the MPA.

In addition to ranching, mining has continued to have significant impacts to the region and its landscape as the twentieth century dawned, oil exploration created quite a stir. Likewise, the coal industry boomed briefly in the Book Cliffs region during the early 1900s, causing the construction of a narrow-gauge spur that connected the town and mill at Sego to the Denver and Rio Grande railroad at Thompson Springs.

The search for minerals has left a legacy of exploratory mines as well as two-tracks and roads that support and foster recreational use of Federal lands. By the twenty-first century, mining generated routes added several thousand miles to the transportation network covering the MPA. In between the boom and bust cycles of the mining industry, ranching and farming sustained those who weathered the extractive industrial rollercoaster.

3.3.2.2 Literature Review and Description of Typical Resources

For a detailed description of available sources, see the Analysis of Management Situation for the Moab Field Office (BLM 2004d).

3.3.2.3 National Register Listed Cultural Resources

Generally, formal listing on the National Register of Historic Places (NRHP) occurs for a small portion of the total sites in any given state or county. Table 3.5 summarizes these sites for the MPA, and is based on the data that was collected. Of the known sites within the planning area, three are listed on the NRHP as either individual sites or part of a larger archaeological district (www.historicdistricts.com/UT.html).

Table 3.5. National Register-listed Sites, Buildings, and Districts Located on BLM Lands within the MPA

Year	Name	Trinomial	Type	Vicinity	County	NR #
1968	Desolation Canyon	NA	Site	Green River	Grand	68000057
1980	Thompson Wash Rock Art District (Sego Canyon)	42GR275-277	District	Thompson	Grand	80003909
1991	Julien, Denis: Inscription	42GR0111	Site	Mouth of Hell Roaring Canyon	Grand	91000617

3.3.2.4 Places of Traditional Native American Cultural Importance

Places that may be of traditional cultural importance to Native American people include, but are not limited to:

- locations associated with the traditional beliefs concerning tribal origins, cultural history, or the nature of the world;
- locations where religious practitioners go, either in the past or the present, to perform ceremonial activities based on traditional cultural rules of practice;
- ancestral habitation sites;
- trails;
- burial sites;
- springs, perennial water sources; and
- places from which plants, animals, minerals, and waters possessing healing powers or used for other subsistence purposes, may be taken (Ferguson et al. 1993:30; Hopi Cultural Preservation Office 1995:2; Parker and King 1989:1).

Additionally, some of these locations may be considered sacred (as opposed to "traditional") to particular Native American individuals or tribes. Under the auspices of the NHPA of 1966, as amended; American Indian Religious Freedom Act of 1978 (AIRFA); Executive Order 13007–Indian Sacred Sites, dated May 24, 1996; and the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), as amended, the BLM must take into account the effects of Federally linked projects or land uses on these types of locations.

3.3.2.4.1 Tribal Consultation List

The MFO has historically consulted with Ute, Navajo, and Puebloan groups concerning cultural resource issues, including the identification of Traditional Cultural Properties (TCPs) (Table 3.6).

Table 3.6. Native American Organizations Historically Consulted by the MFO

Uintah and Ouray Ute Indian Tribe
Southern Ute Tribe
White Mesa Utes
Pueblo of Acoma
Ute Mountain Ute Tribe
Navajo Nation
Navajo Utah Commission
Hopi Tribe
Pueblo of Zuni
Pueblo of Santa Clara
Pueblo of Laguna
Paiute Indian Tribe of Utah

3.3.2.4.2 Potential Traditional Cultural Properties (TCPs)

As mentioned earlier, there are several site types, both archaeological and non-archaeological, that could potentially be identified by Native American groups as TCPs. An ethnographic study is currently being prepared for the MFO that will focus on the ethnographic, ethnohistoric, and archaeological record to determine which groups ascribe cultural values to lands managed by the MFO and to identify existing and potential TCPs within the planning area. Meetings, field visits, and oral interviews with tribal elders may also be included as part of this study. The following is a general discussion about some of the archaeological and non-archaeological site types that may be identified as TCPs on lands managed by the MFO.

3.3.2.4.2.1 Archaeological Sites

Many Native American groups claim affiliation with prehistoric archaeological sites such as rock art, burials, and village sites. The Hopi Tribe, for example, claims that often the exact locations of some of these places, such as ancestral archaeological sites and burials, are unknown to tribes until these sites are identified by Hopi cultural experts during ethnographic or ethnohistoric investigations, or by archaeologists during archaeological investigations of a given study area. Not only do the Hopi consider these sites to be TCPs, they also believe that they are historic properties eligible to the National Register under Criteria A, B, C, and D for the following reasons (Ferguson 1997; Hopi Cultural Preservation Office 1995):

- Criterion A because they are associated with the Hopi clan migrations, which have made a significant contribution to the broad patterns of Hopi history.
- Criterion B because they are "associated directly with Ma'saw and the Hopis' covenant to leave their footprints across the land."
- Criterion C because "ancestral archaeological sites, that may be individually anonymous, are identified as part of the great clan migration that are central to all that is Hopi."

- Criterion D because they have yielded or have the potential to yield information important to Hopi prehistory.

Other tribes also consider ancient Native American archaeological sites as places of traditional importance. For example, the Zuni have identified all "ancestral" archaeological sites as places of traditional importance, as well as being eligible to the National Register (Anyon 1995; Hart 1993:40). They say that these sites meet Criteria A and B (as outlined in National Register Bulletin 15) because of their association with the Zuni ancestors and their oral migration histories. The Utes also consider some of these sites to be culturally significant and sacred and maintain that the spirit of their ancestors dwell at archaeological sites and will remain as long as the sites are not disturbed (Newton 1999; Perlman 1998). Recently, a spiritual leader of the Uintah and Ouray Ute Tribe has stated that the disturbance of significant archaeological sites is leading to the destruction of Ute religion and diminishing the power of the spirits that remain at these sites (Molenaar 2003a).

3.3.2.4.2.2 Rock Art Sites

Many tribes have strong spiritual convictions regarding petroglyphs and pictographs and usually request that these sites not be disturbed, especially if the site was created with the intention of connecting with a spiritual or natural power. Many Ute and Puebloan groups also believe that rock art created by their ancestors retains the spirits of their ancestors. The Hopi Cultural Preservation Office has ascribed cultural values to Fremont rock art panels as far north as Nine Mile and Desolation Canyons (Molenaar 2003b; Blaine Miller personal communication 2003).

Rock art panels are also seen by tribes as physical evidence for Native American land use indicating territorial boundaries, hunting and camping sites, and trail or migration markers. Some panels depict tribal stories and legends, but can only be interpreted by those with the specialized knowledge to understand their meaning. In the past, Utes have derived spiritual powers and authority from special petroglyph panels for their Bear Dances (Spangler 1995:775). The Uintah and Ouray Ute Tribes often request one-half mile buffers around rock art panels, if possible, during Section 106 consultations (Molenaar 2003b).

3.3.2.4.2.3 Rock Shelters

Rock shelters and cave sites located within the planning area can potentially be identified as TCPs. These locations include overhangs, crevices and cave sites and are significant to Native Americans as ancestral dwellings. These site types are also potential ancestral grave sites for the Ute Tribe (Pettit 1990). These sites may also be identified as places where Native Americans communicated with the supernatural world by means of prayers, offerings, and vision quest sites (Molenaar 2003a).

3.3.2.4.2.4 Non-Archaeological Site Types

Non-archaeological site types are distinguished from archaeological site types in order to discuss places that are not necessarily associated with prehistoric or historic artifact assemblages and collections. These sites are typically identified by tribal representatives during the government-

to-government consultation process that is required of Federal agencies. Some common site types are lakes and springs, land features, and traditional gathering or collection areas.

Lakes, Rivers, Perennial Streams, and Springs

Native Americans often claim places of water as places of traditional importance and have traditional stories about mythical beings, or water spirits that live in lakes, springs, and rivers. The Colorado River and its tributaries have sacred significance to the Navajo. The Colorado, Green and Price Rivers have been identified as sacred to the Navajo because they come from natural spring water. According to the Navajo, when the Green River is impacted, the cultural integrity of the spring water is affected, which in turn affects traditional procurement use values (Molenaar 2003c).

Traditional Gathering or Collection Areas

Traditional plant or other resource gathering areas may be places of traditional importance to Native American groups. These areas are generally places where Native Americans go to collect resources such as medicinal plants used and minerals to be used in ceremonies and are often in current use when identified.

Land Features

Large geographic regions, such as deserts, mountain ranges, and valleys are often identified as TCPs but few have been formally documented as such. Examples in the vicinity of the planning area include Sleeping Ute, the Henry Mountains, and Rainbow Bridge (listed on the National Register as a TCP).

3.3.2.5 Cultural Resource Distribution in the MPA

The number, nature, and location of cultural resources present within any given area of the MFO varies depending on numerous factors. Through extensive study of archaeological sites throughout the West, archaeologists have identified several key factors that influence site locations and types including such factors as elevation, slope, aspect, distance to permanent and/or intermittent water, and presence or absence of resources of interest (e.g., food or medicinal resources, valuable minerals, etc.).

The degree to which these factors influence the type and density of cultural resource sites in a given area also varies depending on the time period (prehistoric or historic) considered. For instance, technological advances during the historic period made it possible for people to live and work in areas that would have been less desirable during the prehistoric period. Long-term settlements or habitation sites, particularly during the prehistoric period, were typically located in areas with permanent water sources, so long as the area is at an appropriate elevation that doesn't experience too harsh of a winter or that contains or is close proximity to other areas that contain needed subsistence resources. Short-term camps, on the other hand, could be located in all types of environments and were typically focused on the exploitation of a specific resource during a specific time of year. Thus, in the high desert environment of the MPA, which experiences snow at higher elevations, short-term camps to gather plant or animal resources tend to be located on

the higher plateaus and upper slopes of mountain ranges, and long-term settlements tend to be located at lower elevations, along permanent rivers and streams. As archaeological sites, short-term camps tend to have small numbers of artifacts, such as projectile points for hunting, that are typically associated with acquiring a specific resource and they generally lack permanent features such as living or storage structures. Long-term settlements frequently contain large numbers of artifacts and a wider diversity of artifact types, including items for processing rather than simply obtaining resources, and at least some evidence of structures. Many of these longer term sites in the MPA are associated with caves, alcoves, and rock shelters. Rock art sites, a common site type in the MPA, may be found in association with any environmental location, so long as rock appropriate for pecking, grinding, or painting exists.

A limited percentage of lands within the MPA have been physically inspected for the presence of cultural resources, and such an effort is cost-prohibitive as part of preparing the RMP. Therefore, the relative site density potential for areas within the MFO was estimated using environmental factors known to influence site location and type. All area of the MFO were then ranked as having either high, medium, or low potential for containing cultural sites. Table 3.7 summarizes the acreage of the three site probability categories estimated within the MPA. A detailed description of the factors considered and methodology used to assess site probability is provided in Section 4.3.2.1.

Table 3.7. Estimated Acreage within the MFO with High, Medium, and Low Probability to Contain Cultural Resource Sites

Site Probability	Estimated Acreage	% of Lands in the MFO
High	302,914	17%
Medium	625,903	34%
Low	895,450	49%

3.3.2.5.1 ADVERSE IMPACTS TO CULTURAL RESOURCES

Impacts to archaeological sites from recreational uses (especially off-road travel) and energy-related exploration and development activities have increased dramatically in the last ten years. Many cultural resource sites may be "at-risk" and their NRHP eligibility threatened. Inventory and evaluation will provide BLM with a better understanding about the extent of individual at-risk resources and their NRHP eligibility. Site monitoring will reveal changes to at-risk condition over time.

In order to protect the integrity of cultural resource sites, activities that contribute to site degradation may have to be limited. Limitations will diminish adverse effects to "at-risk" sites but will also curtail some peoples' recreational and transportation pursuits. Activities that would be restricted from locations of at-risk resources, on a case-by-case basis, may include but not be limited to use of mechanized and motorized vehicles, rock climbing, horseback riding, dispersed camping, target shooting, and livestock grazing.

Cultural resources are being adversely impacted by various uses ranging from recreational, energy-related exploration and development, and range-related activities. The BLM must be better able to quantify these impacts from various uses in order to develop adequate mitigation measures that protect eligible cultural resource sites. Once the BLM has a better understanding of exactly what the cost of the various land uses is in terms of data loss or cultural distress (for Native American tribes and other heritage groups), it can better effect solutions to either preventing the impacts or focusing the impacts in specific locations. As a result of these measurements, certain areas may be deemed too vulnerable to allow full access but they may be appropriate for restricted use.

Conflicting policies applicable to cultural resource management with regards to the issuance of OHV permits and construction of single-tracks are in direct conflict with each other. Under the revised federal NHPA regulations, issuance of OHV permits by the BLM is considered an undertaking and is subject to review under Section 106 process, thus it is necessary for the BLM to formally take into account the effect that issuing OHV permits will have on cultural resources within the Moab FO. However, the statewide protocol established between BLM and the Utah SHPO, as well as existing Utah BLM handbooks, indicate that issuance of permits is exempt from Section 106 review. This discrepancy provides unclear direction to Moab FO resource specialists in the practical application of their management prescriptions. OHV use in open areas are adversely impacting cultural resources—surface use stipulations for ground disturbing activities are needed to prevent adverse impacts from occurring. Designating routes and preventative fencing would help address the current user impacts to cultural resources. Potential areas of high site density or significant site types may need to be closed to vehicular travel.

3.4 Fire Management

3.4.1 Introduction and Resource Overview

The Moab Fire District consists of approximately 6.5 million acres of public land in the Price, Moab and Monticello field offices interspersed with state, private, and other Federally regulated lands within Carbon, Emery, Grand, and San Juan Counties. The divergent elevations throughout the area support a wide range of vegetation and soil types including riparian areas, forested high mountain watersheds, grasslands and shrublands, and sparse, arid desert sands. During a normal fire year the district averages 100 wildfires resulting in 10,000 to 16,000 acres each year of disturbed and potentially damaged land. Most fire activity occurs in the eastern half of the district, although fires can occur in almost all areas of each field office. In the twenty-five year period between 1980 and 2005, approximately 74% of wildland fires occurring in the Moab Fire

District were lightning-caused. Prior to 1995, an average of 100 fires per year burned an average of 10,000 acres per year. The past decade has shown a trend of increasing wildland fire, with an average of 130 fires each year burning an average of 16,000 acres each year.

The occurrence of wildland fire varies from year-to-year depending on weather, climatic, and other conditions. Fire occurrence and size can depend on a range of factors including elevation, vegetative community, fuel moisture, precipitation and/or a lack of precipitation, the ability of fire to carry in specific types of vegetation, and other climate dynamics such as dry summer weather following a wet spring or extended periods of drought. Human-caused fires in the MPA commonly occur near roads, from vehicle and railroad ignitions along I-70, as well as those associated with illegal camping outside designated campgrounds, especially along the Colorado River. Resource values threatened by fire include recreation sites, oil/gas sites, cultural sites, and wildland-urban interface areas. High intensity fires that cover large acreages have occurred in almost all areas, although ninety percent of the wildland fires in the Moab Fire District are less than ten acres. Depending on climatic conditions, a typical fire season stretches from March through October with the peak occurring in the lightning-prone period from mid-June to mid-August.

The Moab Fire District has a wide variety of types including grassland mixes, sagebrush and sage/grass, brushland/grass, pinyon/juniper, ponderosa pine, mountain brush, mixed conifer, and invasive species such as cheatgrass, tamarisk and others. The effects of wildland fire or the absence of fire in these vegetative communities is closely tied to other public lands resources such as watersheds, soils, wildlife, and livestock grazing. Fire has historically been an essential part of ecosystem health, providing the needed regeneration of some species and promoting diversity of other species in riparian areas, grasslands, shrublands, woodlands, and forests. The exclusion of fire and fire suppression over the past century has compromised the health of many vegetative communities. Two of the predominant issues in the MPA are the loss of shrubland and grassland communities to pinyon/juniper encroachment, and the proliferation of invasive species.

Communities surrounded by these compromised ecosystems are becoming increasingly susceptible to wildland fire with an accompanying threat to lives and property. Communities in need of management action to reduce the threat from wildland fire on adjacent public lands are identified as wildland-urban interface areas (WUIs). WUIs presently recognized within the MPA include the communities of Brown's Hole, Castle Valley, Dewey, La Sal and Old La Sal, Moab/Spanish Valley, Pack Creek, Thompson Springs, Willow Basin, and Wilson Arch.

Current fire management direction encourages use of wildland fire as well as both fire and non-fire fuel reduction treatments to restore natural fire regimes and to promote the overall ecological health of public lands. The operational role of the Moab Fire District is multi-faceted and comprises wildland fire control and suppression activities, hazardous fuels reduction, wildland fire prevention and education, and collaboration with other agencies in suppression activities as well as in both WUI and non-WUI fuels reduction projects. The MFO Manager authorizes management response to wildland fires within the MPA, approves decisions for prescribed fire and non-fire fuels reduction treatments, and issues restrictions and closures within the planning area during periods of high fire activity.

3.4.2 FIRE MANAGEMENT PLAN

The Moab Fire District Fire Management Plan (FMP) acts as the primary strategic document for fire management in the MPA. The FMP integrates RMP direction, goals and objectives for resources influenced by wildland fire, suppression actions, fuels treatment activities, and emergency stabilization and rehabilitation (ESR). The overlying goal of the FMP is to describe specific actions authorized on the public lands within the Moab Fire District to protect life and ensure public safety, target resource goals and objectives, reduce fuel loads, and to achieve and maintain healthy, functioning ecosystems.

3.4.3 DESIRED WILDLAND FIRE CONDITION (DWFC)

DWFC, as described in the Utah Land-use Plan Amendment for Fire and Fuels Management, incorporates both condition class and fire regime in the development of fire management strategies. The condition class of a vegetative community is defined in terms of its departure from the historic fire regime; determined by current vegetative composition including alterations and disturbances, and also by the length of fire return intervals within that particular community. Along with one of three possible condition classes, five combinations of fire frequency intervals or "fire regimes" are considered in assigning attributes to categorize a vegetative community's current condition. The combination of both of these measurements gives a vegetative community a fire regime/condition class rating or "FRCC." As the FRCC is an index of ecosystem at-risk conditions, DWFC is the description of the desired condition of a vegetative community as it relates to susceptibility from severe fire effects (e.g., the loss of key ecosystem components - soil, vegetation structure, species; or alteration of key ecosystem processes - nutrient cycles, hydrologic regimes). For example, a healthy ecosystem at low risk of losing key ecosystem components following wildland fire would be considered at optimum DWFC. A lengthy description of fire regime, condition class analyses and historic fire return intervals can be found in Appendix D of the Utah Land-use Plan Amendment for Fire and Fuels Management.

3.4.4 LANDSCAPE LEVEL MANAGEMENT

Fire management actions authorized for wildland fire activities, prescribed fire and non-fire fuel treatments, and ESR are based on DWFC. The Utah Land-use Plan Amendment for Fire and Fuels Management addresses specific fire management objectives for each major vegetation group, designed to result in progress toward DWFC of public lands under the jurisdiction of the BLM. Specific actions designed to meet DWFC are detailed in Table 2.1 of the Utah Land-use Plan Amendment for Fire and Fuels Management. Vegetation groups and fire management objectives are briefly summarized below.

3.4.4.1 SALT DESERT SCRUB

Salt desert scrub occurs over approximately 500,000 acres in the MPA. DWFC for this community is native, open salt desert scrub with little invasive species and fire exclusion because of the historical infrequent fire return interval. Management objectives include wildland fire suppression; no wildland fire use; a wide array of fuels treatments; aggressive seeding in ESR treatments.

3.4.4.2 Pinyon and Juniper Woodland

Pinyon/juniper woodlands cover a large portion of the MPA, with estimates averaging over 820,000 acres. Objectives are separated between those areas where pinyon and juniper did and did not occur historically. DWFC in historic pinyon/juniper areas is open stands with grass and shrub understory. These areas historically experienced a 15-50 year fire return interval, which prevented movement of pinyon/juniper into other vegetative communities. DWFC in non-historic pinyon/juniper areas is the restoration of the vegetative community previous to pinyon/juniper encroachment. Management objectives include minimal suppression where possible to mimic natural fire return interval; wildland fire use where feasible; a wide array of fuel treatments including biomass utilization; and aggressive seeding in ESR treatments.

3.4.4.3 Sagebrush

Healthy sagebrush stands have declined throughout the MPA, with an estimated 140,000 acres remaining. DWFC is diverse age class with grass and forbs understory. Management objectives involve a balance between invasive species concerns, wildlife habitat, and restoration of historic fire return interval. Objectives include wildland fire use when appropriate; full spectrum fuel treatment; aggressive seeding in ESR.

3.4.4.4 Grassland

Grasslands occur over approximately 50,000 acres of the MPA. In historic native grassland areas, DWFC is native grass/forbs community. Dependent upon other resource objectives, DWFC in non-native grasslands is native grassland or shrub community. Management objectives consider historic fire return interval of 15-50 years and may include wildland fire use; prescribed fire, mechanical and chemical fuel treatments to reduce invasive grasses and encroachment by other trees/shrubs; aggressively seed following wildland fire.

3.4.4.5 Blackbrush

Blackbrush communities in Utah are thought to have poor regeneration following wildland fire. These communities cover approximately 185,000 acres of the MPA, and management objectives exclude wildland fire and most prescribed fire and non-fire fuels treatments.

3.4.4.6 Mountain Shrub

In the MPA, mountain shrub areas cover approximately 45,000 acres. DWFC in mountain shrub would be differing age classes in mosaic patterns with the exception of WUI areas. When possible, management objectives allow wildland fire to mimic historic fire return intervals. Fuels treatment of all types is encouraged to decrease the potential for high-severity fire.

3.4.4.7 Mixed Conifer/Douglas Fir/Aspen

Mixed conifer/Douglas fir and aspen woodlands cover approximately 38,000 acres in specific areas within the MPA. Healthy forests would include a grass/brush understory as well as differing age classes of trees. To achieve this, management objectives include allowing wildland fire where it is possible without high-severity fire. Management objectives encourage fuels

treatments (including biomass utilization) to retain age diversity, remove ladder fuels, and to reduce fuels where WUI values are at risk. Preferred ESR treatments include tree planting to promote forest regeneration.

3.4.4.8 Ponderosa Pine

There are approximately 800 acres of ponderosa pine forest in the MPA, most of which is considered condition class three in need of treatment. The DWFC of a healthy ponderosa stand would be open stands with grass/forb understory and a diversity of age classes. Management objectives include allowing fire to play a natural role when possible, restoring fire, conducting mechanical fuels treatments, and consideration of seeding in ESR treatments.

3.4.4.9 Riparian Wetland

Although this vegetative type covers less than one percent of the total acreage in the MPA, it is a vital component of the overall region. DWFC of riparian wetland focuses on the reduction of invasives and the retention or restoration of the historic vegetative composition appropriate to the site. Management objectives allow low-intensity fire in most riparian areas and encourage prescribed fire and mechanical treatment to restore native riparian and wetland species. Active as opposed to passive restoration would be the primary focus of ESR treatments in riparian wetland areas.

3.4.5 Fire Management Priorities

Protection of human life, including the lives of firefighters committed to an incident, is the mandated priority for fire management activities. This priority overrides other strategies, actions, and RMP resource goals and objectives. The protection of human communities and infrastructure, other property and improvements, and natural and cultural resources is based on human health and safety, the values to be protected, and the costs of protection. Balancing priorities in fire management decisions consider the protection of WUI areas, the maintenance of existing healthy ecosystems, the protection of high priority sub-basins or watersheds (HUC 4 or HUC 5), special status species, and/or cultural resources and landscapes.

3.4.6 Fire Management Activities to Meet DWFC

All BLM field offices were given national direction to establish general landscape level goals and objectives for fire management. Landscape level management goals incorporated into the Utah Land-use Plan Amendment for Fire and Fuels Management that apply to the MPA include:

1. Establishing firefighter and public safety as the primary goal in all fire management decisions and actions.
2. Using wildland fire to protect, maintain, and enhance resources and when possible allowing fire to assume a natural ecological role.
3. Reducing hazardous fuels to protect human, natural and cultural resources as well as to restore ecosystems and protect communities.
4. Suppressing fires according to resource objectives and with consideration for firefighter/public safety and other benefits and values to be protected.

5. Providing a consistent, safe, and cost-effective fire management program through appropriate management of planning, staffing, training, and equipment.
6. Establishing fire management units (FMUs) for acreages with burnable vegetation on all BLM-administered lands.
7. Providing emergency stabilization, rehabilitation and restoration to protect and sustain resources, and to safeguard public health and safety as well as community infrastructure.
8. Working with partners and other affected groups to reduce risks to communities and to restore healthy ecosystems.

More specific resource objectives are incorporated in Fire Management Plans for individual field offices. To ascertain the most effective methods for achieving DWFC goals in each of the vegetative communities in Utah, fire management activities listed below were discussed and authorized in the decision record for the Utah Land-use Plan Amendment for Fire and Fuels Management.

3.4.6.1 Suppression

A wildland fire requires an appropriate management response (AMR). The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). AMR is guided by the resource strategies, goals and objectives of the RMP with an emphasis on firefighter and public safety, benefits and values to be protected, and suppression costs. FMU objectives as described in the FMP would provide further guidance for an AMR.

3.4.6.2 Wildland Fire Use for Resource Benefit

Wildland fire use may be an AMR to a naturally ignited wildland fire to accomplish specific resource management objectives in predefined designated areas. Operational management of wildland fire use for resource benefit is detailed in a Wildland Fire Implementation Plan (WFIP). Due to resource condition (FRCC) and proximity to values at risk, wildland fire for resource benefits is not acceptable on all BLM lands within the MPA. As the DWFC of resources move from a higher FRCC to a lower FRCC, wildland fire use for resource benefits in some FMUs may become more practicable. FMUs will be periodically reassessed by fire and fuels staff as well as by resource staff to ascertain changes in vegetation and potential for wildland fire use as a resource tool.

3.4.6.3 Prescribed Fire and Non-fire Fuels Treatments

Prescribed fire and non-fire treatments are utilized for hazardous fuels reduction and for community protection from wildland fire. Treatments are also implemented to accomplish resource goals and objectives such as wildlife and range improvements. Treatment projects and acreages are determined through RMP goals and objectives.

Approximately 90% of all non-fire treatment acres are mechanical and/or seedings. Chemical and biological treatments comprise less than 10% of the total non-fire treatment acreages. Limitations in applying prescribed fire to meet fuels reduction targets include the condition of vegetation (i.e., aggressive non-native species invasion, or extended periods of drought), air

quality restrictions, budget allocations, personnel capabilities, risk, policy and guidance, and social acceptability.

3.4.6.4 Emergency Stabilization and Rehabilitation

Emergency stabilization and rehabilitation (ESR) actions following wildland fire may be implemented to protect and sustain resources, and to safeguard public health and safety as well as community infrastructure. All ESR activities following wildland fire in the MPA would be implemented following BLM ESR Handbook H-1742-1 and treatments would be designed according to the Normal Year Fire Stabilization and Rehabilitation Plan (NFRP) for the Moab Fire District.

3.4.6.5 Monitoring

Monitoring actions would quantify results from fire management decisions and activities. Monitoring conclusions could be used to determine the need for additional or different activities, revisions to the FMP and/or NFRP, or amendments to the RMP.

3.4.7 Summary

National fire management policy has changed and advanced over the past several years in response to increased fatalities, property loss, local economic disruptions and the risk to ecosystems associated with severe wildland fire seasons and increasing WUI conflicts. Because it was imperative to immediately incorporate national and interagency direction into BLM fire management, the Utah BLM amended several BLM land-use plans to include fire management direction and current scientific understanding regarding the nature of fire in the ecosystem. The Utah Land-use Plan Amendment for Fire and Fuels is a lengthy document with an accompanying biological opinion from the USFWS. Although it remains a separate document, fire and fuels management direction contained within the amendment is considered to be included in this RMP in its entirety, along with all appendices, tables, and attachments. Also incorporated into this RMP are the resource protection measures (RPMs) identified through the LUP Amendment process that were determined necessary to protect natural or cultural resource values in the implementation of fire management practices.

Fire management direction, activities, and objectives that affect the resources within the MPA are summarized above. Specific goals and objectives for resources within the planning area that are determined in this RMP and that may alter or augment the current direction of fire and fuels management as dictated by the Utah Land-use Plan Amendment for Fire and Fuels Management will be analyzed in Chapter 4 of this document.

3.5 Health and Safety

3.5.1 Introduction

A major priority in land management for the MFO is ensuring health and human safety on its public lands. The BLM's goals are to effectively manage hazardous materials and safety hazards

on the public lands to protect the health and safety of public land uses protect the natural and environmental resources, minimize future hazardous and related risks, costs and liabilities, and to mitigate physical hazards in compliance with all applicable laws, regulations, and policies. The BLM follows its national, state, and local contingency plans as they apply to emergency responses. These plans are also consistent with Federal and state laws and regulations.

3.5.2 HAZARDOUS MATERIALS

Hazardous materials are generally defined as a usable product or substance that may cause harm to humans, natural resources, or the environment when spilled, released, or contacted. Hazardous materials are used in every day activities and may be in the form of a solid, liquid, or gas. Regardless of their physical state, hazardous materials may be toxic, flammable, combustible, reactive, and/or corrosive. These can include, but are not limited to, abandoned mine sites, abandoned structures, dams, discarded chemicals, chemical spills, discarded wasted, etc. Hazardous materials problems within the MPA can result from programs conducted by state and local governments, by local businesses and industries, and/or by illegal dumping of hazardous materials on lands administered by the BLM. There are no approved hazardous materials dumps or repositories within the MPA.

3.5.2.1 POTENTIAL HAZARDS

The various producers of hazardous waste pose a potential impact to the health and safety of area residents, visitors, and to the physical environment itself. Both commercial and illegal activities can lead to the creation of hazardous waste sites. Spills, illegal dumping, and the discovery of abandoned hazardous materials are likely to occur within the MPA. Contaminants from these sites can pose an imminent threat to public safety and negatively impact the environment by impacting soils, ground water flows, air, and water quality. Potential hazardous material generators within the MPA include the following: oil and gas drilling operations, natural gas pipelines, mining operations, uranium tailings, storage tanks, landfills, illegal dumps, and the Utah Launch Complex of the White Sands Missile Range near Green River, Utah.

3.5.2.2 HAZARDOUS MATERIALS MANAGEMENT

The MFO Hazardous Materials Program is responsible for hazardous materials handling, storage, transport, and emergency response. Several state and Federal mandates, authorities, and handbooks provide the BLM with management guidelines, objectives and actions pertaining to hazardous materials management. The Federal and state prescribed mandates ensure MFO's compliance with applicable laws and regulations.

3.5.3 ABANDONED MINES

The early mining practices in Grand County were subject to minimal environmental regulations and in mining districts throughout the West. During this time, Federal land management agencies had no requirements for reclamation of abandoned mines on public lands. Mine closures were often inadequate or non-existent. While many abandoned mines are small and their waste is inert, some abandoned mines are a threat to human health and the environment. Public safety hazards associated with abandoned mines can also be a concern on public lands.

The BLM, the U.S. Forest Service (USFS), and the National Park Service (NPS) have conducted inventories of abandoned mine sites and some remediation, such as stabilizing sites, closing mine openings, and/or reclaiming mine-related land disturbances. In the MPA, the highest concentrations of mine sites that have been inventoried but not yet reclaimed are on the mesas and plateaus that surround the LaSal Mountains. Areas where abandoned mine inventories have not yet been conducted are predominantly on BLM and USFS administered public lands. The Utah Division of Oil, Gas and Mining (UDOGM) Abandoned Mine Reclamation Program (AMRP) has identified Lisbon Valley as a high priority area for abandoned mine hazards inventory (UDOGM 2002). Additionally, the MFO has identified the Browns Hole, Klondike, and Sevenmile areas as priority areas for abandoned mine hazards inventory and remediation.

3.5.3.1 Potential Hazards

Abandoned mine sites may pose hazards to human health, the environment, and physical safety. Threats to health and the environment include: acid drainage, heavy metal contamination, metal contaminated tailings impoundments, stored chemicals, and leaking containers. Changes in the chemical composition or soil loss near AML sites can result in alterations or loss of natural habitat for native wildlife. Abandoned mines may also impact ground water flows and water quality. The impacts to water quality are generally the result of contaminated sediments or metal salts that can affect human health, fisheries, wildlife, and vegetation. Air pollution from contaminated dust can occur on tailings impoundments and waste rock piles near abandoned mill sites. There may also be releases or potential releases of hazardous substances from waste materials and acid drainage beyond AML sites.

Open mines are unstable; mine adits (horizontal openings or tunnels) may collapse, internal supports may fail, and mine shafts (vertical openings) and winzes (vertical connections between adits) may be obstructed or unseen. Oxygen can be at lethally low concentrations and toxic gases can be at high concentrations or capable of displacing oxygen. Exposure to radiation in the mine atmosphere, particularly radon gas, can be a hazard, especially in abandoned uranium mines. Many abandoned mines in southern Utah are potential sources of radiation.

Water can be a hazard in flooded mines; shallow water can conceal winzes and sharp objects. Hazardous wastes, such as boxes or containers of explosives, and chemicals used in milling or drilling operations could be present. Illegal dumping of hazardous wastes within abandoned mines is also a possibility.

3.5.3.2 Abandoned Mine Management/Reclamation Activities

BLM has recently developed the Abandoned Mine Lands program (AML) that addresses the environmental and safety hazards associated with AML sites on public lands. Once the site are identified, they are prioritized, and appropriate actions are taken on those historic mine sites that pose health and safety risks. The BLM's priority for reclamation of environmentally contaminated sites is based on risk assessments that address threats to human health and the environment. For example, abandoned mine land sites that impact water quality are usually a greater concern and receive a higher priority for reclamation than those that do not impact water quality. See the Chapter 2 Alternative Matrix for AML program priorities.

3.6 LANDS AND REALTY

3.6.1 RESOURCE OVERVIEW

As provided by the Federal Land Policy and Management Act (FLPMA), the BLM has the responsibility to plan for and manage public lands. As defined by FLPMA, public lands are those Federally owned lands, and any interest in lands (e.g., Federally owned mineral estate and easements across non-Federal lands), that are administered by the Secretary of the Interior, specifically through the BLM. The land surface and mineral ownerships within the MPA are varied and intermingled. The MPA contains approximately 2.75 million acres, of which approximately 1.82 million acres, or 66%, are public lands managed by the BLM (See Map 1-1, Moab Planning Area 1.1). Generally, the lands are located in large, contiguous tracts that provide for effective and efficient management. In addition, the BLM MFO manages the subsurface of 29,678 acres of split estate lands, and 141,241 acres of National Forest lands.

3.6.2 MFO LANDS AND REALTY PROGRAM

Management of ownership and access to lands within the MPA falls under a variety of categories related to whether the BLM is retaining lands, acquiring lands or interests in lands, relinquishing control of lands (e.g., sales, exchanges, etc.), granting rights-of-way, easements, or other access, withdrawing lands for certain uses, or otherwise determining the disposition of specific tracts of land. The various categories of lands and realty management within the planning area are discussed in the following sections.

The overall goals of the BLM lands and realty program are to:

- Manage the public lands to support goals and objectives of other resource programs;
- Respond to public requests or applications for land-use authorizations; and
- Acquire administrative and public access where necessary to enhance the resource management objectives of the BLM.
- Throughout much of Utah, the state owns and manages four isolated sections in each 36-section township. These are generally sections 2, 16, 32, and 36, and are ordinarily one mile square (640 acres). They are primarily administered by the Utah School and Institutional Trust Lands Administration (SITLA) for the purpose of economic support of the state's public schools and institutional trust funds. Activities on state land generally are not substantially different from those on the surrounding land administered by BLM. Many of the SITLA lands generate funds through grazing permits, right-of-way easements and permits, and hydrocarbon or other mineral leases.
- Many BLM lands with management restrictions, such as WSAs, have state lands that are adjacent to or within their boundaries. State lands that are completely or almost entirely surrounded by BLM lands with management restrictions, or are in conjunction with administratively endorsed National Park Service lands, are termed state inholdings.
- Existing access to inheld state lands varies. Some of the parcels have direct access through cherry-stemmed or boundary roads of WSAs. Inheld parcels may or may not currently have access, depending upon whether or not existing vehicle routes lead to them. BLM policy, as

required by the Cotter decision, is that "the state must be allowed access to the state school trust lands so that those lands can be developed in a manner that will provide funds for the common school..." This decision confined the issue of access to situations directly involving economic revenues generated for the school trust. For example, if a holder of a state oil and gas lease on a parcel of state land that is completely surrounded by a WSA requires access to develop that lease, BLM must grant the leaseholder reasonable access with consideration given to minimize impacts to wilderness character.

3.6.2.1 Land Tenure Adjustments

As mandated by Section 102(a)(1) of FLPMA (43 U.S.C. 1701), public lands are retained in Federal ownership, the exception being those public lands that have future potential for disposal (i.e., sale and exchange), as described under Section 203(a) and Section 206 of FLPMA (43 U.S.C. 1713; 1716). Public lands have potential for disposal when they are isolated, difficult to manage, or are needed to fulfill state selections. Lands identified for disposal must meet public objectives, such as community expansion and economic development. The preferred method of disposal is land exchange (discussed in Section 3.6.2.3). Other lands can be considered for disposal on a case-by-case basis. Disposal actions are usually in response to public request or application that results in a title transfer, wherein the lands leave the public domain. Lands identified for disposal in the MPA are listed in Appendix D – Lands Identified for Disposal. Criteria for land tenure adjustments are outlined in Appendix A – Land Tenure Adjustment and Withdrawal Criteria.

3.6.2.1.1 Sales

Public sales of BLM lands are managed under the disposal criteria set forth in Section 203 of FLPMA. Public lands determined suitable for sale shall be offered on the initiative of the BLM and sold at not less than fair market value. Public lands classified, withdrawn, reserved, or otherwise designated as not available or subject to sale are unavailable.

In the current RMP (1985a), lands were identified that met the criteria of Section 203 of FLPMA for consideration for disposal by sale. Consequently, those lands identified in the plan are isolated parcels that are difficult for the BLM to manage as part of the public lands (I), lands that the city of Moab and Grand County thought should be available for community expansion (C), and lands that were nominated by private individuals (P). The list of lands identified for disposal was revised to include parcels that were added through amendments to the 1985 RMP and to delete parcels that are no longer in BLM ownership (see Appendix D – Lands Identified for Disposal). As of 2003, 12,415 acres were identified for disposal.

3.6.2.1.2 Exchanges and Acquisitions

Exchanges are initiated in direct response to non-agency proposals or by the BLM, to improve management of the public lands. Lands considered for exchange must be determined suitable for disposal and acquisition, and the exchange package must be shown to be in the public interest. The specific planning criteria for land tenure adjustments and exchanges are described in a February 1989 amendment to the existing RMP (1985a) under which the MFO operates its lands and realty program. This 1989 amendment includes measures for acquisitions and disposals to

determine if a proposed exchange is in conformance with the land-use plan and would be in the public interest, and is hereby incorporated by reference (BLM 1989b).

Two land acquisitions, from private parties, have taken place in the history of the MFO. In 1977, the BLM acquired 6.28 acres for the Westwater Ranger Station. In 1992, 158.54 acres were purchased for the Cisco Take-out.

3.6.2.1.3 Recreation and Public Purposes Act (R&PP)

The R&PP Act was established by Congress as a means for state and local governments as well as non-profit organizations to acquire or lease (without patent) public lands at no cost or reduced cost for public or recreational purposes. Many Western governmental entities have taken advantage of this Act in order to provide the public with much-needed local services and locations for recreational activities.

3.6.2.2 Partial Interest Acquisitions

Public land cannot be effectively administered without both legal and physical access. Methods used to acquire legal rights that meet resource management needs include negotiated purchase, donation, and exchange. Acquisition alternatives include purchase of fee or less-than-fee interest above, on, and below the surface, as well as perpetual exclusive and permanent or temporary nonexclusive easements. Acquisitions of road or trail easements are probably the most frequently encountered access needs. Types of easements include:

- road easements;
- sign locations;
- stream clearance projects;
- utility easements;
- hunting and fishing easements; and
- range improvements.

Acquisition of access rights are meant to support one or more of these resources: lands, minerals, forestry, range, wildlife, recreation, or watershed. Additionally, access may be closed or restricted, where necessary, to protect public health and safety and to protect significant resource values.

Forty-five easements were on file in the MFO as of 2003. Easements acquired from the 1930s through the 1970s were primarily related to range management (e.g., fences, roads, spring developments). Easements acquired since the Grand RMP was approved in 1985 are primarily related to recreation. Eighty-nine percent of the easements have been acquired from State of Utah Trust Lands. Easements can be acquired when there is a need, as happened in 1994 when the Kokopelli's Trail was "created" by connecting existing roads and trails from Loma, Colorado, to the Moab Slickrock Bike Trail.

3.6.2.3 WITHDRAWALS/CLASSIFICATIONS

Withdrawals are formal actions that set aside, withhold, or reserve Federal land by statute or administrative order for public purposes. A withdrawal may remove areas from the public lands to be managed under the authority of another Federal agency or department, but the land does not leave Federal ownership. Criteria for withdrawals are outlined in Appendix A – Land Tenure Adjustment and Withdrawal Criteria.

Withdrawals accomplish one or more of the following:

- Transfer total or partial jurisdiction of Federal land between Federal agencies;
- Close (segregate) Federal land to operation of all or some of the public land laws and/or mineral laws;
- Dedicate Federal land to a specific purpose.

Withdrawals are used to preserve sensitive environmental values, protect major Federal investments in facilities or other improvements, support national security, and/or provide for public health and safety. Withdrawals may segregate a particular portion of public land from operation of any, some, or all of the public land laws (withdraw from settlement, location, or entry), and/or prevent disposal (sale or exchange) of public lands or resources. Withdrawals remain in effect until they expire or are specifically revoked or terminated.

Withdrawal review is mandated by FLPMA, which requires the BLM to eliminate all unnecessary withdrawals and classifications. The BLM must ensure that withdrawals are supported by a definite show of need and must recommend revocation of withdrawals that lack sufficient justification. Before recommending a withdrawal continuation, alternatives such as rights-of-way (ROWs) and interagency agreements must be explored.

Four withdrawals existed within the MFO as of 2005 (see Map 2-1, Existing Withdrawals from Mineral Entry). All four withdrawals are Bureau motion actions. Two of the existing withdrawals are in effect in the Westwater Canyon section of the Colorado River (Table 3.8). The first withdrawal protects the river bottom and lands one-quarter mile from the edge of the river. The second withdrawal expands protection to the corridor from canyon rim to canyon rim, and to side drainages. The third withdrawal (Three Rivers) protects the remaining river corridors in the MPA. These three areas are withdrawn from mineral entry. In general terms, the withdrawals protect the corridors of the Colorado, Green , and Dolores Rivers from new mining claims subject to valid existing rights. The fourth withdrawal in the MFO reserves lands for the disposal of uranium mill tailings to be removed from the Atlas Mill Site in Moab.

Table 3.8. Withdrawals in the MPA

Serial Number	Name of Withdrawal	Effective Date	Expiration Date	Acres
UTU-71781	Westwater Canyon	03/30/1995	03/29/2045	4,710

Table 3.8. Withdrawals in the MPA

Serial Number	Name of Withdrawal	Effective Date	Expiration Date	Acres
UTU-74247	Westwater Canyon Withdrawal Expansion	06/02/1998	06/01/2018 (renewable)	3,386
UTU-75392	Three Rivers: Colorado, Dolores, Green	10/06/2004	10/05/2024 (renewable)	65,037 in MFO
UTU-80808	Moab Mill Site Remediation Project	11/15/2005	11/15/2010 (renewable)	2,300

There are 11 Federal Energy and Regulatory Commission (FERC) Power Site Reserves/Classifications within the three river corridors administered by the MFO. The lands were opened to the operation of the mining laws in 1955; therefore, they remain withdrawn from disposal actions. Rights-of-way can be granted on these lands with a FERC stipulation in the grant. Disposal actions require partial revocation of the withdrawal.

3.6.2.4 UTILITY/TRANSPORTATION SYSTEMS

3.6.2.4.1 RIGHTS-OF-WAY

A right-of-way (ROW) is an authorization to place facilities over, on, under, or through public lands for construction, operation, maintenance, or termination of a project. Public lands are made available throughout the planning area for ROWs and corridors. With the exception of defined avoidance and exclusion areas, the planning area is subject to the authorization of ROWs. Avoidance areas are areas where special environmental and/or management considerations exist. Rights-of-way either will not be granted in these areas or, if granted, will be subject to stringent terms and conditions. Rights-of-way avoidance areas were established under the 1985 RMP for crucial habitat for deer (Westwater Canyon) and bighorn sheep (canyons east of the Green River and Shafer Basin). Exclusion areas prohibit ROWs. No exclusion areas were identified in the 1985 RMP.

Rights-of-way are granted on a case-by-case basis. The majority of ROWs granted between 1998 and 2003 were for non-energy-related activities. Only 17% of new ROWs during this time were for oil and gas gathering systems or roads. In the same five-year period, 407 case files were assigned (ownership transferred). Of these, 93% were energy related and 7% were not. There is nothing to indicate that this trend will change in the next 10 years, especially in light of the resurgence of the energy market after 2003. Historically, pipeline ROWs granted within the MPA have been small surface pipelines, because they have been determined to be the least environmentally damaging. Large-diameter (10 inches and over) pipelines were buried.

3.6.2.4.2 UTILITY CORRIDORS

The 1985 RMP Management Action Decision for Utility Corridors established electrical utility corridors along I-70, U.S. Highway 191 (U.S. 191), the MAPCO pipeline route between I-70 and U.S. 191, and the Pacific Corporation transmission line route between U.S. 191 and the Green River. The portion of the U.S. 191 utility corridor that runs through Moab Canyon has since

reached maximum capacity. In 1999, the Western Regional Corridor Study Committee (Western Utility Group) recommended that utility corridors within the MPA continue to be designated alongside the I-70 and U.S. 191 roadway corridors. All corridors identified in the previous plan remain designated at present. The Western Utility Group (WUG) is currently working to identify additional corridors throughout the region, and has put forth one additional utility corridor in the MPA following the Questar, Williams et al. pipeline route through East Canyon (BLM 2001c). As additional or future corridors are identified, the BLM would strive to consolidate utility corridors to the extent possible.

3.6.2.4.3 Communication Site Rights-of-Way

Within the MPA, there are 11 designated communication sites along I-70 and U.S. 191, six of which were granted between 1998 and 2003. The rapid growth of wireless networking in the U.S. indicates that the public expects to be able to make cell phone contact most of the time. This trend is expected to continue, with increasing demands placed on the existing 11 sites. Cleartalk is currently in the process of creating a cellular communication network along I-70 (completed) and U.S. 191 (not complete). There is a proposed or existing tower every 10 to 12 miles along these two major highways. Each of the Cleartalk communication sites would be built to house four users. The Geyser, Klondike, and Black Ridge areas have room for additional facilities.

3.6.2.5 Leases and Permits

Section 302 of FLPMA authorizes the use, occupancy, and development of public lands, through leases and permits, for uses not authorized through other authorities. Applicants can be state and local governments and private individuals. These uses of public lands include agricultural development, residential use (under certain conditions), commercial use, advertising, and National Guard use. Leases are long-term authorizations that usually require a significant economic investment in the land.

Permits are usually short-term authorizations not to exceed three years. The MFO issues an average of 50 permits each year, primarily for filming projects. During calendar years 1998 through 2002, the MFO issued 182 film permits. Approximately 75 commonly used filming locations have been identified. Filming is an important part of the Grand County economy. The annual report of the Moab to Monument Valley Film Commission, on the economic impact of on-location production, gives a figure of $4,862,000 for the reporting period from July 1, 2001, to June 30, 2002. This number represents the money that filming companies spent in Grand County, with no additional factoring.

3.6.2.6 Trespass

The BLM is responsible for realty trespass abatement, which includes prevention, detection, and resolution. Land authorizations, such as leases and permits, have typically been issued to resolve agriculture and occupancy trespass. Locations in the planning area where trespass is likely to occur are along drainages, in oil fields, and in areas where private lands border public lands.

Approximately 90 cases of alleged trespass have been formally identified within the MPA. None of these situations poses a problem if it is not immediately resolved. Twenty trespass cases were

resolved during FY 2003. The remaining cases are expected to be resolved on an estimated timetable of 10 cases per year.

Willful trespass is dealt with immediately, especially if resources are threatened.

3.6.2.7 PLANNING-BASED PROTECTION ZONES

Protection zones were incorporated into the existing Grand RMP (1985a) through "Plan Changes" for an airport runway undeveloped area and for protection of drinking water sources.

The airport runway protection zone was added to the plan on May 5, 1995. Ninety acres are included in the protection zone, which restricts construction of residences or places of public assembly (churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons.) Automobile parking is also discouraged within the area. The location of the protection zone is:

T24S, R19E, Sec. 1, S½ of S½ of SE¼ of SE¼; Sec. 12, N½ of NE¼

The BLM has entered into three land-use agreements to not allow potential contamination sources, as defined in R309-113-6(1)(u) of the Utah Administrative Code, within a drinking water protection zone. The protection zones are not necessarily ROW avoidance areas. Examples of possible pollution sources include, but are not limited to, storage facilities that store the liquid forms of extremely hazardous substances, septic tanks, drain fields, Class V underground injection wells, landfills, open dumps, landfilling of sludge and septage, manure piles, salt piles, pit privies, drain lines, and animal feeding operations with more than 10 animal units.

BLM has responded to requests for agreements from one private entity, the Thompson Springs Water Conservancy District, and one state agency, the Utah Department of Transportation. The size of the protection zone has varied by the source of water and the hydrology of the area. The protection zones have been documented in the existing RMP amendment and are displayed on the appropriate master title plats

3.6.2.8 ALTERNATIVE ENERGY SOURCES

A national trend is using public lands to develop renewable energy sources such as wind power, solar power, biomass, and hydropower. National organizations are looking at public land to help provide power sources for an ever-increasing population, without creating air pollution

problems. In the future, BLM-administered lands will play an increasing role in providing clean energy sources.

The February 2003 publication, "Assessing the Potential for Renewable Energy on Public Lands" prepared by the U.S. Department of Energy (DOE) assessed the potential for the following renewable energy sources on public lands in the 11 western states by planning area: solar, biomass, geothermal, water, and wind. Tables were created for each resource listing the 25 planning areas with top potential for development of these energy sources. At this time, the DOE data show that most of the MPA has been identified as possessing a low potential for all of the

resources studied. There are, however, a few isolated areas, on the western side of the MPA (e.g., along a ridge on the west side of U.S. 191 between Moab and Crescent Junction), where there are small pockets of medium and high wind resource potential. The MFO can expect to have these sites investigated more closely in the future due to the projected increase in demand for renewable energy.

3.7 Livestock Grazing

3.7.1 Resource Overview

Livestock grazing allotments occur on approximately 95% of all lands located within the MPA boundary. Areas not within the boundaries of a grazing allotment include lands around Moab, the surface areas of the Colorado and Dolores Rivers, I-70, and the Pear Park and Spring Creek areas. Of the lands within grazing allotments, 1,794,798 acres (77%) are BLM lands within the State of Utah; 375,299 acres (16%) are State of Utah lands; 83,640 acres (4%) are private; 1,632 acres (less than 1%) are military; 1,146 acres (less than 1%) are United States Forest Service lands; and 73,395 acres (3%) occur within the State of Colorado (Figure 3.5).

The following subsections provide a summary of the number of permitted allotments, amount and condition of riparian areas, allotment management categories, and ecological status for the allotments. Information on each allotment can be found in the Analysis of Management Situation for the MFO (Chapter 7: Grazing and Domestic Livestock).

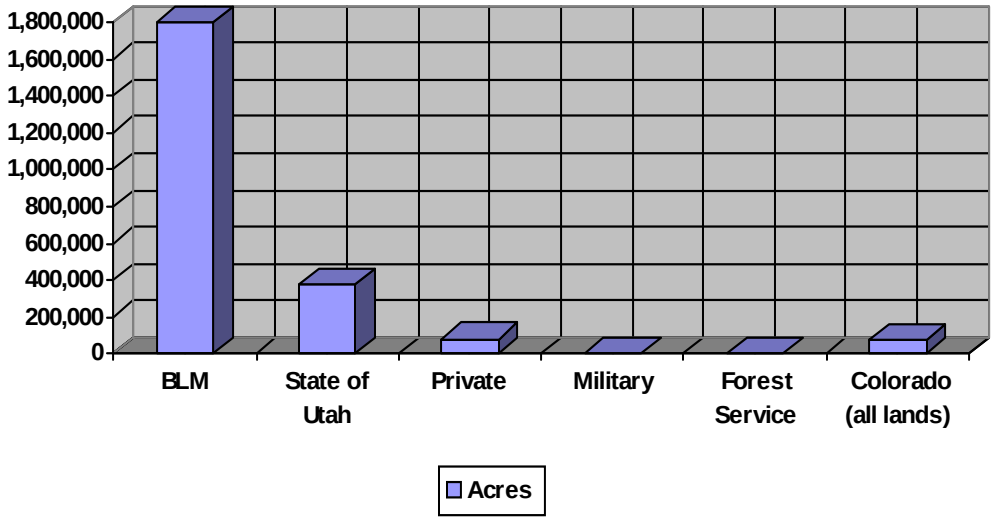


Figure 3.5. Acres within grazing allotments of the MPA.

3.7.1.1 Allotment Status

A total of 84 allotments occur within the boundaries of the MPA. Of these allotments, 74 are administered by the MFO, four are administered by the Vernal Field Office, and six are

administered by the Grand Junction, Colorado, Field Office. Seventy-seven of the allotments are available for use by domestic livestock, and seven allotments were made unavailable for grazing by domestic livestock in 1995 and 1996. These seven allotments were made unavailable for the following reasons: enhancement of wildlife habitat, improvement of riparian vegetation, watershed benefits, and recreation values.

3.7.1.2 Riparian Areas

A total of 26,085 acres of riparian have been inventoried within the grazing allotments. Of this total, 14,020 acres (54%) have been identified as being in "proper functioning condition;" 8,962 acres (34%) as "functioning-at risk;" 2,947 acres (11%) as "not functioning;" 120 acres (0.5%) as "reservoir or well;" and 35 acres (0.1%) as "dikes."

3.7.1.3 Allotment Management Categories

Each permitted allotment has been evaluated and designated into one of three management categories: maintain (M), improve (I), or custodial (C). Allotments in category M are in generally good condition and have no serious resource conflicts under present management. They may have some potential for a positive return on investments. Category I allotments have serious resource conflicts or unsatisfactory range condition or may be producing below their potential under present management, and/or climatic conditions (drought related). These allotments have potential to improve or have conflicts that can be resolved through changes in grazing management or investments in range improvement projects. Allotments in category C have low productivity potential, limited resource conflicts, and limited opportunity for a positive return on public investments (Table 3.9). A more detailed and specific list of criteria used for categorizing each allotment is found in the Analysis of Management Situation for the Moab RMP.

Table 3.9. Current Number of Grazing Allotments in Each Management Category

Category M (Maintain)	Category I (Improve)	Category C (Custodial)
25 allotments (32%)	37 allotments (48%)	15 allotments (20%)

3.7.1.4 Ecological Status

The ecological status of BLM acres within the MPA (excluding acres within Colorado) was estimated as part of the 1985 Grand RMP process. Since the ecological status estimates were made on a MPA-wide basis, the ecological status for each allotment is not known. Four classes are used to express the degree to which the kinds, proportions, and amounts of plants in a biotic community reflected the potential natural community (PNC). These classes are PNC, Late-Seral, Mid-Seral, and Early-Seral (Table 3.10).

Table 3.10. Current Acreages of Plants that Are Similar to Potential Natural Community (PNC)

Class	% Similarity to PNC	Acreage (% of Total Area)
PNC	76-100%	461,156 acres (26%)

Late-Seral	51-75%	661,502 acres (38%)
Mid-Seral	26-50%	520,802 acres (30%)
Early-Seral	0- 25%	108,009 acres (6%)

BLM Manual H-1601-1 (BLM 2005a) states that vegetation management decisions, including grazing, must be based on desired future conditions (DFC). The DFC are those conditions on a landscape scale that are meeting management objectives, incorporating ecological, social, and economic considerations; and does not necessarily assume vegetation should, or will, reach PNC. It is usually expressed as ecological or management status of vegetation (species composition, habitat diversity, age and size classes of species) and desired soil qualities (conditions of soil cover, erosion, compaction, loss of soil productivity).

3.7.1.5 Rangeland Improvements

Rangeland improvements, including fencing, cattle guards, water pipelines, well development, spring development, and stock ponds, are used to assist in livestock and wildlife distribution. Fire management practices are often used to achieve ecological conversion and/or reduce catastrophic fuel loads. Rangeland manipulation can be used to rehabilitate or restore a particular ecological community with respect to plant composition and structure.

General impacts associated with rangeland improvements tier to the Vegetation EIS (BLM 1991a), which analyzes and recommends treatment methods to be used on BLM-administered lands. Methods include manual and mechanical treatments, biological treatments, prescribed burning, chemical applications, and use of livestock.

The current RMP (1985a) identifies rangeland manipulation actions that were to be accomplished within various allotments. These actions are shown on pages 18, 19, 30 and A-29 of the Grand RMP.

3.7.2 Current Management Practices

Of the 77 allotments that are permitted for use by domestic livestock, 64 allotments are grazed by cattle, three are grazed by cattle and horses, two are grazed by cattle and sheep, six are grazed by sheep, one is grazed by sheep and horses, and one is grazed by horses. Twenty-five (25) of the permitted allotments have allotment management plans (AMPs), while the remaining 52 allotments do not. Livestock use of these allotments, as well as those managed through AMPs, is authorized through grazing permits which contain terms and conditions controlling the numbers, timing, and duration of use as wells as other restrictions to livestock use. Allotment Management Plans have been (and will be) developed where appropriate, since all allotments do not need to have AMPs. Please refer to the Analysis of Management Situation prepared for the Moab RMP (2004d).

Authorized livestock use is typically expressed in animal unit months (AUMs), which is the amount of forage necessary for the sustenance of 1 cow, 1 horse, or 5 sheep for a period of one month. A total of 107,931 animal unit months (AUMs) are currently authorized (active) within

boundaries of the MPA. Of the total authorized AUMs, 87,097 (81%) are used by cattle, 18,466 (17%) are used by sheep, and 485 (less than 1%) are used by horses. 1,883 AUMs (2%) are, through agreement with the permittee(s), held in temporary suspension to maintain improved resource conditions. An additional 25,972 AUMs are allowed through exchange of use (other ownership). Table 3.11 shows the grazing management systems currently in use for the 77 permitted allotments.

Management actions accomplished since the 1985 Grand RMP have affected current livestock resources. These accomplishments include: developing the Rangeland Program Summary (RPS) for the resource area; changes in the season of use on 54,380 acres to (a) provide for growth requirements of perennial plants, (b) restrict use of spring forbs by livestock in crucial wildlife areas, and (c) protect soils in critical watershed areas; changes in the class of livestock on the Buckhorn Allotment to reduce competition between livestock and wildlife; land treatments to increase available forage and increased use by livestock and wildlife.

Table 3.11. Current Number of Permitted Allotments under Each Grazing Management System

Grazing Management System	Number of Allotments
Season-long grazing*	52
Deferred rotation grazing	21
Rest rotation grazing	1
Holistic grazing	3

* The lengths of season under season-long grazing systems generally vary from 1 month to 8 months, with the majority being 4-5 months. One allotment is grazed year-long. The majority of grazing systems include both dormant season and growing season use. However, 11 allotments are grazed only during the dormant season, and three allotments are grazed only during the growing season.

3.7.3 Specific Allotments of Concern

Specific concerns have been raised concerning twelve entire allotments as well as well as portions of four other allotments. South Sand Flats, North Sand Flats, Between the Creeks, Bogart, Cottonwood, Diamond and Arth's Pasture allotments were analyzed in a Plan Amendment to the 1985 Grand RMP (EA #068-94-047). Pear Park, Spring Creek and Castle Valley allotments were made unavailable for grazing in the Grand RMP itself.

The allotments of concern and the conflict identified in each area are summarized below:

North Sand Flats: This allotment covers approximately half of the Sand Flats Recreation Area (home of the Slickrock Bike Trail and the Hell's Revenge and Fins and Things Jeep Routes), as well as popular recreation areas along the Colorado River such as Negro Bill Canyon. Due to the large number of recreational users, conflicts between people and cattle are a concern. Watershed, cultural, and riparian values (especially in Negro Bill Canyon) are also identified as a concern. In addition, the entire allotment is crucial deer winter range.

South Sand Flats: This allotment covers approximately half of the Sand Flats Recreation Area, and is also heavily visited by recreational users. This allotment also contains a portion of the Mill

Creek watershed, which is the municipal watershed for Spanish Valley and the city of Moab. Watershed, cultural, and riparian values (especially in Mill Creek Canyon and its tributaries, such as Rill Creek and Burkholder Draw) are also identified as a concern. In addition, the entire allotment is crucial deer winter range.

Between the Creeks: This allotment contains a portion of the Mill Creek watershed, which is the municipal watershed for Spanish Valley and the city of Moab. Watershed, cultural, and riparian values (especially in Mill Creek Canyon and its tributaries) are also identified as a concern. In addition, the entire allotment is crucial deer winter range, and competition between deer and livestock for both forage and space occurs in this allotment.

Bogart: This allotment is within the Bookcliffs. The area is unfragmented, high quality crucial deer and/or elk winter range, and contains riparian habitat (especially along Nash Wash) and watershed values. The 1985 Grand RMP identified the need to control accelerated erosion, stream channel downcutting, braiding, bank destabilization and salinity discharge from Greater Sagers Wash Watershed. Wildlife values include mule deer, elk and pronghorn, as well as potential Mexican spotted owl habitat, sensitive raptors and bald eagle. Much of the allotment experienced a catastrophic fire in 2002. There is limited accessibility to this allotment.

Diamond: This allotment is within the Bookcliffs. The area is unfragmented, high quality crucial deer and/or elk winter range, and contains riparian habitat (especially along Diamond Creek) and watershed values. The 1985 Grand RMP identified the need to control accelerated erosion, stream channel downcutting, braiding, and bank destabilization. Wildlife values include mule deer, elk and pronghorn, as well as potential Mexican spotted owl habitat, sensitive raptors and bald eagle. Much of the allotment experienced a catastrophic fire in 2002. There is limited accessibility to this allotment.

Cottonwood: This allotment is within the Bookcliffs. The area is unfragmented, high quality crucial deer and/or elk winter range, and contains riparian habitat (especially along Diamond Creek) as well as watershed values. The 1985 Grand RMP identified the need to control accelerated erosion, stream channel downcutting, braiding, and bank destabilization. Wildlife values include mule deer, elk and pronghorn, as well as potential Mexican spotted owl habitat, sensitive raptors and bald eagle. Much of the allotment experienced a catastrophic fire in 2002. There is limited accessibility to this allotment.

Pear Park: This allotment is within the Bookcliffs. The area is unfragmented, high quality crucial deer and/or elk winter range. Wildlife values include mule deer, elk and pronghorn, as well as potential Mexican spotted owl habitat, sensitive raptors and bald eagle. There is very limited accessibility to this allotment, and no water or potential access to water.

Spring Creek: This allotment is within the Dolores Triangle, and is high quality crucial mule deer and/or elk winter range. There are also sensitive raptors, potential Gunnison sage-grouse habitat, and potential MSO habitat.

Mill Creek: this allotment is in the South Fork of Mill Creek, a perennial stream. The area covered by the allotment is rich in cultural and riparian resources. The density and types of

cultural resources in this area are critical to advance professional knowledge on the prehistoric use of perennial streams in the desert environment of southeast Utah. Mill Creek is especially known for the density of its rock art. This rock art is found in alcoves, which are also favored by cattle. Cattle clustering in these alcoves create an adverse chemical mix from body wastes that is detrimental to the rock art. The Mill Creek allotment receives high recreation use from four wheel drive enthusiasts, hikers and bicyclists. The riparian area of Mill Creek is one of the richest in the entire MPA.

Professor Valley: This allotment is along Utah Highway 128, which has over 300,000 vehicles per year, mostly out-of-town visitors. There are many recreation sites within the allotment, which results in conflicts between people and livestock, especially along the highway itself. In addition, the allotment is habitat for desert bighorn sheep (lambing), bald eagle winter range, Southwestern willow flycatcher, the threatened and endangered fish of the Colorado River, peregrine falcon and other sensitive raptors.

River: This allotment is along Utah Highway 128, which has over 300,000 vehicles per year, mostly out-of-town visitors. There are many recreation sites within the allotment, which results in conflicts between people and livestock, especially along the highway itself. In addition, the allotment is habitat for desert bighorn sheep (lambing), bald eagle winter range, Southwestern willow flycatcher, the threatened and endangered fish of the Colorado River, peregrine falcon and other sensitive raptors.

Ida Gulch: This allotment is along Utah Highway 128, which has over 300,000 vehicles per year, mostly out-of-town visitors. There are many recreation sites within the allotment, which results in conflicts between people and livestock, especially along the highway itself. In addition, the allotment is habitat for bald eagle winter range, Southwestern willow flycatcher, the threatened and endangered fish of the Colorado River, peregrine falcon and other sensitive raptors.

Castle Valley: This allotment is within the Castle Valley sole source aquifer. It is also in Mexican spotted owl habitat, and within crucial mule deer winter range.

In addition, portions of the following allotments have been identified as allotments of concern:

A portion of Arth's Pasture: This allotment is on Poison Spider Mesa, a popular recreation destination for bicycling and four wheel driving. In addition, there is competition for forage, space and water between livestock and desert bighorn sheep. In addition, the area is habitat for sensitive raptors and is Mexican spotted owl habitat.

A portion of Beaver Creek (1,351 acres in the upper part of Beaver Creek canyon): The upper portions of Beaver Creek have riparian habitat. The watershed contains Colorado cutthroat trout (a sensitive species). The area is also crucial winter habitat for mule deer and/or elk, as well as bald eagle wintering habitat.

A portion of the Kane Springs allotment (558 acres along the road from the Colorado River to SITLA land in Grand County: This area along a busy county road (175,000 vehicles per year)

receives heavy recreational traffic. The corridor is confined, making recreation-livestock traffic encounters likely. In addition, it is Mexican spotted owl critical habitat.

A portion of the Professor Valley allotment (400 acres along Highway 128 between Hittle and Dewey Campgrounds: This area is a narrow strip of land between the Colorado River and Utah Highway 128 (which receives 300,000 vehicles per year). There are traffic issues along this stretch of the highway; the Utah Department of Transportation has put cattle guards along this portion of the highway in order to reduce livestock-vehicle collisions. In addition, the area is habitat for the threatened and endangered fish of the Colorado River, as well as bald eagle wintering, Southwestern willow flycatcher and sensitive raptor habitat.

3.7.4 Resource Demand

The resource demand is considered to be the amount of grazing by both domestic livestock and wildlife. However, for the purposes of the grazing section, the resource demand discussed will be limited to grazing by domestic livestock.

- The resource demand by domestic livestock can be considered the sum total of permitted active use (currently 107,931 AUMs) and suspended livestock use (currently 28,896 AUMs). This amounts to a current total resource demand by domestic livestock of 136,827 AUMs.
- The total AUMs of active use listed in the 1982 Analysis of Management Situation was 112,140. This compares to the current active use of 107,931 AUMs (a 4% reduction; BLM 1982).
- A dramatic shift from sheep use to cattle has occurred since the 1982 Analysis of Management Situation was written. In 1982, the active sheep and cattle use was 49,338 AUMs (44%) and 62,802 AUMs (56%) respectively. This compares to the current active sheep and cattle use of 18,466 AUMs (17%) and 87,097 AUMs (81%), respectively.

3.8 Minerals

The MPA is known to have significant occurrences of mineral resources, as noted in a variety of studies.

In 2000, the Energy Policy and Conservation Act (EPCA) directed the Secretary of the Interior, in consultation with the Secretaries of Agriculture and Energy, to conduct an inventory of oil and gas resources beneath Federal lands. The inventory was intended to 1) identify reserve estimates (prepared by the USGS) of oil and gas resources underlying these lands, and 2) identify the extent and nature of any restrictions or impediments to the development of such resources. As a result, in 2003 a multi-agency effort produced a "Scientific Inventory of Onshore Federal Lands' Oil and Gas Resource and Reserves and the Extent and Nature of Restrictions or Impediments to their Development." The information in this report was utilized in assessing the oil and gas resources within the MPA.

In addition to the EPCA study, which is a very large-scale portrayal of oil and gas information, the BLM further assessed the oil and gas resources of the planning area based on more site-specific data. These data included geologic reports, oil and gas plays, historic exploration and

development, and well records. Numerous data sources were utilized, such as the USGS, the Utah Geological Survey (UGS), the Utah Division of Oil, Gas and Mining (UDOGM), BLM reports and information, and industry records. All the data used to assess the oil and gas resources of the planning area are compiled in the Mineral Potential Report for the MFO (BLM 2005e).

The Mineral Potential Report (BLM 2005e) provides an assessment of all the mineral resources within the MPA. It provides a description of the geology and the mineral resource, a summary of exploration and development, a classification of the occurrence and development potential of each resource, and a projection of future development. The occurrence potential of each mineral resource is classified using the ratings system provided in BLM Manual 3031 (BLM 1985e), as shown in Table 3.12. The development potential specified for each mineral resource is based on considerations such as mineral occurrence potential; historical development; and the commodity price supply, demand, and other market factors.

Table 3.12. Ratings for Mineral Occurrence and Development Potential and Certainty

Rating	Description
Level of Potential Ratings	
O	The geologic environment, the inferred geologic processes, and the lack of mineral occurrences do not indicate potential for the accumulation of mineral resources.
L	The geologic environment and the inferred geologic processes indicate low potential of accumulation of mineral resources.
M	The geologic environment, the inferred geologic processes, and the reported mineral occurrences or valid geochemical/geophysical anomaly, and the known mines or deposits indicate moderate potential for accumulation of mineral resources.
H	The geologic environment, the inferred geologic processes, and the reported mineral occurrences or valid geochemical/geophysical anomaly, and the known mines or deposits indicate high potential for accumulation of mineral resources. The known mines and deposits do not have to be within the area that is being classified, but have to be within the same type of geologic environment.
ND	Mineral potential not determined due to lack of useful data.
Level of Certainty Ratings	
A	The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.
B	The available data provide indirect evidence to support or refute the possible existence of mineral resources.
C	The available data provide direct evidence but are quantitatively minimal to support or refute the possible existence of mineral resources.
D	The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

3.8.1 LEASABLE MINERALS

The exploration and development of leasable minerals is accomplished in several stages of activity. The first stage (land categorization) involves determining which public domain lands

should be leased and under what conditions. The second stage is leasing. The third stage includes exploration, development, and production operations.

The BLM has developed four allocations (i.e., categories) to be applied to all public lands to indicate availability for oil and gas leasing. The first three allocations contain stipulations that pertain to how oil and gas activities would be conducted. The fourth allocation precludes oil and gas leasing altogether. These allocations also apply, where appropriate and practical, to other surface-disturbing activities and occupancy associated with land-use authorizations. The allocations are described as follows:

- Standard Stipulations – Areas identified with Standard Stipulations are open to exploration and development subject to standard lease terms and conditions.
- Timing Limitations and Controlled Surface Use (minor constraints) – Areas identified with these stipulations are open to exploration and development with relatively minor constraints. A Timing Limitation would preclude activities during specified timeframes to protect resource values such as wildlife species. A Controlled Surface Use stipulation would require proposals for oil and gas activities to be authorized according to only the controls or constraints specified.
- No Surface Occupancy (major constraint) – Areas identified as No Surface Occupancy are open to exploration and development, but with the major constraint of precluding oil and gas activities that utilize the surface of the land.
- Closed – Areas identified as Closed are not available for oil and gas leasing.

3.8.1.1 Oil and Gas

3.8.1.1.1 Resource Overview

As described in the 1995 National Assessment of United States Oil and Gas Resources (Gautier et al. 1996), the USGS has delineated oil and gas plays in the Uinta-Piceance and Paradox Basins, which fall within the northern one-third and southern two-thirds of the MPA, respectively. The 1995 assessment represents the latest delineation of oil and gas plays in the basins performed by the USGS (BLM 2005e). In 2003, the USGS published the results of a more recent assessment of the petroleum systems of the Uinta-Piceance Basin that was conducted pursuant to the EPCA and was based on the total petroleum system rather than the plays concept (USGS 2003). However, because no similar assessment has been conducted for the Paradox Basin, to maintain consistency in describing oil and gas resources throughout the MPA, the 1995 data are used.

3.8.1.1.1.1 Paradox Basin

Three USGS plays of the Paradox Basin occur in the MPA: the Buried Fault Block Play (USGS Play 2101), the Fractured Interbed Play (USGS Play 2103), and the Salt Anticline Flank Play (USGS Play 2105). Each of these plays has producing oil and gas fields from its individual reservoirs in the MPA (Morgan 1993; Gautier et al. 1996; Huffman 1996a, 1996b).

The largest of the six oil and gas accumulations in Buried Fault Block Play in the MPA is the Lisbon field, which has produced approximately 43 million barrels of oil and 250 billion cubic feet of gas.

Within the Fractured Interbed Play, the Pennsylvanian shales and mudstones, the Cane Creek Shale reservoirs, and other organic-rich shales in the Pennsylvanian Paradox Formation like the Chimney Rock, Gothic, and Hovenweep Shales are targets for development (BLM 2005e).

The Salt Anticline Flank Play occurs along the flanks of the northwest-trending salt anticlines. This play has been confirmed with the development of wells targeting the Honaker Trail Formation of the Hermosa Group at the Big Indian field and sands of the Cutler Group in southwestern Colorado.

3.8.1.1.1.2 Uinta-Piceance Basin

Three Uinta-Piceance Basin plays delineated by the USGS (Gautier et al. 1996) occur in the northern portion of the MPA: the Cretaceous Conventional Play (USGS Play 2003), the Cretaceous Dakota to Jurassic Play (USGS Play 2004), and the hypothetical Sego Coalbed Methane Play (USGS Play 2051; discussed in Section 3.8.1.2, Coalbed Methane).

The Cretaceous Conventional Play includes sandstone reservoirs in the Mancos Shale and the Mesaverde Group strata in the northern part of the MPA (Gautier et al. 1996).

The Cretaceous Dakota to Triassic Play has been modified from the one defined by Gautier and others (1996) and now includes new reservoirs defined in the 2003 USGS reassessment of the Uinta Basin petroleum systems (Johnson 2003). The play reservoirs have been expanded to include Lower Jurassic and Triassic sandstones not included in the 1995 assessment. The play primarily yields gas in conventional reservoirs; however, oil is also present, particularly in the Morrison Formation (Johnson 2003).

3.8.1.1.2 Past and Present Exploration, Development, and Production

The MPA has had a long history of oil and gas exploration. Records from the Utah Division of Oil, Gas and Mining (UDOGM 2004) indicate that approximately 2,027 petroleum wells have been drilled in the MPA from 1891 through 2004, of which 292 are currently producing, 265 are inactive but capable of producing, 7 are injection wells, and 1,470 are plugged and abandoned (some of which may have been producers at one time). This amounts to approximately 18 wells drilled per year for the MPA for the period between 1891 and 2004.

However, drilling activity between 1991 and 2004 occurred at a slower rate than in the past. Records from the Utah Division of Oil, Gas and Mining (UDOGM 2004) for the period from 1991 through 2004 indicate that drilling activity in the MPA ranged from 0 to 12 wells drilled per year and averaged about 5 wells per year. Breaking down the 5 wells per year by drilling result shows that, on average, one of those wells was an oil well, 2 were gas wells, and one was plugged and abandoned as a dry hole. The remaining well was split between those categories.

Recently, the number of wells drilled has increased significantly due to higher energy prices. In 2005 there were 28 wells drilled and in 2006 there were 25 wells drilled (UDOGM). For 2007 the number of wells drilled is projected to be about 50.

All but one of the 34 historical and active oil and gas fields throughout the MPA are shown on Map 3-1, Moab Planning Area and Oil and Gas Fields. Discovered in 1925, the Greater Cisco is the oldest field in the MPA. A couple other fields near the Greater Cisco field were also discovered in 1928, but only one field was discovered from 1929 through 1954. Many of the larger fields in the planning area, including Lisbon field, were discovered in the 10-year period between 1955 and 1964, when 15 of the 34 fields in the MPA were located. Development activity in the MPA was minimal from 1965 through 1974, and only one new oil field was discovered during this period. The period from 1975 through 1984 saw modest activity, with a total of 6 new fields discovered. The 10-year period from 1985 through 1994 was another relatively active period for oil and gas in the MPA, and 11 more fields were discovered, mostly during the last five years. From 1995 through 2004, no new fields were discovered in the MPA, although some limited exploration has continued.

Lisbon Field, which straddles the BLM Moab-Monticello planning area boundary, is the only large field (50 to 100 million barrels of oil and 0.5 to 1.0 tcf of gas) currently in the MPA. Within the MPA, the average size of an oil field would be classified as tiny (0.1 to 1.0 million barrels), and the average gas field would be classified as very small (0.01 to 0.10 tcf). Disregarding the large Lisbon field and the Greater Cisco field, which is the combination of a number of smaller fields, an average producing field in the MPA consists of 10 wells. The estimated acreage for the existing wells, roads, and pipelines is 8,500 acres, or 15 acres of surface disturbance per well.

Table 3.13 presents the cumulative production data for the 34 oil and gas fields—including 20 active fields, 10 inactive fields, and 4 abandoned fields—within the MPA (UDOGM 2004).

These data indicate that the MPA has been a petroleum-producing region, accounting for over 14% of the total gas and over 4% of the total oil produced in Utah.

Oil and gas production generally has occurred in several distinct regions of the MPA; for convenience, these areas are referred to as the southern, northern, and central MPA. The southern part of the planning area covers a portion of the fold and fault belt of the Paradox Basin and encompasses the Salt Wash, Big Flat-Hatch Point, and Lisbon Valley areas. During the past 15 years, a total of three wells have been drilled in the Salt Wash area, and all of these wells have been plugged and reclaimed (McClure, BLM, personal communication, 2003). A new application for a permit to drill (APD) has been filed for a well sited in Section 9 of T23S, R17E. The Big Flat-Hatch Point area encompasses eleven oil and gas fields that produce from reservoirs from both the Buried Fault Block and the Fractured Interbed Plays. Oil and gas shows have also been noted from the Moenkopi Formation, the Cedar Mesa Sandstone of the Cutler Group, the Honaker Trail Formation, the Ismay and Desert Creek zones of the Paradox Formation, the Pinkerton Trail Formation, and the upper section of the Elbert Formation (Jackson 2000). Four seismic exploration programs have also been completed in the Big Flat-Hatch Point area over the past 15 years (McClure, BLM, personal communication, 2003).

Petroleum production for the Lisbon Valley area comes mainly from one active (Lisbon) and two inactive (Big Indian [north] and Little Valley) fields tapping Buried Fault Block Play reservoirs. Initial completion at the Lisbon field in the Devonian McCracken Sandstone Member of the Elbert Formation yielded 587 barrels of oil per day (Parker 1981). Later testing in the shallower Mississippian Leadville Limestone resulted in the discovery of a large oil and gas accumulation, which has ultimately resulted in approximately 90% of the oil produced from the Lisbon field.

Table 3.13. Cumulative Oil and Gas Production in the MPA, by Field, as of December 31, 2003

Field Name	USGS Play Number	Field Type	Producing Formation	Status	Discovery Year	Active Wells	Cumulative Oil Production	Cumulative Natural Gas Production	Cumulative Water Production
Bar X	2003	Gas	Morrison	Active	1948	40	1,943	45,498,423	4,622
Big Flat	2101	Oil	Leadville-Cane Creek	Active	1955	3	843,581	790,210	122,124
Big Flat West	2103	NA	Paradox	Inactive	1993	1	0	0	0
Big Indian (north)	2101	Gas	Leadville	Inactive	1961	1	194	1,995,461	36,122
Big Indian (south)	2105	Gas	Honaker Trail	Inactive	1958	1	178,160	26,420,267	98,446
Blaze Canyon	2003	Oil	Navajo	Inactive	1976	2	36,672	4,470	141,442
Book Cliffs	2003	Gas	Dakota	Inactive	1957	2	0	438,418	0
Bryson Canyon	2003/04	Gas	Dakota, Mesaverde	Active	1928	40	6,563	23,062,513	2,659
Bushy	2003	Oil	Mancos-Dakota	Active	1977	2	38,528	3,507	13,189
Dark Canyon	2003	Gas	Dakota	Active	1988	2	0	767,003	16
Diamond Ridge	2003	Gas	Dakota-Cedar Mtn	Abandoned	1960	0	0	466,479	0
East Canyon	2003	Gas	Dakota-Morrison	Active	1960	14	7,206	2,928,022	1,576,143
Greater Cisco	2003	Gas	Cedar Mtn	Active	1925	260	1,902,111	24,564,425	276,172
Hatch Point	2101	Oil	Leadville	Inactive	1993	1	4,607	10,731	259
Hell Roaring	2103	Oil	Paradox	Active	1992	1	536,743	497,672	32,744
Kane Creek	2103	Gas	Paradox	Abandoned	1925	0	1,887	25,000	NA
Left Hand Canyon	2003	Oil	Entrada	Active	1972	2	96,640	557,839	144,461
Lion Mesa	2103	Oil	Ismay	Inactive	1984	3	1,624	0	8
Lisbon*	2101	Gas	Leadville-McCracken	Active	1961	23	51,076,593	761,560,184	49,512,009
Little Valley	2101	Gas	Leadville	Inactive	1959	1	137,848	17,311,939	742,951
Long Canyon	2103	Oil	Paradox	Active	1962	1	1,114,079	1,164,983	451,157
Mancos Flat	2003	Oil	Mancos	Inactive	1981	1	16,733	0	53
Middle Canyon	2003	Gas	Dakota	Active	1988	3	247	1,512,016	0
Park Road	2103	Oil	Paradox	Active	1991	1	301,233	288,611	22,023

Table 3.13. Cumulative Oil and Gas Production in the MPA, by Field, as of December 31, 2003

Field Name	USGS Play Number	Field Type	Producing Formation	Status	Discovery Year	Active Wells	Cumulative Oil Production	Cumulative Natural Gas Production	Cumulative Water Production
Pear Park	2003	Gas	Dakota-Cedar Mtn	Active	1963	1	0	325,603	0
Salt Wash	2101	Oil	Leadville	Active	1961	8	1,555,787	11,746,434	6,022,091
San Arroyo	2003	Gas	Dakota	Active	1962	103	181,351	151,472,679	16,662
Shafer Canyon	2103	Oil	Paradox	Abandoned	1963	0	67,554	63,805	1,408
South Pine Ridge	2105	Gas	Hernosa Group?	Active	1981	1	7,194	682,395	174
Stateline	2003	Gas	Dakota	Active	1928	16	10,472	12,887,318	3,639
Ten Mile	2103	Oil	Paradox	Inactive	1990	1	962	0	599
Westwater	2003/04	Gas	Dakota, Mesaverde	Active	1957	27	617,478	36,300,009	299,665
Wilson Canyon	2103	Gas	Paradox	Active	1955	2	111,248	1,954,793	10,334
Winter Camp	2003	Gas	Dakota	Abandoned	1982	0	0	13,673	70
TOTALS						564	58,855,238	1,125,314,882	59,531,242

Source: Modified from Utah Division of Oil, Gas and Mining (2004), oil and water production in barrels, gas production in million cubic feet (mcf).

*Partially located in the Monticello Planning Area to the south.

Notes: The Gold Bar field was abandoned so long ago that its production is not reflected in recent UDOGM production books or in this table. This table also does not include the production from one small, unnamed Wildcat oil field, which is included with all other fields named Wildcat in UDOGM records.

Minor production has also been recorded for Pennsylvanian Paradox Formation reservoirs of the Fractured Interbed Play at the Wilson Canyon field, as well as from Pennsylvanian Honaker Trail Formation reservoirs of the Salt Anticline Flank Play at the Pine Ridge South and Big Indian (south) fields (see Table 3.13). Four seismic exploration programs were completed in the Lisbon Valley area over the past 15 years, and four new wells were drilled but eventually abandoned as dry holes without production (McClure, BLM, personal communication, 2003). Hydrogen sulfide (H_2S) and helium have also been produced from the Lisbon field from McCracken and Leadville reservoirs (Eric Jones, BLM – MFO, personal communication, July 2003).

The northern part of the MPA, within the Uinta Basin region, encompasses the Greater Cisco, Book Cliffs, and Roan Cliffs areas, which produce predominantly gas but some oil from various Jurassic through Cretaceous-age reservoirs of the Dakota-Triassic and Cretaceous Conventional Plays. The Greater Cisco area/field consists of a number of individual fields. Within the Book Cliffs area, 15 oil and gas fields produce primarily from the Dakota Sandstone, or various combinations of that reservoir with reservoirs in the Mancos Shale, Cedar Mountain Formation, Morrison Formation, or the Entrada Sandstone. Recent successful gas completions in these deeper reservoirs of the Cretaceous Dakota to Jurassic Play on Uintah and Ouray Indian Reservation lands north of the MPA have stimulated new interest in the potential of this play (Eckels et al. 2005), and gas potential may also exist in the Cretaceous Conventional Play in the northwestern portion of the Book Cliffs area.

The central part of the MPA encompasses the Eastern Paradox area, which has seen limited exploration and development activity. Only two fields were producing in this area as of the end of 2003 (UDOGM 2004). One of these is the Blaze Canyon oil field; the other is a wildcat that produced 198 barrels of oil before being shut-in (UDOGM 2004).

3.8.1.1.3 Occurrence and Development Potential

The three plays in the southern Paradox Basin portion of the MPA (the Buried Fault Block Play, the Fractured Interbed Play, and the Salt Flank Anticline Play) cover the same area and are rated as having high (H) occurrence potential for oil and gas resources with a certainty level of D. There is a low (L) potential with a C level of certainty for oil and gas occurrence within the Uncompahgre Uplift area and the area around the La Sal Mountains. The Dakota-Triassic Play and the Cretaceous Conventional Play, in the northern Uinta Basin portion of the MPA, have been rated as having an H occurrence potential with a D level of certainty.

Based on analysis of various factors, most of the area within the five conventional oil and gas plays in the MPA have been rated as H for oil and gas development potential and development is likely to occur in these areas over the next 15 years. Areas with a L geologic development potential for oil and gas are the Uncompahgre Uplift and the La Sal Mountains. Other areas in the MPA given an L development potential are those areas administratively closed to mineral leasing and disposal, such as WSAs (Map 3-2, Moab Planning Area Composite Oil and Gas Development Potential).

3.8.1.2 Coalbed Methane

3.8.1.2.1 Resource Overview

The Uinta Basin Sego Coalbed Methane Play (USGS Play 2051, Gautier et al. 1996) encompasses the Sego coal field in the northern portion of the MPA (Map 3-3, Moab Planning Area Coalbed Methane-Development Potential); it is a hypothetical play, since there has been no production from these coals to-date. The play is mostly untested.

The gas content of the Nelsen-Formation coal beds in the Sego coal field is estimated by the UGS to range from 50 to 300 standard cubic feet per ton (scf/ton). Figuring that 100,000 acres of the northern portion of the MPA are underlain by Neslen Formation coal from 1,000 to 5,000 feet deep, and that the average net coal thickness for this area is 12.5 feet, the total coal resource would be 2.25 billion tons (1,800 tons per acre-foot). Using the gas content range listed above, the Neslen coals could contain a coalbed methane resource ranging from 0.11 to 0.68 tcf of gas in place in the MPA portion of the Sego Coalbed Methane Play. The USGS (Gautier et al. 1996) also provided coalbed gas data for the Sego Play (BLM 2005e) and estimated that ultimate recoverable gas reserves would range from 0.08 to 0.60 tcf, or very similar to the UGS estimate. However, it is important to note that gas in place is not the same as recoverable gas reserves.

Cumulative data from the UGS and Doelling (1972a, 1979), indicate that coals of the Nelsen Formation at depths of less than 1,000 feet are only moderately gassy. Examination of the coal quality of the near-surface samples (UGS unpublished data) shows that the coals could hold 280–380 cubic feet of gas per ton and, thus, are undersaturated near the surface. More saturated reserves are anticipated between 1,000 and 5,000 feet.

3.8.1.2.2 Past and Present Exploration, Development, and Production

Only a few coalbed methane wells have been drilled in the Uinta Basin Sego Coalbed Methane Play through 2004. There have been no wells specifically drilled to test the coalbed gas potential of the MPA to date. Data suggest that coal beds fully saturated with gas (and attractive for development) may exist between 1,000 and 5,000 feet. Some of the Neslen coal deposits prospective for coalbed methane development also occur in an area of existing oil and gas development, which provides nearby pipeline infrastructure to transport any coalbed gas found.

CDX Rockies, LLC, a small independent petroleum company, has conducted recent coal coring and desorption tests in Uintah County to the north of the MPA. Although methane content data has not been released, the test results are reported to be encouraging (BLM 2005e).

3.8.1.2.3 Occurrence and Development Potential

The hypothetical Uinta Basin Sego Coalbed Methane Play has been subdivided into various levels of occurrence potential. The occurrence potential for coalbed methane is high (H) with a rating of C for certainty in the Neslen Formation of the Sego coal field where the net coal in the formation is more than 8 feet thick, moderate (M) with a C certainty rating where the net coal is 4-8 feet thick, and low (L) with a C certainty rating where the coal is less than 4 feet thick.

The development potential for coalbed methane of the northeastern portion of the Sego coal field, outside the WSAs, is ranked as H because there are thick coal deposits present and existing oil and gas infrastructure present. Development is likely to occur in these areas over the next 15 years. Low (L) development potential is assigned to the portion of the Sego coal field covered by thin coal and WSAs, and to the La Sal coal field. A development potential of M was assigned to areas outside the WSAs with only 4–8 feet of net coal in the Neslen Formation, or small areas between the WSAs that had thicker coal (Map 3-3, Moab Planning Area Coalbed Methane-Development Potential).

3.8.1.3 Coal

3.8.1.3.1 Resource Overview

Along the Book Cliffs to the east of the Green River, in what is known as the Sego coal field, coal beds in the Upper Cretaceous Neslen Formation of the Mesaverde Group are exposed along the cliffs. These coal beds generally extend at least ten miles and dip into the subsurface of the Uinta Basin, and their quality is relatively good compared to the coals in the Book Cliffs and Wasatch Plateau fields of central Utah. Four coal zones have been identified in the Neslen Formation in this area: the Palisade, Ballard, Chesterfield, and Carbonera coal zones, in ascending stratigraphic order (Doelling 1972a). The thickest and most extensive coal beds occur in the Carbonera zone in the far northeastern part of the MPA.

In 1978, the BLM and USGS collaborated to designate the Thompson Known Recoverable Coal Resource Area (KRCRA), which consists of about 41,325 acres of the Sego coal field located in parts of T20S, R19E, R20E, and R21E, and T21S, R19E and R20E. More recent analysis by the UGS of oil and gas well logs penetrating the Neslen Formation indicates that the Thompson KRCRA only covers the southwestern one-third of the actual recoverable coal-bearing lands of the Sego coal field within the MPA. Doelling (1972a) estimated that there are 294 million short tons of coal in the Sego field, but his resource estimate is mainly limited to the coal in the Thompson KRCRA and only includes about 8 million tons of hypothetical coal resources along the Book Cliffs in the northeast MPA. Notably, some of the most attractive coal deposits in the Sego coal field are located outside the established KRCRA in the northeast portion of the MPA where there is active oil and gas development.

The La Sal coal field occurs in the southeast portion of the MPA. Here, the coal is thin and high in ash and sulfur content and, thus, not as attractive for mining (Doelling 1972b; Gloyn et al. 1995). A KRCRA has not been defined for this coal field (Doelling 1972b).

3.8.1.3.2 Past and Present Exploration, Development, and Production

There has been limited production in the Sego coal field in the MPA occurring since 1898 (Doelling 1972a). Almost 2.7 million tons of coal have been produced from this field, primarily between 1912 and 1954, and primarily from one mine. The remaining small mines have produced only minor amounts of coal, primarily for ranch use (Doelling et al. 1979). There are no currently active coal mines in the MPA, but the relatively low sulfur and ash contents of the coal and the close proximity of the Sego field to roads and railroads make the coal here attractive for mining at some time in the future.

3.8.1.3.3 Occurrence and Development Potential

The area where the Cretaceous Mesaverde Group is exposed in the Sego coal field has been rated as high (H) for coal occurrence potential with D rating for certainty. The Dakota Sandstone La Sal coal field is also rated H for occurrence potential with a certainty rating of D. Because of the presence of WSAs and potential conflicts with existing oil and gas developments, the coal deposits of the MPA are rated as having low (L) development potential. The La Sal coal field is rated as having L development potential due to the thin beds and poor quality of its coal deposits. Development is not anticipated in the Sego and La Sal coal fields over the next 15 years (Map 3-4, Moab Planning Area Coal Deposit-Development Potential).

3.8.1.4 Potash and Salt

3.8.1.4.1 Resource Overview

Within the Paradox Basin portion of the MPA, potash (potassium-bearing) deposits, comprising primarily salt, sylvite, and carnallite, are hosted by the Pennsylvanian Paradox Formation. Saline potash mineralization is limited to an area totaling approximately 2,800 square miles (Dames & Moore 1978) in the northeastern half of the basin. Both sylvite and carnallite occur in varying proportions throughout most potash deposits, but sylvite is dominant in those horizons under economic consideration (Hite 1960; Dames & Moore 1978; Gloyn et al. 1995). Using a cutoff grade of 14% K_2O, Patterson (1989) estimates that known resources of K_2O potash contain 254 million tons, while inferred resources are estimated at 161 million tons. The recovery of salt in the MPA is exclusively a by-product of potash solution mining. Salt by itself is not considered economic to mine in the MPA because abundant, less expensive sources are available elsewhere.

Most of the interest in potash and salt deposits in the Paradox Basin has been concentrated in the fold and fault belt, where continuous potash beds are relatively close to the surface. The only commercial production of potash and by-product salt in the Paradox Basin (Moab Salt Company) has occurred on the Cane Creek anticline. However, other potentially valuable deposits are known to occur in the MPA. These include the Lisbon Valley area, the Seven Mile area, and the Ten Mile area. In 1960, the U.S. Geological Survey classified the Lisbon Valley area, the Seven Mile area, and the Cane Creek area as Known Potash Leasing Areas (KPLAs), or areas where potentially valuable deposits of potash are known to exist. There also appears to be sufficient resource data to define the Ten Mile area as a KPLA (BLM 2005e; Map 2-6, Known Potash Leasing Areas).

3.8.1.4.2 Past and Present Exploration, Development, and Production

Potash deposits in the Paradox Basin were initially discovered during the exploration for oil and gas between 1924 and 1944. Based on these initial discoveries, further potash exploration concentrated in Cane Creek, Seven Mile, and Lisbon Valley and contributed to the classification of these KPLAs in 1960 (Hite 1960). In the 1960s, underground mining operations were planned in the Lisbon Valley KPLA, but they were never fully developed due to technological and logistical complications (Merrell 1979). Leases within the Seven Mile KPLA have also occurred since designation of the area as a KPLA (Merrell 1979). There are currently 13 prospecting permit applications in the MPA.

Two companies in particular have shown and continue to show some interest in the potash deposits of the MPA.

Buttes Resources drilled seven exploratory holes for potash deposits in the Ten Mile area in 1978. In 1984, they expressed interest in developing the area via solution mining based on the 1978 exploration, but the project was abandoned (BLM 2005e). The company then acquired 4 inactive preference right leases and 13 prospecting permit applications for potash in the Ten Mile area. Buttes Resources has recently transferred its holdings in the leases and permit applications to Reunion Resources, which has expressed some interest in conducting a modest amount of exploration and possibly a pilot test plant for solution mining in this area in the unspecified future (Denice Swanke, BLM – MFO, personal communication 2005).

Moab Salt LLC's Cane Creek Mine, in the Cane Creek KLPA, is and has been the sole producer of potash and salt in the Paradox Basin since 1964. This solution mining operation is located on both private and state lands on the crest of the Cane Creek anticline. Almost all production has been from a zone of Salt Cycle #5 of the Paradox Formation. Production in 2000 was approximately 60,000 tons of potash per year, with a by-product of 210,000 tons of halite per year (BLM 2005e).

3.8.1.4.3 Occurrence and Development Potential

The three KPLAs (Lisbon Valley area, the Seven Mile area, and the Cane Creek area) and the Tenmile area have been classified as high (H) for occurrence potential for potash and salt with a D level of certainty. Development is likely to occur in the Tenmile area within the next 15 years. One area around the La Sal Mountains igneous intrusive has been rated as having low (L) potash and salt occurrence potential, with a C level of certainty. The remainder of the Paradox Basin area has been rated as moderate (M) potash and salt occurrence potential with a C level of certainty (Map 3-5, Moab Planning Area Potash and Salt Deposit-Development Potential).

3.8.2 Locatable Minerals

Locatable minerals comprise the base and precious metal ores, ferrous metal ores, and certain classes of industrial minerals. Developers of these minerals stake a mining claim (location) over the deposit and then acquire the necessary permits to explore or mine. Operations for locatable minerals are not allowed in areas expressly identified as not available by law (e.g., wilderness areas) or in areas withdrawn from these operations.

3.8.2.1 Uranium-Vanadium

3.8.2.1.1 Resource Overview

An important locatable commodity in the MPA is sediment-hosted uranium. It is usually found intimately associated with vanadium, and sometimes copper, because of these elements' mutual chemical affinities. Uranium-vanadium deposits in the MPA are generally found in the Moss Back Member of the Triassic Chinle Formation and the Salt Wash Member of the Jurassic Morrison Formation. Deposits in the Salt Wash Member are generally larger reserves, higher

grades, and more closely clustered (Johnson and Thordarson 1959; Chenoweth 1981, 1996). Although the Chinle and Morrison Formations are predominantly composed of shale (low-energy muds), it is the sandstone and conglomerate units (high-energy fluvial channel deposits) in each that host the uranium-vanadium mineralization. In addition to these Mesozoic deposits, the late Paleozoic Cedar Mesa Sandstone of the Permian Cutler Group contains some minor uranium-vanadium deposits (a result of an unconformity with the Chinle Formation), and some of these have had historical mining production in the MPA.

3.8.2.1.2 Past and Present Exploration, Development, and Production

Due to the recent rise in uranium prices, there is currently an increased amount of interest in uranium exploration in the MPA. Regionally, an estimated 4.2 million tons of ore reserves remain in the Four Corners region. Approximately 57% of these reserves are hosted in the Morrison, 39% in the Chinle Formation, and 4% in the Cutler Group (Johnson and Thordarson 1959; Gloyn et al. 1995).

Although uranium deposits in the MPA had been mined for over 90 years, first for their radium content and then for their vanadium co-product, it was the "Uranium Boom" beginning in the late 1940s that lead to large-scale extraction of mineral in the early 1950s (Chenoweth 1996). Exploration drilling was still being conducted as late as the 1970s to decipher the configuration of existing deposits and delineate new discoveries. However, a national and international trend of declining uranium and vanadium demand and prices and economics brought on by socio-political factors, international oversupply, and competition from lower cost producers began in the 1980s (Chenoweth 1996; BLM 2005e). The MPA's last mines and mills closed in 1990.

Historical uranium mining has been conducted over much of the southern half of the MPA. Mines developed in the Chinle Formation produced 92% of the ore between the early 1950s and the mid 1960s. However, by the mid 1970s, production from the Morrison Formation overtook and slightly exceeded that of the Chinle ($500 million vs. $600 million, respectively). Table 3.14 lists the 7 mining districts and 18 mining areas in the MPA and the uranium host deposits for each. Map 3-6, Moab Planning Area Uranium/Vanadium Deposit-Development Potential depicts these mining districts and mining areas. Table 3.15 provides a summary of historical mining production in the MPA.

Table 3.14. Historical Locations and Hosts of Uranium and Vanadium Deposits in the MPA, by Mining District

Mining District (Mining Areas)	Salt Wash Member/ Morrison Formation	Moss Back Member/ Chinle Formation	Permian Cutler Group	Other
Gateway (Buckhorn Mesa-Scharf Mesa, Polar Mesa-Beaver Mesa)	Major	Minor		Brushy Basin Member/ Morrison Formation (Minor)
Inter-river (Mineral Canyon, Inter-river, Seven Mile Canyon)		Major	Minor	Moenkopi Formation (Minor)
La Sal (La Sal, La Sal Creek)	Only			

Table 3.14. Historical Locations and Hosts of Uranium and Vanadium Deposits in the MPA, by Mining District

Mining District (Mining Areas)	Salt Wash Member/ Morrison Formation	Moss Back Member/ Chinle Formation	Permian Cutler Group	Other
Lisbon Valley*		Major	Minor	"lower member"/Chinle Formation (Major)
Moab East (Browns Hole, Brumley Ridge, Upper Cane Creek, Wilson Mesa)	Only			
Moab West (Indian Creek, Lockhart Canyon, Lower Cane Creek)		Major	Minor	
Thompson (Dewey, Klondike Ridge-Courthouse Wash, Ten Mile Canyon, Yellow Cat)	Only			

Sources: Merrell 1979; Chenoweth 1996; Sprinkel 1999; Gloyn, unpublished report 2004.

* Also known as Big Indian Wash mining area (Gloyn et al. 1995).

Table 3.15. Historical Uranium Grade and Production in the MPA, by Mining District[1]

Mining District	Number of Properties	Average Ore Grade (% U_3O_8/% V_2O_5)	Aggregate Production (million tons)
Gateway	Unknown	0.32 / 1.28	0.21
Inter-river[2]	31	0.30 / 1.20	0.49
La Sal	17	0.22 / 1.06	1.24
Lisbon Valley[3]	57	0.30 / 0.34	17.78
Moab East	5+	0.28 / 1.52	0.10
Moab West	18	0.20 / 0.10	0.07
Thompson[4]	93	0.20 / 1.13	0.14

Notes:

1. All information from Chenoweth (1996), unless otherwise noted.
2. Elevatorski 1978; BLM files and records.
3. Also known as Big Indian Wash mining area (Gloyn et al. 1995).
4. Chenoweth 1989.

3.8.2.1.3 Occurrence and Development Potential

Areas of historical uranium and vanadium mining are rated as having high (H) occurrence potential with a D for certainty. Outside these known mining areas, the areal extent of the Jurassic Morrison and Triassic Chinle Formations has been classified as having a moderate (M) occurrence potential with a C for certainty. Where mineralization in the Cutler has occurred in Lisbon Valley mining area, uranium and vanadium has a low (L) occurrence potential;

otherwise, mineralization in the Cutler is not expected. Two past mining areas, the La Sal and Lisbon Valley areas, are rated as H for development potential because they are established land holdings with significant minable reserves of uranium and vanadium and because the recent upsurge in prices makes future development in those areas likely (BLM 2005f). The remaining mining areas, including the Paradox Basin, have been rated as M for development potential, and the host formations outside past mining areas have been rated as L for development potential (Map 3-6, Moab Planning Area Uranium/Vanadium Deposit-Development Potential).

3.8.2.2 COPPER

3.8.2.2.1 RESOURCE OVERVIEW

For convenience, copper deposits are divided into two types in this section: manto-hosted and redbed-hosted. Manto deposits are generally fault zone-hosted veins and strata-bound, mineralized layers. As their name suggests, redbed copper deposits form in red host rocks, which get their color (essentially rust) from the oxidation of the rock's exposure to the atmosphere. Redbed mineralization can be either volcanic or sedimentary. Sedimentary-hosted deposits, which form in fluvial (river) environments, are the type found in the MPA. Sedimentary redbed deposits are relatively small in comparison to the volcanic redbed deposits and manto-hosted deposits, and few are ever brought into production.

Starting in the late 1960s, a series of drilling programs in the Lisbon Valley area culminated in the delineation of several, commercial-sized, sandstone fault and manto-hosted copper deposits in the Cretaceous Dakota Sandstone and Burro Canyon Formation. As described by Gloyn and others (1995) and Hahn and Thorson (2002), the three deposits are the Centennial, Sentinel, and GTO ore bodies which, combined, contain 46.5 million tons of ore grading 0.43% copper (Roberts & Schaefer 1996). There may be potential for smaller sandstone-hosted copper deposits and/or copper with less mineralization in two additional stratigraphic intervals: the Entrada Sandstone-Navajo Sandstone, and the Wingate Sandstone (BLM 2005e).

Within the MPA, redbed copper is associated with uranium found primarily in the Triassic Chinle Formation, and with other deposits found in the Jurassic Morrison Formation and the Pennsylvanian Hermosa Group (McFaul et al. 2000). Similar, low-grade copper/uranium associations can be found in the Inter-river, Lower Cane Creek, and Lisbon Valley mining areas. The greatest potential for economically viable development of redbed copper appears to be in the northwest part of the Klondike Ridge-Courthouse Wash area on the southwest flank of the Salt Valley anticline, where mineralization is found in the upper sandstones of the Salt Wash Member and, to some degree, the Brushy Basin Member of the Morrison Formation (Doelling et al. 1988).

3.8.2.2.2 PAST AND PRESENT EXPLORATION, DEVELOPMENT, AND PRODUCTION

Copper development in the MPA began in the 1890s with the production of high-grade copper-oxide ores, primarily from the Big Indian and Blackbird Mines in the Lisbon Valley area (Hahn and Thorson 2002), which are responsible for the bulk of the copper that has been produced in the MPA. Approximately 155,000 tons of ore, with an average grade of 1.5% copper, were extracted from these mining operations up through 1960 (Gloyn et al. 1995). Numerous other

exploration programs from the 1960s through 1995 resulted in the delineation of commercial copper reserves in the Lisbon Valley area (BLM 2005e). Most redbed-hosted copper occurrences in the MPA are too small and low-grade to be commercially mined, except for the copper occurrences in the Morrison Formation on the southwest flank of the Salt Valley anticline.

Dane (1935) also reports several small mines and an old mill in Mill Canyon along the Sevenmile fault, where the Moab Tongue of the Entrada Formation mineralizes. An unreported but large tonnage of low-grade copper has been drilled out in this area (Merrell 1979).

A new copper-mining operation is being conducted in the MPA. The Summo Corporation, in a project referred to as the Lisbon Valley Copper Project, prepared to remove ore from the Centennial, Sentinel, and GTO deposits near the southeast end of the Lisbon Valley anticline beginning in 1997. There have been several delays in the development of the mine-mill complex, but presently, full production at the mine began in 2006 (Constellation Copper 2006). The Constellation Copper Corporation (formerly Summo Corporation), through its wholly owned subsidiary, Lisbon Valley Mining Company, currently controls the property, which is located primarily on Federal lands but also on state and private lands. A total of 1,103 acres will be disturbed by the development of facilities and production (BLM 1997b).

- Phil Gramlich submitted a drilling proposal to the BLM in November 2004 to drill on the Charlie #2 claim in the Salt Valley anticline area. The purpose of the proposal was to delineate an ore body in the Salt Wash Member of the Morrison Formation identified 20 years ago. This drilling was conducted, but indications are that the results were not favorable (Brent Northrup, BLM, personal communication 2005).

3.8.2.2.3 Occurrence and Development Potential

The sites of manto-hosted copper in the Burro Canyon Formation and Dakota Sandstone along the Lisbon fault in the Lisbon Valley area have been classified as high (H) for occurrence potential with a high (D) degree of certainty because of the known deposits of the Centennial, Sentinel, and GTO ore bodies. These ore bodies, as well as the Constellation Copper's Lisbon Valley mine and the Dakota-Burro Canyon-Cedar Mountain trend along the northern flank of the Lisbon Valley anticline, are rated H for development potential. Outside these known sites, the Burro Canyon and Dakota Sandstone hosts are rated moderate (M) for occurrence potential with a C level of certainty. Based on available information, there is a high (H) occurrence potential with a high degree (D) of certainty of redbed copper deposits in the Chinle Formation in the Inter-river and Cane Creek uranium areas; the Morrison Formation in the Moab and Klondike Wash-Courthouse Wash areas; and the Pennsylvanian Hermosa Group and Morrison Formation in the Lisbon Valley area. Other than the Morrison Formation of the Klondike Wash-Courthouse Wash area, which is rated H for development potential, the remaining redbed copper-uranium deposits of the MPA are rated low (L) for development potential (Map 3-7, Moab Planning Area Copper Deposit-Development Potential).

The Lisbon Valley Copper Project, involving the Centennial, Sentinel, and GTO copper deposits, has been approved, initial operations have commenced, and copper production began in early 2006. The project includes development of three open pits to access copper ore, three waste dumps, crushing facilities, a pad to leach the ore (266 acre), a processing plan and ponds to

recover the ore, construction of a 10.8-mile power line to the project site, and associated support facilities. The total disturbance area would be 1103 acres over a 10-year period, with reclamation taking an additional 5 years to complete. Additional drilling is occurring about 4 miles southeast of the Lisbon Valley Project in the Flying Diamond target area involving about 5 acres of disturbance.

3.8.2.3 Placer Gold

3.8.2.3.1 Resource Overview

Placer gold in the MPA occurs primarily along the Colorado River, from the mouth of the Dolores River downstream to Moab, and at a few other places along these two rivers. The gold occurs in alluvial bars and has been found in high-level terraces as much as 200 feet above the present Colorado River. It is commonly distributed uniformly throughout the gravels rather than concentrated along the bedrock contact, but it may occur in slightly higher concentrations on the upstream end of bars and higher terraces (Butler et al. 1920; Chatman 1987). A secondary set of gold placers occurs west and north of the La Sal Mountains, at Miners Basin, Placer Creek, and Wilson and Bald Mesas, in glacial deposits up to 50 feet thick (Johnson 1973). Because of the gold's derivation, the most highly weathered glacial gravels in these areas offer the highest concentrations of gold (Johnson 1973). Pre-Wisconsin glacial gravels on Wilson and Bald Mesas exhibit the higher concentrations of placer gold (Johnson 1973; Merrell 1979; Shubat et al. 1991), and operations on Wilson Mesa have been among the most productive.

3.8.2.3.2 Past and Present Exploration, Development, and Production

Due to the fine flaky mode of the gold (flakes less than 0.1 mm, average; Butler et al. 1920) and the difficulty in recovering it, most operations have not been commercially successful (Butler et al. 1920; UGMS 1966; Johnson 1973; Chatman 1987). The gold grades of historical placer operations range from 0.03 to 0.05 ounces per cubic yard (Gloyn et al. 1995). After over 100 years of effort, only about 1,500 ounces of gold has been produced from gravels of the Colorado River and other streams in Grand County (Johnson 1973; Shubat et al. 1991).

Placer gold was worked almost continuously along the Colorado and Dolores Rivers, as well as in the Miners Basin/Wilson and Bald Mesas area, from the late 1800s until 1942, but only sporadically thereafter (Johnson 1973; Merrell 1979). Since 1998, activity has essentially ceased in the MPA.

3.8.2.3.3 Occurrence and Development Potential

Within the MPA, the alluvial deposits along the Colorado and Dolores Rivers and the glacial deposits in the La Sal Mountains, where placer gold has been produced at some locations, are classified as having high (H) gold occurrence potential, with a D certainty level. However, the development potential for placer gold at these locations is rated as low (L), partially because of the low economic potential (Butler et al. 1920; UGMS 1966; Johnson 1973; Chatman 1987), and partially because of the Secretary of the Interior's recent Three Rivers withdrawal (September 2004) of lands covering the river drainages that prevent the location of new mining claims along

the affected river corridors for the next 50 years (BLM 2005f; see also Chapter 2 regarding withdrawals). Development of the placer gold contained in the alluvial deposits along the Colorado and Dolores Rivers is considered unlikely in the next 15 years.

3.8.2.4 LIMESTONE

3.8.2.4.1 RESOURCE OVERVIEW

High-calcium limestone is rare in the MPA because exposures of Paleozoic carbonate units are limited. Limestone exploration and production has been limited to the southern portion of the mining area, along the southwest flank of the Lisbon Valley anticline. Here, the Pennsylvanian Honaker Trail Formation of the Hermosa Group, which contains limited amounts of relatively high-quality limestone (Gloyn et al. 1995), crops out as a 12- to 15-foot-thick limestone bed. This good-quality, readily minable deposit has about 6 million tons of reserves on state land and an additional 3 million tons on adjacent Federal land (Reed 1996).

3.8.2.4.2 PAST AND PRESENT EXPLORATION, DEVELOPMENT, AND PRODUCTION

High-calcium limestone (95% calcium carbonate, or $CaCO_3$) has been produced at Cotter Corporation's Lisbon Valley quarry (Papoose Mine; Reed 1996), located on state land at the north end of Lisbon Valley. Between 1994 and 2003, this operation produced approximately 550,000 tons of limestone (UDOGM 2004). One other, small, permitted but inactive limestone quarry occurs in the Lisbon Valley area. Records from UDOGM (2004) for the Lilim Claims quarry list Chris Shumway as the operator.

3.8.2.4.3 OCCURRENCE AND DEVELOPMENT POTENTIAL

The identified Honaker Trail limestone deposits in the Lisbon Valley area of the MPA have been rated as having high (H) occurrence potential with a D level of certainty. Elsewhere in the MPA, the Honaker Trail Formation limestone exposures are characterized as having moderate (M) occurrence potential with a C level of certainty. The development potential for the Lisbon Valley limestone deposits in the MPA is rated as H. All other areas of Honaker Trail exposures in the MPA are rated as having M development potential (Map 3-8, Moab Planning Area Limestone Deposit-Development Potential).

Limestone production is projected to continue at Cotter Corporation's Lisbon Valley quarry, which is located on state land. Based on the size of the existing reserves and current production rates, any future exploration and development of limestone in the MPA is anticipated to remain on state land in this area for the next 15 years. Therefore, no development of limestone is expected on Federal lands in the MPA over the next 15 years.

3.8.3 SALABLE MINERALS

Salable minerals are commodities disposed of via sales or free use (government agencies and municipalities) by the Federal government and generally comprise common varieties of construction materials and aggregates. The BLM will not dispose of salable minerals in areas not

available by law (e.g., wilderness areas) or in areas identified in land-use plans as not appropriate for disposal. Current management of salable minerals allows their disposal on 7,750 acres within the MPA, and there are currently 12 community pits totaling about 2,693 acres within the MPA.

3.8.3.1 Sand and Gravel

3.8.3.1.1 Resource Overview

Sand and gravel development is largely driven by the need to find suitable material for public works projects, including local and state road projects and community development. Sand and gravel operations are widely dispersed across the MPA—and Utah—to facilitate distribution of the materials and keep the costs to consumers low. They are commonly found near population centers and aligned along roadways.

Sand and gravel deposits in the MPA consist of unconsolidated Quaternary sediments. Important sand and gravel deposits occur along the major river courses—the Colorado, Dolores, and Green Rivers—as alluvial bars and terraces. The rock fragments in these deposits are especially hard, which makes them suitable for most uses, including concrete aggregate. Other important and widely used sand and gravel deposits surround the La Sal Mountains and occur as pediments and alluvial fill and fans. Less important and lower-quality sand and gravel can be found in the eolian sands derived from the Entrada Sandstone and the Glen Canyon Group; alluvium (not derived from the La Sal Mountains) along tributaries to the major rivers; and glacial moraines.

3.8.3.1.2 Past and Present Exploration, Development, and Production

In the MPA, most past production has occurred in close proximity to existing roads. The BLM has granted 57 sand/gravel authorizations within the MPA since 1989, and since 1982, approximately 200,000 cubic yards of sand/gravel have been produced from BLM-authorized areas in the MPA (BLM 2005e). The main producers are the Utah Department of Transportation and the Grand County Highway Department.

3.8.3.1.3 Occurrence and Development Potential

Sand and gravel deposits are associated with Quaternary sediments. All these deposits are rated as high (H) for occurrence potential, with a C level of certainty; the specific, known sand and gravel sites are elevated to D level of certainty for occurrence potential. Those sand and gravel deposits that lie within three miles of existing roads have been rated as having an H development potential; the areas within the WSAs have been rated as having low (L) development potential, and the remaining areas have been rated moderate (M) development potential. Development of sand and gravel deposits is anticipated to occur over the next 15 years in the areas rated as high development potential (Map 3-9, Moab Planning Area Sand and Gravel Deposit-Development Potential).

3.8.3.2 Building Stone

3.8.3.2.1 Resource Overview

Sandstone appropriate for use as a high-quality building stone can be found in the Triassic Moenkopi and Chinle Formations and the Jurassic Kayenta and Morrison Formations (Merrell 1979; Atwood and Doelling 1982; BLM 2005e). The Cretaceous Dakota Sandstone may also be a source of building stone in the MPA, as it is south of the MPA, near Blanding, Utah. The Kayenta Formation, which naturally fractures into useable-sized blocks, appears to be the most favorable source in the MPA for building stone.

3.8.3.2.2 Past and Present Exploration, Development, and Production

Approximately 700 tons of building stone have been produced from reported BLM-authorized activities in the MPA since 1982 (BLM 2005e; Denice Swanke, BLM – MFO, personal communication June 2003). The four main host formations (i.e., the Moenkopi, Chinle, Kayenta, and Morrison Formations) each contributed to the total yield of building stone during this period. Most disposal of building stone in the MPA consists of small sales (5 tons or less) to individuals in the local area for personal use; 106 small sales of building stone occurred between 1989 and 2004 (BLM 2005e). No permits for any large-scale building stone operations have been authorized in the recent past.

3.8.3.2.3 Occurrence and Development Potential

Known sites of building stone production in the MPA are rated as high (H) for occurrence potential with a D level for certainty. Elsewhere in the MPA, the exposed outcrop areas for the formations mentioned above have been classified as moderate (M) for building stone occurrence potential and with a C level of certainty. Development potential is rated as H for the known building stone sites in the MPA and is rated as M elsewhere where favorable formations for building stone occur. Within the existing WSAs, which have been administratively withdrawn, the development potential is rated as low (L). Development of building stone is likely to occur over the next 15 years in the areas rated as high development potential (Map 3-10, Building Stone Deposit-Development Potential).

3.8.3.3 Travertine

3.8.3.3.1 Resource Overview

Travertine is a type of calcium carbonate ($CaCO_3$) that is frequently mined and sold as an ornamental stone (BLM 2005e). Travertine deposits are not extensive in the MPA. They occur intermittently as old geyser deposits and vein-filling along faults in a 50- to 100-square-mile area near the Green River that extends south from the town of Green River, Utah). In the MPA, travertine of the geyserite variety is known to occur along faults where thermal springs precipitate calcium carbonate.

3.8.3.3.2 Past and Present Exploration, Development, and Production

There have been only a few small-scale attempts to produce travertine in the MPA. Since 1982, four authorizations have been issued for travertine exploration/production near the town of Green River (BLM 2005e), and since 1988, quarries in the MPA have yielded only approximately 160 tons of travertine (BLM 2005e). Deloy Shumway operates a small travertine quarry, named the Travertine #8 & 9, which has disturbed less than 5 acres in Section 25 of T22S, R16E. A second small travertine quarry, the Judy #1, is operated by Richard Bedier in Section 35 of T21S, R16E (Bon and Wakefield 2002a, 2002b).

3.8.3.3.3 Occurrence and Development Potential

Known travertine sites in this area are characterized as having high (H) occurrence potential with D certainty level. Elsewhere near the town of Green River, travertine faulting is given a moderate (M) occurrence potential with a C level of certainty. Though past production has been limited, the known sites of travertine are rated as H for development potential, and the remainder of the identified travertine area is rated as having M development potential. Development of travertine is considered likely over the next 15 years in the areas rated with high development potential (Map 3-11, Moab Planning Area Travertine Deposit-Development Potential).

3.8.3.4 Humate

3.8.3.4.1 Resource Overview

Humate is derived from plant debris associated with carbonaceous shales or coals that were deposited in a swampy, continental environment. Its most desirable feature is its humic acid content, which is used to enhance soil productivity (Jackson 1983). Other lesser uses of humate include neutralization of acid wastewater through the formation of insoluble humic acids and the removal of heavy metals by chelation or precipitation in insoluble humate.

3.8.3.4.2 Past and Present Exploration, Development, and Production

To-date, no commercial humate production has been conducted in the MPA. Limited mapping and surface-sampling have identified potentially minable humate deposits at two locations in the east-central portion of the MPA.

Jackson (1983) reports and Ellis and Hopeck (1985) confirm that one humate deposit occurs as a 20- to 30-foot-thick, 15-mile-long, carbonaceous and coaly shale zone in the middle to lower portions of the Cretaceous Dakota Sandstone southeast of Harley Dome, outcropping in some places. At least 1.12 million tons of humate-bearing material is present over a 250-acre tract at this location. Limited sampling has shown the humate to contain 45–50% total organics and 25% total humic acids. BLM records (2005g) indicate there have been two proposed operations involving this deposit since 1988, though no development activity has ever occurred.

Seal (2002) only generally describes the second humate deposit as being located approximately three miles southeast of Crescent Junction. No details on the amount and grade of humate are reported for this deposit, which occurs on land belonging to the Utah School and Institutional

Trust Lands Administration (SITLA). A notice posted by SITLA on February 12, 2003 states that a humic shale mining and processing operation was proposed on their lands in Section 14 of T22S, R19E.

3.8.3.4.3 Occurrence and Development Potential

Known humate resources in the MPA are rated as having a high (H) occurrence potential with D certainty. Elsewhere in the MPA, the Cretaceous Dakota Sandstone exposures are rated as having moderate (M) occurrence potential with C certainty. The known sites near Crescent Junction and Harley Dome are rated H for development potential, and most of the rest of the Cretaceous Dakota Sandstone outcrops are rated as M for development potential. Some interest in mining the Harley Dome deposit has been expressed and development in this area is considered likely over the next 15 years (Map 3-12, Moab Planning Area Humate Deposit-Development Potential).

3.8.3.5 Clay

3.8.3.5.1 Resource Overview

Clay deposits are widespread in the MPA but have been little used or tested. Bentonite and bentonitic clays are among the most desirable; they swell when saturated with water and can be used as a natural sealant for reservoirs, stock ponds, ditches, and landfills. According to Merrell (1979), bentonite clay occurs in the upper Chinle Formation, the Monitor Butte Member of the Chinle Formation, and the Brushy Basin Member of the Morrison Formation. In the MPA, in Lisbon Valley, clay samples from the Brushy Basin Member have a bentonite content exceeding 90% (Gloyn et al. 1995). The Morrison Formation has been the focus of most clay exploration and development in the MPA.

3.8.3.5.2 Past and Present Exploration, Development, and Production

Exploration and production of clay within the past 20 years has been as follows.

Within the MPA, the Grand County Water Conservancy District has periodically mined bentonitic clay from the Brushy Basin at the Spanish Valley Pit (Section 18 of T27S, R23E) in northernmost San Juan County (Gloyn et al 1995). Reported production includes 400 cubic yards of bentonitic clay in 1989 and 1,872 cubic yards of the same material in 1992. The host is presumed to be the Morrison Formation (Gloyn et al. 1995).

Since 1989, approximately 4,250 cubic yards of clay have also been reportedly produced in the MPA under two separate BLM authorizations (BLM 2005e). The source of these clays is also presumed to be the Morrison. New disturbance for these authorizations totaled 16,500 cubic yards (BLM 2005e).

3.8.3.5.3 Occurrence and Development Potential

Given the available information, known clay sites occurring in the Morrison Formation in the MPA have been classified as high (H) for occurrence potential with a D level of certainty, and have also been classified as H for development potential. Elsewhere in the MPA, the Morrison Formation has been classified as having moderate (M) potential and C certainty for the occurrence of bentonite in the MPA and has been classified as having M development potential. Development of clay is considered likely over the next 15 years in the areas rated as high development potential (Map 3-13, Moab Planning Area Clay Deposit- Development Potential).

3.9 Non-WSA Lands with Wilderness Characteristics

3.9.1 Resource Overview

Since wilderness study areas (WSAs) were established in the 1980s, designation and protection of wilderness in Utah has become a prominent national issue. For more than 20 years, the public has debated which lands have wilderness characteristics and should be considered by Congress for wilderness designation. As a result of the debate (and a significant passage of time since BLM's original inventories), in 1996 the Secretary of the Interior directed BLM to take another look at some of the lands in question. In response to the direction of the Secretary, BLM inventoried these lands and approximately 2.6 million acres of public land statewide (outside of existing WSAs) were found to have wilderness characteristics (1999 Utah Wilderness Inventory).

In September 2005, the BLM and the State of Utah, the Utah School and Institutional Trust Land Administration (SITLA), and the Utah Association of Counties (collectively "Utah") reached an agreement negotiated to settle a lawsuit originally brought in 1996 by Utah, challenging the BLM's authority to conduct new wilderness inventories. The settlement stipulated that the BLM's authority to designate new WSAs expired no later than October 21, 1993. The BLM, however, does have the authority to conduct inventories for characteristics associated with the concept of wilderness and to consider management of these values in its land-use planning process. The BLM's Land-use Planning Handbook (H-1601-1) states that decisions on whether or not to protect wilderness characteristics are to be considered during planning.

Non-WSA lands with wilderness characteristics are those that have the appearance of naturalness and outstanding opportunities for solitude or primitive and unconfined recreation. Non-WSA lands with wilderness characteristics are areas having 5,000 acres, or areas less than 5,000 acres that are contiguous to designated wilderness, WSAs, or other administratively endorsed for wilderness management lands; or, in accordance with the Wilderness Act's language, areas "of sufficient size as to make practicable its preservation and use in and unimpaired condition." BLM used the same criteria for determining wilderness characteristics as in the 1979 wilderness inventory. The 5,000-acre value was helpful to BLM in making preliminary judgments, but it was not considered a limiting factor. Please refer to Appendix P, "Identification of Wilderness Characteristics on Non-WSA Lands Managed by the Moab BLM" for more information.

Detailed information about non-WSA lands with wilderness characteristics is part of the administrative record for this RMP/EIS. The following records are available for public review at the Moab Field Office: 1)1999 Utah Wilderness Inventory; 2) 1999 Utah Wilderness Inventory Revision Document for the Moab Field Office; 3) 1999 Utah Wilderness Inventory Case Files for the Moab Field Office; 4) Reasonable Probability Determinations for the Moab Field Office; and 5) Documentation of Wilderness Characteristics Review for the Moab Field Office.

3.9.1.1 NON-WSA LANDS WITH WILDERNESS CHARACTERISTICS FROM THE *1999 UTAH WILDERNESS INVENTORY*

Non-WSA lands with wilderness characteristics include areas inventoried by BLM in the *1999 Utah Wilderness Inventory*. Based on subsequent public comments and after conducting additional field checks, the BLM revised the inventory in 2003. The revised inventory identified 22 wilderness inventory areas (WIAs) totaling 190,432 acres under MFO jurisdiction possessing wilderness characteristics. The revised inventory also identified portions of the WIAs totaling 108,733 acres that do not have wilderness characteristics. The inventory findings for lands administered by the MFO are summarized in Table 3.16 and depicted in Map 2-24-B. These lands are currently managed according to the existing Grand Resource Management Plan (RMP).

Table 3.16. Non-WSA Lands Inventoried in the *1999 Utah Wilderness Inventory* (revised 2003), Total Acreage and Acreage with and without Wilderness Characteristics

Name	Total Acreage	Acreage with Wilderness Characteristics (WC)	Acreage without Wilderness Characteristics (NWC)
Beaver Creek	33,357	25,722	7,635
*Behind the Rocks	7,961	3,381	4,580
*Coal Canyon	15,229	13,850	1,379
*Desolation Canyon	10,690	10,498	192
Fisher Towers	17,095	16,668	427
*Floy Canyon	12,228	9,983	2,245
*Flume Canyon	5,344	3,563	1,781
Goldbar	12,876	6,106	6,770
Gooseneck	5,540	1,040 [3]	4,500
Granite Creek	5,328	4,528	800
Harts Point (MFO)[1]	NA	1,568	NA
Hatch Wash	24,096	10,979	13,117
Hunter Canyon	4,492	4,462	30
Labyrinth Canyon	68,717	24,300	38,969
*Lost Spring Canyon	12,661	11,456	1,205
Mary Jane Canyon	25,158	24,748	410
*Mill Creek Canyon	6,684	3,394	3,290
*Negro Bill Canyon	13,724	2,324	11,400
Shafer Canyon	3,045	1,845	1,200

Table 3.16. Non-WSA Lands Inventoried in the *1999 Utah Wilderness Inventory* (revised 2003), Total Acreage and Acreage with and without Wilderness Characteristics

Name	Total Acreage	Acreage with Wilderness Characteristics (WC)	Acreage without Wilderness Characteristics (NWC)
*Spruce Canyon	2,213	1,131	1,082
*Westwater Canyon	2,073	1,193	770
Westwater Creek	9,100	8,701	399
Total	**299,939**	**190,440**	**108,733**

Areas marked with an asterisk [*] are contiguous with a WSA of the same name.

[1]The majority of the Harts Point unit is in the Monticello Field Office. Acreage with wilderness characteristics is within the MPA only.

3.9.1.2 Non-WSA Lands With Wilderness Characteristics from Wilderness Characteristics Review

In addition to the lands that were inventoried in the 1999 Utah Wilderness Inventory as described above, additional lands in the MPA have been reviewed for wilderness characteristics by BLM. These are lands currently proposed for wilderness as part of S.1170, America's Red Rock Wilderness Act of 2007, and are neither WSAs nor WIAs. (Note: The Act has been introduced in this year's Congress as S.1170.) Table 3.17 identifies the areas considered and summarizes the determinations made by the BLM regarding each non-WSA area's wilderness characteristics. The wilderness characteristics review process involved use of a BLM interdisciplinary team that reviewed available information and followed up with field trips where necessary. Refer to Appendix P - Identification of Wilderness Characteristics on Non-WSA Lands Managed by the Moab BLM for more information. Map 2-24B shows non-WSA lands with wilderness characteristics (WC) within the MPA, including findings made in the 1999 Utah Wilderness Inventory and findings made through the wilderness characteristics review process. The process used by the BLM to determine the non-WSA acreage with wilderness characteristics consisted of several steps. BLM used a combination of field visits, data layers including roads, vegetative treatments, (especially chaining), range improvements, and rights-of-way, aerial photography interpretation, and interdisciplinary review to reach a conclusion on those acreages that have wilderness characteristics. Setbacks from 3 to 91 meters were placed on all routes, depending upon the type of route.

3.9.2 Management Direction for Non-WSA Lands with Wilderness Characteristics

Non-WSA lands with wilderness characteristics are managed in accordance with existing land-use plans. Refer to the no action alternative discussion in Chapter 2 for how non-WSA lands with wilderness characteristics are currently managed.

Table 3.17. Non-WSA Lands with and without Wilderness Characteristics (WC and NWC, Respectively) from Wilderness Characteristics Review

Name	Total Acres[1]	Acres with WC	Acres with NWC	Comments[2]
Arches Adjacent	11,410	6,396	5,014	Adjacent to Arches NP/AE.
Beaver Creek	9294	0	9294	Adjacent to Beaver Creek WIA/WC.
Behind the Rocks	286	262	26	Adjacent to Behind the Rocks WIA/WC or WSA.
Big Triangle	20,542	5,200	15,342	
Coyote Wash	28,069	0	28,069	
Dead Horse Cliffs	2,346	796	1,550	Adjacent to WIA/WC or Canyonlands NP/AE.
Diamond Canyon*	15,467	7,759	7,708	Adjacent to WIA/WC or WSA.
Dome Plateau	25,818	14,206	11,612	
Duma Point	14,698	0	14,368	
Fisher Towers	1,740	556	1,184	Adjacent to WIA/WC.
Goldbar Canyon	435	329	106	Adjacent to WIA/WC.
Gooseneck	53	38	15	Adjacent to WIA/WC.
Hatch/Lockhart	46,729	2,679	44,050	Adjacent to WC in Monticello FO.
Hells Hole	2,540	2,538	2	Adjacent to WC in Vernal FO.
Hideout Canyon	12,269	11,607	662	
Horsethief Point	14,172	8,358	5,814	Adjacent to WIA/WC or Canyonlands NP/AE.
Labyrinth Canyon	21,189	550	20,639	
Mary Jane Canyon	86	31	55	Adjacent to WIA/WC.
Mexico Point	12,837	12,837	0	
Mill Creek Canyon	1,028	0	1,028	
Morning Glory**	96	6	87	Adjacent to WIA/WC or WSA.
Porcupine Rim**	67	3	64	Adjacent to WIA/WC or WSA.
Renegade Point	6,635	0	6,635	
Survey Point	10	0	10	Majority of unit in Vernal FO.
Westwater Canyon	4,509	758	3,751	

Table 3.17. Non-WSA Lands with and without Wilderness Characteristics (WC and NWC, Respectively) from Wilderness Characteristics Review

Name	Total Acres[1]	Acres with WC	Acres with NWC	Comments[2]
Yellow Bird	2,212	358	1,854	Adjacent to WIA/WC or Arches NP/AE.
Total	**254,017**	**75,279**	**178,561**	

[1] Public lands managed by MFO. Excludes acreage encompassed by state lands, Wilderness Study Areas, and lands inventoried by BLM in 1999 (both with and without wilderness characteristics).

[2] FO = Field Office

* Joined with Non-WSA Lands with WC in Coal Canyon for purposes of analysis.

** Joined with Non-WSA Lands with WC in Negro Bill Canyon for purposes of analysis.

3.10 PALEONTOLOGICAL RESOURCES

3.10.1 RESOURCE OVERVIEW

Paleontology is a biological and geological scientific discipline involving the study of fossil materials. Paleontological resources, or fossils, include the body remains, traces, or imprints of plants or animals that have been preserved in the earth's crust since some past geologic time. Among paleontologists, fossils are generally considered to be scientifically significant if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of the science. The BLM considers all vertebrate fossils to be scientifically significant. Invertebrate and plant fossils may be determined to be significant on a case-by-case basis. Petrified wood is treated as a mineral material and may be collected or purchased under the Material Sales Act of 1947 (as amended) but cannot be obtained under the General Mining Law of 1872.

The types of fossils preserved in a sedimentary rock sequence depend on the geologic age of the rocks in which they occur and the environment in which the sediments that comprise the rocks accumulated. The types of rocks that crop out (are exposed) at the surface of an area and can potentially yield fossils is the result of geologic (depositional, structural, and erosional) history.

Geologic formations and sediments exposed at the surface of the MPA, range from Precambrian to Recent in age (See Map 3-14, Generalized Geology of the Planning Area). Fossil-bearing sedimentary rocks range in age from Pennsylvanian to Quaternary in age and include parts of the three great periods of earth history during the Phanerozoic (*phaneros,* meaning visible, *zoic,* meaning life), the Paleozoic, Mesozoic, and Cenozoic. Fossils preserved in these deposits include invertebrate, vertebrate, and plant fossils. Vertebrate fossils include the body remains of fish, amphibians, reptiles (including dinosaurs), mammals, and birds, as well as their tracks and traces. These fossils occur in rocks of Pennsylvanian, Permian, Triassic, Jurassic, Cretaceous, Tertiary, and Quaternary age and include specimens unique to this area.

A search of the Utah Geological Survey (UGS) fossil database in Salt Lake City revealed a total of 246 fossil localities in the MPA (Hayden 2003). Of the 246 fossil localities identified: 22 are vertebrate localities; 24 are invertebrate localities; 23 are plant localities; and 8 are known to be

trace fossil localities. Details are lacking about the fossils identified for the other 177 known localities. Information from this database, supplemented by publications and personal experience, document that vertebrate fossils (which the BLM considers of scientific significance) are known from at least 20 geologic units that crop out in the planning area.

Additionally, a portion of the Dinosaur Diamond Prehistoric National Byway runs through the planning area. The Dinosaur Diamond Prehistoric Byway is a 512-mile driving route through Colorado and Utah that has educational kiosks and displays of dinosaur tracks and remains. Some sites have reconstructed skeletons and fleshed out recreations of dinosaurs. The portion in the planning area runs south from I-70 on Highway 191 to Moab and returns to I-70 via Highway 128.

The BLM favors the development of museum exhibits and informational kiosks or similar developments at roadside turnouts over the interpretation of areas where fossils remain in the ground. These projects provide opportunities for learning and enjoyment. There may be substantial risk of damage or unauthorized collecting of fossils by the public in interpretive areas that are not staffed.

3.10.2 Current Management Practices

The BLM has identified four objectives for the management of fossil resources on lands it administers. They are: 1) locating, evaluating, managing, and protecting fossil resources; 2) facilitating appropriate scientific, educational and recreational uses of fossils; 3) ensuring that proposed land uses do not inadvertently damage or destroy important fossil resources; and 4) fostering public awareness of the Nation's rich paleontological heritage (BLM 1998b:01). Uniform procedural guidance for management of paleontological resources on BLM lands is provided by *Paleontological Resources Handbook 8270-I*.

Collection of fossils from BLM lands in the MPA is allowed with some restrictions, depending on the significance of the fossils. Under existing regulations, hobby collection of common invertebrate or plant fossils by the public is allowed in reasonable quantities using hand tools. The public is also allowed to collect petrified wood without a permit for personal noncommercial purposes. People can collect up to 25 pounds plus one piece per person per day, with a maximum of 250 pounds in one calendar year. Current regulations do not allow any commercial collecting of paleontological resources.

Collection of significant fossils, which includes all vertebrate and any so designated plant or invertebrate fossils can only be done by obtaining a permit that is issued to qualified researchers. Vertebrate fossils are the remains or traces of fish, turtles, dinosaurs, mammals, reptiles, and birds, and include material such as fossil bones, teeth, tracks, coprolites, and burrows. Significant plant and invertebrate fossils are determined on a case-by-case basis and must be identified in decision documents.

Two types of paleontological use permits are issued. The basic permit is a survey and limited collection permit, issued for reconnaissance work and collection of surface finds, with a one square meter limit on surface disturbance. If disturbance during the paleontological work will

exceed one square meter, or will require mechanized equipment, the researcher must apply for an excavation permit. Prior to authorization of an excavation permit, BLM must prepare an environmental assessment of the proposed location. All fossils collected under a permit remain public property, must be placed in an approved repository, and can never be sold. Annual reports of findings including locality and specimen information are required to be submitted to the BLM. Researchers may have multiple active permits.

3.10.3 Resource Demand and Analysis

Recreational fossil collecting of common invertebrates, plants and petrified wood is appropriate on most lands administered by the BLM, except in developed recreation areas and other special management areas, such as Special Recreation Management Areas (SRMAs) or where otherwise posted. Recreational collecting of vertebrate fossils, as well as noteworthy fossil invertebrates and plants is prohibited on all BLM administered lands.

Professional paleontologists conducting research or assessment and mitigation are regulated through the permit process. The BLM issues about a half-dozen permits a year specifically for the MPA (L. Bryant, personal communication 2003). There are also about 12 statewide research permits allowing surface collecting/reconnaissance that include the planning area. The BLM also issues about 8 consulting permits annually in Utah and all of these are statewide and thus include the planning area.

Amateur fossil collectors and hobbyists may collect reasonable amounts of common invertebrate and plant fossils on public lands. The number of people involved in this activity is unknown. The MFO deals with about 10 inquiries a year regarding fossil collection. Further interest in fossil collection is demonstrated by the existence of a local rock-hounding club known as Points and Pebbles. In addition, hikers, mountain bikers, and other outdoor enthusiasts sometimes accidentally discover fossil remains. Some of these discoveries are passed on to the appropriate agencies, but some are not. Certainly many important paleontological discoveries have been and will continue to be made by amateur or accidental paleontologists, but the number of such discoveries is also unknown.

3.10.4 Issues and Concerns

Fossil theft and vandalism occur with some regularity throughout the MPA. Increased access results in increased theft and vandalism. Only a small number of these occurrences are ever prosecuted. Escalating commercial values of fossils also mean that fossils on Federal lands are increasingly subject to theft and vandalism. These crimes reduce scientific and public access to scientifically significant and instructive fossils and destroy the contextual information critical for interpreting the fossils. Within the planning area, illegal casting of dinosaur tracks is particularly a problem.

3.10.5 Resource Capability and Condition

Occurrences of paleontological resources are closely related to the geologic units that contain them. The potential for finding important paleontological resources can therefore be broadly

predicted by the presence of the pertinent geologic units at or near the surface. Therefore, geologic mapping can be used as a proxy for assessing the potential for the occurrence of important paleontological resources. The Potential Fossil Yield Classification (PFYC) system was originally developed by the U.S. Forest Service's Paleontology Center of Excellence and the Region 2 (USFS) Paleo Initiative (1996). It is in the process of being formally adopted by the BLM to promote consistency between agencies and throughout the BLM. The PFYC is appropriate for land-use planning efforts and for the preliminary assessment of potential impacts and mitigation needs for specific projects.

Under the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or uncommon invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. This classification is best applied at the geologic formation or member level. It is not intended to be an assessment of whether important fossils are known to occur occasionally in these units (i.e. a few important fossils or localities widely scattered throughout a formation does not necessarily indicate a higher class), nor is it intended to be applied to specific sites or areas. The classification system is intended to provide baseline guidance to assessing and mitigating impacts to paleontological resources. In many situations, the classification should be an intermediate step in the analysis, and should be used to assess additional mitigation needs. PFYC classes are defined in detail below:

Class 1: Geologic units that are unlikely to contain recognizable fossil remains. This includes units that are igneous or metamorphic in origin (but excludes tuffs), as well as units that are Precambrian in age or older. Management concern for paleontological resources in *Class 1* units is negligible or not applicable. No assessment or mitigation is needed except in very rare circumstances. The occurrence of significant fossils in *Class 1* units is non-existent or extremely rare.

Class 2: Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. This includes units in which vertebrate or significant nonvertebrate fossils are unknown or very rare, units that are younger than 10,000 years before present, units that are aeolian in origin, and units which exhibit significant diagenetic alteration (physical changes in rock which occur over time such as compaction, cementation, mineral replacement). The potential for impacting vertebrate fossils or uncommon invertebrate or plant fossils is low. Management concern for paleontological resources is low, and management actions are not likely to be needed. Localities containing important resources may exist, but would be rare and would not influence the classification.

Class 3: Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. These units are often marine in origin with sporadic known occurrences of vertebrate fossils. Vertebrate fossils and uncommon nonvertebrate fossils are known to occur inconsistently, and predictability is known to be low. *Class* 3 includes units that are poorly studied and/or poorly documented, so that the potential yield cannot be assigned without ground reconnaissance. Management concern for paleontological resources in these units is moderate, or cannot be determined from existing

data. Surface-disturbing activities may require field assessment to determine a further course of action.

The *Class 3* category includes a broad range of potential impacts. Geologic units of unknown potential, as well as units of moderate or infrequent fossil occurrence are included. Assessment and mitigation efforts also include a broad range of options. Surface-disturbing activities will require sufficient assessment to determine whether significant fossil resources occur in the area of a proposed action, and whether the action could affect the paleontological resources.

Class 4: These are *Class 5* geologic units (see below) that have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation. They include bedrock units with extensive soil or vegetative cover, bedrock exposures that are limited or not expected to be impacted, units with areas of exposed outcrop that are smaller than two contiguous acres, units in which outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic effects, and units where other characteristics are present that lower the vulnerability of both known and unidentified fossil localities.

The potential for impacting significant fossils is moderate to high, and is dependent on the proposed action. The bedrock unit is *Class 5*, but a protective layer of soil, thin alluvial material, or other mitigating circumstances may lessen or prevent potential impacts to the bedrock resulting from the activity. Mitigation efforts must include assessment of the disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access resulting in greater looting potential. If impacts to significant fossils are anticipated, on-the-ground surveys prior to authorizing the surface-disturbing action will usually be necessary. On-site monitoring may also be necessary during construction activities. Management prescriptions for resource preservation and conservation through controlled access or special management designation should be considered. *Class 4* and *Class 5* units are often combined as *Class 5* for general application, such as planning efforts or preliminary assessments, as *Class 4* is determined from local mitigating conditions and the impacts of the planned action.

Class 5: Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils or uncommon invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation. These include units in which vertebrate fossils or uncommon invertebrate or plant fossils are known and documented to occur consistently, predictably, or abundantly. *Class 5* pertains to highly sensitive units that are well exposed with little or no soil or vegetative cover, units in which outcrop areas are extensive, and exposed bedrock areas that are larger than two contiguous acres.

Management concern for paleontological resources in *Class 5* units/areas is high, because the potential for impacting significant fossils is high. Vertebrate fossils or uncommon nonvertebrate fossils are known from the impacted area, or can reasonably be expected to occur in the impacted area. Assessment by a qualified paleontologist is required in advance of surface-disturbing activities or land tenure adjustments, and mitigation will often be necessary before and/or during surface-disturbing actions. Field surveys prior to authorizing any surface-disturbing activities

will usually be necessary. On-site monitoring may also be necessary during construction activities. Designation of areas of special interest and concern may be appropriate.

3.11 RECREATION

3.11.1 RESOURCE OVERVIEW

The MPA is an internationally recognized recreation destination. The proximity of two national parks (Arches and Canyonlands), the extraordinarily scenic and diverse landscape, the accessibility of two major river systems (the Colorado and Green Rivers), the presence of interesting cultural and paleontological resources, and the opportunities for a wide range of recreational activities have made the MPA very popular for those seeking outdoor experiences. Recreational opportunities range from casual sightseeing and hiking to more intense activities such as mountain biking, rock climbing, and river running. In general, the planning area experiences a high number of seasonal visitors and an intense demand for recreational activities. Busy seasons include both spring and fall, with spring bringing the most visitors to the area. The estimated annual visitation to the MPA is at least 1.6 million visitors. Visitation occurs throughout the year, with the spring season beginning in February and lasting through May, and the fall season running from September through November. Spring and fall visitors engage in the full range of recreation activities, including scenic driving, camping, hiking, jeeping, mountain biking, canoeing and rafting, rock climbing, off-highway vehicle (OHV) and dirt bike riding, and horseback riding. (Note: The BLM defines off-road vehicles (also known as off-highway vehicles, or OHVs) to include all-terrain vehicles (ATVs), off-highway motorcycles, and snowmobiles.) Summer visitation is mainly associated with touring the nearby National Parks (Arches and Canyonlands) and with river-related activities. However, the summer season also brings large numbers of visitors, who engage in sightseeing activities such as driving through the public lands and viewing the landscape from scenic overlooks, and some hiking and biking.

The current RMP (approved in 1985) did not anticipate the subsequent rapid growth in and demand for recreational opportunities and activities. Since the approval of the current RMP, there have been increases in the demand for recreational opportunities and in the growth of the recreation industry within the planning area. As a result, demand-driven recreation management and planning in the years following the approval of the current RMP has been completed in a piecemeal fashion, and there has been an attempt to document and accommodate the rapid rise in and high demand for recreational opportunities. A fundamental concept in the management of BLM recreation resources is the designation of Special Recreation Management Areas (SRMAs) and an Extensive Recreation Management Area (ERMA). These areas within the MPA are discussed below.

An outcome of the rapid growth in recreation opportunities and activities in the MPA has also created the need for the development of specific Recreation Area Management Plans (RAMPs) to assist in recreation management within areas that are experiencing intense recreational activity. Five RAMPs (Colorado Riverway, Mill Creek, Sand Flats, Cameo Cliffs and Canyon Rims) have been completed to-date. Three of these plans (the Colorado Riverway, Mill Creek and Sand Flats Plans) have been accompanied by Federal Register Notices that instituted rules and regulations associated with some or all of these plans. These regulations are temporary,

subject to completion and approval of the proposed RMP. The Cameo Cliffs and Canyon Rims RAMPs were Plan Amendments to the Grand RMP. These plan amendments limited travel to designated and/or existing roads and created SRMAs for the planning areas.

3.11.1.1 SPECIAL RECREATION MANAGEMENT AREAS (SRMAS)

Special Recreation Management Areas (SRMAs) are those areas where a commitment has been made to provide specific recreational activities and recreational opportunities, and where public recreation issues or management concerns occur. Special or more intensive types of management are typically needed in these areas. Detailed recreation planning is required in SRMAs and a large managerial investment is usually needed. Also, SRMAs usually require stricter rules and guidelines to manage the intensive recreational use within the area. Areas hosting large numbers of visitors are usually those that are designated as SRMAs. However, in the MPA, at present, the SRMAs are not the areas that receive the greatest visitation.

Three areas have been formally established as SRMAs within the MPA: Canyon Rims Recreation Area, Cameo Cliffs Recreation Area and the Colorado River Recreation Area.

3.11.1.1.1 CANYON RIMS SRMA

Canyon Rims was established on 100,273 acres south of Moab. Two campgrounds and four overlooks are within the SRMA, as well as the Trough Springs Hiking trailhead. Major activities include hiking, backpacking, and sightseeing. The primary roads within Canyon Rims, which were constructed by the BLM and include several scenic turnouts, are Utah Scenic Backways. The Canyon Rims Recreation Area is managed under the Canyon Rims Recreation Area Management Plan (RAMP), completed in 2003. An amendment to the 1985 RMP accompanied this RAMP.

The overall objective for the Canyon Rims Recreation Area RAMP (BLM 2003b) is to protect, manage and improve the natural and visual resources of the area while allowing for responsible recreation. The goal is to manage the Canyon Rims Recreation Area for recreation activities such as camping, vehicle touring on the primary road system, touring the secondary road system by motorized vehicle and mountain bike, and hiking and backpacking within the canyons. Interpretive and educational opportunities will be used to fulfill the potential of the Canyon Rims Recreation Area. Recreation management will give special consideration to protecting the visual resources of Canyon Rims.

3.11.1.1.2 CAMEO CLIFFS SRMA

The Cameo Cliffs SRMA consists of 15,597 acres east of U.S. Highway 191, south of the town of LaSal and north of the Lisbon Valley Industrial Area. Off-highway vehicle riding, horseback riding and some limited hiking and mountain biking are the primary recreational activities. A Plan Amendment to the Grand RMP (1985a) established the SRMA and designated the roads within it. The purpose of the Cameo Cliffs planning effort is to provide opportunities for motorized recreation, primarily ATV riding.

3.11.1.1.3 COLORADO RIVER SRMA

This SRMA extends along the Colorado River from the Colorado State Line to Castle Creek (near the Castle Valley turnoff on Utah Highway 128), and along the Dolores River from the Colorado State line to its confluence with the Colorado River. The SRMA includes Westwater Canyon of the Colorado River, and includes the extensive facilities surrounding the Westwater Ranger Station. It also includes the upper portion the area bordering the River along Utah Highway 128 (from Dewey Bridge to Castle Creek). The size of this SRMA is 24,124 acres. Major activities include boating and camping. Note that this area is not the same as the Colorado Riverway, discussed below as an ERMA.

3.11.1.2 GRAND EXTENSIVE RECREATION MANAGEMENT AREA (ERMA)

The ERMAs are areas where dispersed recreation is encouraged and where visitors have recreational freedom-of-choice with minimal regulatory constraint. They are usually areas that receive very little recreation use. These areas could include developed and primitive recreation sites with minimal facilities. Public recreation issues or management concerns are limited, and minimal management suffices in these areas. Detailed planning is not usually required for these areas; however, in the MPA, the areas with the greatest numbers of visitors and those that are in the greatest need of special management are currently within the Grand ERMA. All areas within the MPA that are not part of a SRMA are included within the Grand ERMA. Popular recreation sites within the ERMA are briefly described below.

3.11.1.2.1 THE COLORADO RIVERWAY

The Colorado Riverway includes the public lands managed by the BLM in the following areas:

- Along the Colorado River and Utah Highway 128 from Dewey Bridge to U.S. 191, including Negro Bill Canyon Trailhead, Onion Creek, Castleton Tower (Castle Rock) and Fisher Towers. Utah Highway 128 is a State Scenic Byway, and is also a portion of the Prehistoric Highway National Scenic Byway.
- Along the Colorado River and Utah Highway 279 from Moab Valley to Canyonlands National Park, including Wall Street, Poison Spider Trailhead and Shafer Basin. Utah Highway 279 is a State Scenic Byway
- Along Kane Creek Road from Moab Valley to the block of state land south of Hunter Canyon, including Amasa Back.

A very small portion of this area (Dewey Bridge to Castle Creek) is within the Colorado River SRMA, with the great majority of the Riverway lying within the Grand ERMA. The Riverway is the most popular destination of MPA visitors, with recent visitation estimated at approximately 1.04 million people. Visitors engage in camping, hiking, four-wheel driving, scenic auto touring, mountain biking, bouldering, BASE (Building, Antennae, Span, Earth) jumping, rock art viewing, dinosaur track viewing, rock climbing, and rafting and boating within the Colorado Riverway.

Based on observation and casual interviews, users of the Colorado Riverway can be divided into several categories:

- Day and overnight campers using sites along the Riverway to mountain bike, drive and ride OHVs, hike or participate in a special event;
- Campers displaced from Arches National Park's campground;
- Campers using sites because they provide a relatively inexpensive place to camp;
- Motorists taking scenic drives along routes described on the Moab Auto Tour brochure or taking an alternate route to Grand Junction; and
- Rafting and paddling groups, fishermen, climbers, mountain bikers, hikers, OHV users, BASE jumpers, and other day users.

Recreation management within the Riverway includes providing information at recreation sites, managing developed recreation sites, protecting visual quality and health and human safety by limiting the areas where visitors can camp and drive, and managing commercial uses in accordance with the Riverway Plan (BLM 1992a, 2001a).

While many of the resource use problems within the Colorado Riverway have been addressed and corrected since 1992 by the actions taken through the Colorado Riverway RAMP, there are still some remaining problem areas. Cross-country OHV travel and camping restrictions are addressed only through a Federal Register Notice (July 1992), which is in effect only until the completion and approval of the proposed RMP. Some undeveloped camping areas still remain, which are causing resource use problems.

3.11.1.2.2 Sand Flats Recreation Area

Sand Flats, part of the Grand ERMA, is located between the Negro Bill Canyon and Mill Creek Wilderness Study Areas (WSAs). Sand Flats Recreation Area encompasses 7,240 acres, and is managed as a self-funding site in partnership between Grand County and the MFO. Major activities include camping and mountain biking, especially on the Slickrock Trail, which was designated as a National Recreation Trail. The Recreation Area provides access to popular mountain bike and OHV trails, including the Slickrock Trail, Porcupine Rim Bike and Jeep Trail, Fins and Things Jeep Trail, and Hell's Revenge Jeep Trail. A RAMP was completed in 1994 (see below) for the Sand Flats Recreation Area, and the area is managed according to this Plan. In addition, there is a Cooperative Management Agreement between Grand County and the BLM, MFO to provide guidance in administering the area. Camping restrictions and off-road vehicle designations are addressed only through a Federal Register Notice (July 1992), which is in effect until the proposed RMP is approved.

The Sand Flats Management Plan identifies the following management objectives:

- To provide for a recreational "mix" of opportunities necessary to meet a variety of visitor expectations, while maintaining the relative natural characteristics of the area;
- To maintain wilderness values in adjacent Wilderness Study Areas;
- To prevent degradation of the natural values in the planning area and provide for restoration of areas where vegetation and soils have been damaged by recreational use; and
- To provide for public health and safety.

3.11.1.2.3 EAST OF HIGHWAY 191

The area south of I-70 and east of U.S. Highway 191 borders Arches National Park. This area of public land includes the Klondike Bluffs Trail, the Copper Ridge Sauropod Trackway and the Bar M Loop Bike Trail. Cross-country OHV travel is prohibited in most of this area through a Federal Register notice. In the portion of this eastern area that is south of Utah Highway 313, camping is limited to designated sites. This camping restriction is in effect until the completion of the proposed RMP.

3.11.1.2.4 WEST OF HIGHWAY 191

This area includes scenic driving and several motorized and non-motorized trailheads. U.S. Highway 191 from I-70 to its intersection with Utah Highway 128 is part of the National Prehistoric Highway National Scenic Byway. A substantial amount of unrestricted camping occurs in this area, especially around Bartlett Wash and Mill Canyon, and has led to sanitation problems and resource damage. Although off-road driving is prohibited by Federal Register notice, substantial cross-country OHV travel is occurring. This off-road damage includes hill climbs, alternate route choice, play areas around campsites and other forms of damage. The current vehicle designation ("Limited to Existing Roads and Trails") is in effect until the approval of the proposed RMP.

The area west of 191, south of I-70 and east of the Green River has seen explosive growth in recreation since the time of the 1985 RMP. Additionally, this recreation growth has included both motorized and non-motorized recreation, often vying for the same locations. Motorized recreation includes jeeping and OHV use; non-motorized recreation includes mountain biking, hiking, horseback riding, and BASE jumping. The area west of Highway 191 has seen the largest growth in recreation user conflict in the MPA.

3.11.1.2.5 UTAH HIGHWAY 313

Utah Highway 313 is also the Dead Horse Mesa Scenic Byway (a State Scenic Byway), providing access to Canyonlands National Park, access to Dead Horse Point State Park, access to Seven Mile Canyon and to two dispersed camping areas as well as to one BLM campground. The camping areas provide overflow and destination camping for the two parks. Utah Highway 313 also provides access to Labyrinth Canyon of the Green River, the rims and mesas above the Green River (Labyrinth Rims), upper Long Canyon and the upper portion of the Gemini Bridges Route. Camping and off-road vehicle restrictions have been implemented by Federal Register notice for this area, and are in effect until the completion of the proposed RMP. Resource damage is currently occurring in this area from both camping and OHV travel.

3.11.1.2.6 KOKOPELLI'S TRAIL

Kokopelli's Trail is a 140-mile multiple use trail connecting Loma, Colorado and Moab, Utah. Mountain bikers use this route heavily, although most portions are also suitable for OHVs and full-sized four-wheel drive vehicles. The route passes through lands administered by the MFO, the BLM Grand Junction Field Office, and the USDA Forest Service (Manti-LaSal National

Forest). Kokopelli's Trail was established for multi-day bike trips. Small, primitive campsites are located along the trail. Three of these campsites (Bitter Creek, Cowskin and Rock Castle) are managed and maintained by the MFO. Kokopelli's Trail is a Millennium Trail, designated in 2000 by the White House Millennium Council.

3.11.1.2.7 WHITE WASH SAND DUNES/TEN MILE CANYON

The only dune area in the MPA, White Wash Sand Dunes are located east of the Green River and south of I-70, about 25 miles from the city of Green River, Utah. White Wash is very popular with OHV users, especially on spring and fall weekends. Off-Highway Vehicle riders also visit other sites in this area, including Ten Mile Canyon, Crystal Geyser, Red Wash, Rainbow Rocks, and Duma Point. Currently, the area has no facilities other than an informational bulletin board.

Off Highway Vehicle use categories in this area are mixed. The current RMP has designated the northern part of the area as Limited to existing roads and trails. The southern portion of the area is limited to existing roads and trails through a Federal Register Notice (January 2001) and is in effect until the proposed RMP is approved. A middle portion of the area is Open to cross-country travel. Extensive resource damage is occurring from camping activities and especially from unrestricted vehicle travel. Resource damage from OHV use includes damage to soils, scenic quality, vegetation, cultural, and paleontological resource degradation as well as to damage to riparian resources.

3.11.1.2.8 KEN'S LAKE

Ken's Lake is a reservoir 10 miles south of Moab, within Spanish Valley. Jointly managed by the MFO and by the Spanish Valley Water Conservancy District, Ken's Lake has a 31-site campground, as well as a day use area and beach. Hiking, biking, fishing, non-motorized boating, OHV and horseback riding opportunities are within or adjacent to the recreation area. Vehicle and camping restrictions are the result of a Federal Register Notice (November 1996) that is in effect until the proposed RMP is approved.

3.11.1.2.9 KANE CREEK CROSSING

The area where the Hurrah Pass road crosses Kane Creek has become very popular for dispersed camping especially among OHV enthusiasts. Off-Highway Vehicle play at camp is the major threat to the scenic values of the area, as well as to water quality within Kane Creek. Both dispersed camping and OHV use have led to sanitation problems and resource deterioration due to these unrestricted recreational activities. Cross-country vehicle travel has been restricted by a Federal Register Notice (January 2001), but much of this type of activity still occurs. The OHV restrictions are in effect until the proposed RMP is approved. Camping is limited to designated sites through a Federal Register Notice (2005) and is in effect until the proposed RMP is approved.

3.11.1.2.10 MILL CREEK CANYON

Mill Creek Canyon is located directly east of Moab. This perennial stream is the "backyard" for those Grand County residents who live on the east side of Spanish Valley. An extraordinarily scenic canyon, it is popular for hiking, swimming, and viewing rock art. Some horseback riding also occurs in the canyon. Recreational use of Mill Creek Canyon is guided by a 2001 management plan (BLM 2001b). Management is made more difficult by the split ownership of the canyon: public lands are interspersed with School and Institutional Trust Lands Administration (SITLA) and private lands. A well-known off-road vehicle challenge hill, Potato Salad Hill, is located at the entrance to Mill Creek Canyon.

The Mill Creek Canyon RAMP was signed in February 2001. The RAMP affects the Mill Creek Planning Area, which includes all BLM lands along the south fork of Mill Creek Canyon from the town of Moab to the USFS boundary. The overall goal for the area is to protect, manage and improve natural and cultural resources through effective use of minimum tools.

3.11.1.2.11 GREEN RIVER CORRIDOR

The Green River is the western border of the MPA, and management of the Green River is shared with the Price Field Office. Three popular float sections are shared between the two BLM field offices. These three float trips are: Desolation Canyon, Gray Canyon (which constitutes the last day of the Desolation trip and is also the Green River "Daily"), and Labyrinth Canyon. Facilities along the Green River include a campground, toilets and a boat ramp along the Green River Daily, and a seasonal contact station and toilet at Mineral Bottom, the termination of the Labyrinth Float trip. The launch point for the Labyrinth Canyon trip is at Green River State Park; the riverbed of Labyrinth is state sovereign land, with most of the shoreline managed by the BLM. Both the BLM and Utah State Sovereign lands share management of the area via a formal agreement.

3.11.1.2.12 THE BOOK CLIFFS

The Book Cliffs are a large area in the northern portion of the MPA. Within this lightly used and relatively unknown area, which stretches from the Green River to the Colorado State line north of I-70, are five Wilderness Study Areas (WSAs). Recreation seekers use the Book Cliffs for big game hunting, scenic drives, horseback riding, wildlife viewing, backpacking and some limited vehicle camping. There are ample opportunities for solitude and primitive, dispersed recreation in the Book Cliffs. The Sego Canyon Rock Art site is located on the southern edge of the Book Cliffs.

3.11.1.2.13 UTAH RIMS

The Utah Rims area consists of 15,400-acres immediately west of the Colorado border and south of I-70. This area is primarily used for day use by western Colorado residents. Dirt biking is the primary recreational activity but the area is also popular with mountain bikers and horseback riders. Currently, resource damage is occurring as a result of OHV travel.

3.11.1.2.14 OTHER AREAS

In addition to the areas listed above, areas such as Entrada Bluffs and Kane Creek Canyon Rim receive substantial visitation. Some areas, such as Yellow Cat and Black Ridge receive moderate visitation. Other areas, such as the Dolores Triangle, East LaSal Creek, the Cisco Desert, and Beaver Creek are less visited, but can be very popular at certain times. As many areas within the MPA become more visited and more crowded, visitors are increasingly seeking out less traveled areas. Much of the former backcountry in the planning area is now receiving heavy to moderate recreational use; the majority of the areas have the potential for substantial recreational use.

3.11.1.2.15 CAMPGROUNDS

The MFO manages 22 developed fee area campgrounds, with 313 individual fee campsites and 11 group sites. In addition, the Sand Flats Recreation Area has a total of 120 campsites. Although located in the MPA, the Price Field Office manages the 10-site campground at Swasey's Boat Ramp on the Green River Daily.

3.11.1.2.16 VEHICULAR ROUTES

The MFO marks 277 miles of road. The MFO also maintains the main entrance roads in the Canyon Rims Recreation Area (the Needles Overlook and Anticline Overlook Roads, both of which are State Scenic Backways). Other routes, which are primarily used for vehicular recreation, are those that are marked by the MFO, often in conjunction with user groups.

Additionally, many other motorized routes within the MPA are used for recreational purposes. The most popular motorized routes include any of the 785 miles of the Jeep Safari Route system (this figure includes dirt roads within the planning area that are permitted for Jeep Safari use). This network of backcountry routes has been popularized in guidebooks and on maps as well as by club use. "Rockcrawling," an extreme type of jeep recreation, is currently popular in the Black Ridge area, though much of this route is on state and private lands.

There are no routes solely dedicated to OHV use. These activities take place on the same routes as used by four-wheel drive vehicles, and often occur on Jeep Safari routes. There is an informal, user-made network of motorcycle routes in the White Wash Dunes area.

3.11.1.2.17 POPULAR MOUNTAIN BIKE ROUTES

Mountain bike use occurs on many of the Jeep Safari routes as well as on other routes. Popular mountain bike routes include Gemini Bridges, Porcupine Rim, the Slickrock Bike Trail, Amasa Back, Flat Pass, Klondike Bluffs, Kokopelli's Trail, Poison Spider, Lower Monitor and Merrimac, Bartlett Wash, Moab Rim, Kane Creek Canyon Rim, Bar M, Hurrah Pass and Onion Creek.

A survey conducted by the Institute of Outdoor Recreation and Tourism (IORT 2002) discussed mountain bike use. Although this survey is not indicative of the entire mountain biking community, it does shed light on attitudes and perceptions of mountain bikers, particularly

tourists, visiting the area. Attitudes concerning issues and management were mixed. When asked about the physical impacts resulting from outdoor recreation in the Slickrock/Sand Flats area, 37% of respondents thought the impacts were moderately or extremely high, while the remainder thought they were low or at an acceptable level. Respondents felt that vehicle travel off designated routes and human waste and garbage disposal were more pressing management problems then resource impacts. Visitors felt that there should be more of a focus on resource protection than on the development of visitor services.

Most mountain bikers support the use of fees to help fund Slickrock Trail management, which possibly could be extrapolated to the rest of the mountain biking population as well. Respondents were willing to support modest fees for trail use (IORT 2002).

3.11.1.2.18 Popular Hiking Trails

The following trails are reserved for hiking use only: Hunter Canyon, Fisher Towers, Corona Arch, Amphitheater Loop, Copper Ridge Sauropod Trackway Interpretive Trail, Mill Canyon Dinosaur Trail, Negro Bill Canyon, the Ken's Lake hiking trail system, Trough Springs Trail and the Windwhistle Nature Trail. These routes are marked and maintained by the MFO. While the Hidden Valley Trail and the Portal Trail are marked and maintained as hiking trails, bicycle use is also allowed. Hikers also extensively use the Moab Rim Route. Hiking also occurs elsewhere in the MPA, particularly in canyon systems. Hiking is allowed anywhere within the planning area, and general areas that are popular for hiking include the Sand Flats area, the entire Mill Creek area, Richardson Amphitheater, Spring Canyon, Behind the Rocks, and the area above Potash Road (Goldhor-Wilcock). Hiking is a popular activity and there is a demand for additional non-motorized activities, such as marked hiking routes.

3.11.1.3 Recreational Activities

Recreational opportunities in the MPA are extensive. The following list of activities shown in Table 3.18 is categorized by use level.

Table 3.18. Activities in the MPA, by Use Level

High Use	Medium Use	Low Use
Driving for pleasure (sight-seeing) Mountain biking Hiking Jeeping Camping River activities (rafting and paddling) Nature study/cultural study	OHV riding (including ATV, dirt biking) Rock climbing (sport, traditional, bouldering, canyoneering) Special events Road cycling	BASE jumping Backpacking Hot air ballooning Hunting Fishing Swimming Canyoneering Rock crawling

Source: Personal communication between Katie Stevens, Russ von Koch, Brent Northrup, Alex Van Hemert, and Bill Stevens, BLM MFO, on May 5, 2003.

3.11.1.4 River Recreation Use

The MPA provides year-round rafting and boating experiences. All commercial use is under Special Recreation Permit (SRP) with limited permit availability outside of Labyrinth Canyon. Nine sections of the Colorado and Green Rivers are floated extensively. These sections are described below.

3.11.1.4.1 Westwater Canyon of the Colorado River

This is a whitewater segment, and is managed under a limited use permit system, with limitations on the numbers of people allowed to launch. Westwater Canyon is considered one of the finest whitewater float trips in the country. Westwater Canyon is entirely within the Colorado River SRMA. Extensive facilities are maintained at Westwater to help manage the area, including a full service ranger station, employee housing, a water system, boat ramps, parking lots and a campground. Private as well as commercial boaters benefit from this intensive management.

3.11.1.4.2 The Colorado River Daily (from Hittle Bottom to BLM Takeout along Utah Highway 128)

This section has several mild rapids. Private boaters are not required to obtain a permit, and there are no limitations on the numbers of boaters allowed. The Colorado River Daily is within the Grand ERMA below Castle Creek (shoreline only). The Colorado River upstream from Castle Creek (river as well as shoreline) is located within the Colorado River SRMA.

3.11.1.4.3 The Colorado River along Utah Highway 279

This 20-mile flatwater section is usually canoed. There are no permits or use limitations. It is within the Grand ERMA.

3.11.1.4.4 The Colorado River from the Colorado State Line to Westwater

The section of the Colorado River from Loma, Colorado to Westwater, Utah is called Ruby/Horsethief. This popular flatwater float trip is administered by the BLM, Grand Junction, Colorado Field Office, with four miles of the trip located within the MPA. As the takeout is at Westwater, heavy use along Ruby/Horsethief can lead to parking overflow problems at the Westwater Ranger Station.

3.11.1.4.5 Green River – Desolation Canyon (from Sand Wash to Nefertiti Rapid)

This 76-mile section of the Green River is called the Desolation Canyon float trip. There are fifty ripples and rapids in this section. Private permits are required for Desolation Canyon, and are issued by the BLM Price Field Office. The lower segments on the east side of Desolation Canyon are within the Grand ERMA.

3.11.1.4.6 The Green River Daily (from Nefertiti Rapid to Swasey's Beach, 10 Miles North of Green River, Utah)

This is the last 10 miles of the Desolation Canyon float trip. There are several mild rapids along this stretch. Permits are not required for this Daily portion. It is within the Grand ERMA.

3.11.1.4.7 Green River – Labyrinth Canyon (From the City of Green River to Mineral Bottom)

This 60-mile section of the Green River is one of the premier flatwater canoe and float trips within the U.S. Permits are required for Labyrinth Canyon, although the numbers of boaters are not limited. Labyrinth Canyon is within the Grand ERMA, and it is managed by agreement with Utah Sovereign Lands with assistance from Utah State Parks.

3.11.1.4.8 Colorado River – Cisco to Dewey Bridge and The Dolores River Confluence

The flatwater section of the Colorado River from Cisco to Dewey Bridge is growing in popularity. Both private and commercial users float this 20-mile section of the river. There is no private permitting process for this section of the river. In addition, the Dolores River from the Colorado/Utah state line to its confluence with the Colorado River is floated in the springtime by a limited number of people (free permits are required). Limited flows on the Dolores restrict its use for much of the year.

3.11.1.4.9 River Recreation Use and Demand

Visitor counts for boaters are based on permit data and observations and illustrate the current demand for river recreation on four river segments in the MPA (Table 3.19).

In general, satisfaction of river users is high, with the average satisfaction of approximately 95% on both the Green and Colorado Rivers (Reiter and Blahna 2001).

Table 3.19. River Recreation Use in the MPA

	Green River Labyrinth	Green River Daily	Colorado River Daily	Colorado River Westwater
Number of Boaters	8,000	11,000	59,000	14,000
Segment Length (Miles)	70	8	13	17
Rapid Classes	I	II-III	I-III	III-IV
Average Trip Length (Days)	5	1	1	2

Source: IORT 2001.

3.11.2 CURRENT MANAGEMENT PRACTICES

3.11.2.1 THE GRAND RESOURCE MANAGEMENT PLAN (RMP)

The current (Grand) RMP provides the framework for planning in the area. As mentioned above, the 1985 Grand RMP was completed prior to the rapid expansion of recreational use on public lands in the MPA. The RMP specifically addresses the Colorado and the Dolores Rivers, and the issuance of recreation permits as well as a few routes; however, most of the issues and locations that are now important to the BLM Recreation Program are not addressed. The guidance given in the 1985 RMP to the recreation program lacks the specificity needed to manage the current burgeoning use of recreation resources.

The 1985 RMP also made the following OHV decisions:

1. Designate 1,183,660 acres as open to OHV use;
2. Designate 596,234 acres limited to existing roads and trails;
3. Designate 24,454 acres as closed to OHV use;
4. Designate 15,206 acres as in Mill Creek and East Mill Creek as limited to designated roads and trails.

3.11.2.2 OFF-HIGHWAY VEHICLE (OHV) MANAGEMENT

Since the approval of the current RMP, there have been substantial changes in visitation in the MPA: the numbers of visitors have increased, and the numbers of visitors engaging in motorized recreation have also increased. These changes forced alterations in the OHV designations in order to protect visual, cultural, soil, and vegetation resources.

The current RMP outlined OHV designations; however subsequent Federal Register Notices have instituted rules that remain in place until the proposed RMP is approved. They are shown in Table 3.20 below. In addition, wilderness has been designated in Utah as part of the Colorado Canyons National Conservation Area Bill. The Black Ridge Wilderness Area is closed to OHV use.

Table 3.20. Comparison of 1985 RMP OHV Designations and Present OHV Designations

	Grand RMP (acres)	After Additional Restrictions and Designations (acres)
Open to cross country travel	1,183,660	725,370
Limited to Existing Roads and Trails	596,234	734,074
Limited to Designated Roads and Trails	15,206	48,169
Limited to Inventoried Roads	309,749	309,749
Closed to OHV Use	24,454	33,819

The management of OHV activities within the planning area includes monitoring and maintaining trails, maintaining and adding to a database of monitoring use, installing fencing to protect vegetation on certain trails, coordination with local officials and other agencies, WSA

monitoring, ongoing training on OHV related issues, and issuing citations and written warnings for OHV violations.

The Utah Division of State Parks and Recreation monitors OHV registration through the Department of Motor Vehicles. The following data show a dramatic increase in OHV ownership in the State of Utah (Table 3.21).

Table 3.21. Utah OHV Registrations*, 1998 Compared with 2002

	1998	2002	% Increase
Statewide	77,361	160,583	207%
Grand County	238	726	305%

*OHV registrations include ATVs, non-street legal motorbikes, snowmobiles, and dune buggies. Vehicles that are street legal, such as jeeps and trucks, are licensed, and are not considered OHVs for registration purposes.

It is important to note that the majority of OHV and dirt bike users in the MPA are residents of Colorado. In addition, users come from the Wasatch Front of Utah, other western states, and from all over the country to dirt bike and ride OHVs on public lands within the MPA. The planning area has been featured in national OHV publications (four-wheelers, dirt bike, and four-wheel driving), and has become nationally known as an OHV destination. OHV demand is highest within the following areas:

- Near Dead Horse Point State Park including Arth's Rim, Poison Spider Mesa, Gold Bar Rim, and Golden Spike;
- The area just east and south of Moab including Porcupine Rim, Hell's Revenge, Fins & Things, and Steel Bender;
- Near Kane Creek, including Cliff Hanger, Kane Creek Canyon Road, Moab Rim, Hurrah Pass, Pritchett Canyon, Behind the Rocks and Flat Iron Mesa; and
- Northwest of Arches National Park including Wipeout Hill, Seven Mile Rim, Hey Joe Canyon, Ten Mile, Secret Spire, 3D and Crystal Geyser (Reiter et al. 1998).

Demand for OHV activities is expected to continue to increase in the MPA. This will place demands on the MFO to provide for and monitor motorized users. This anticipated increase in demand also has implications for OHV designations and for route marking.

3.11.2.3 Special Recreation Permits (SRPs) for Special Events

Due to recent increases in recreational use in the MPA that exceed monitoring capability and available space, priority for authorization of new SRPs for land-based commercial and competitive events is given (where conflicts exist) to applicants proposing uses that:

- Do not duplicate existing uses;
- Take place outside the months of March, April, May and October;
- Use lands and facilities off public lands for overnight accommodation of guests;
- Display and communicate the Canyon Country Minimum Impact Practices; and

- Focus visitation on sites and areas capable of withstanding repeated use.

The great number of visitors to public lands during peak periods led to the promulgation of these rules in order to protect resources and to disperse visitation. Other factors are also considered including the public demand for the proposed use, the capability of the applicant to carry out the proposed use, projected government revenues, and past performance.

3.11.2.4 Special Area River Recreation Permits

In addition to commercial permit requirements, permits for private boaters are required for three river stretches within the MPA: Westwater Canyon of the Colorado River; the Dolores River from Gateway to the confluence with the Colorado River; and interagency river trip permits (joint jurisdiction of the BLM and Utah Division of Forestry, Fire and State Lands) for the Labyrinth section of the Green River (noncommercial trips between Green River State Park and the northern boundary of Canyonlands). All permittees are required to follow standard river use stipulations.

3.11.2.5 Demand for Facility Development

In the past 15 years, the MFO has constructed and maintained a variety of recreation infrastructure. However, the present level of facility development is still not sufficient to meet the needs of the recreating public, nor is it sufficient to protect resources from the recreating public. Areas within the Grand ERMA that are receiving heavy visitation and camping use will require facilities such as camping areas, toilets, information kiosks, marked routes and parking areas in the very near future. These areas include the Utah 313 corridor, the area northwest of Moab known as Labyrinth Rims/Gemini Bridges (including Ten Mile Canyon and White Wash Sand Dunes), the Bartlett Wash/Mill/Tusher Canyon areas, Klondike Bluffs, Bar M, areas south of Moab, Utah Rims, and Kane Creek Crossing area.

It is reasonable to expect that, in the next 15 years, recreation facilities construction will continue to be needed, although the pace of construction is expected to lessen. With visitation to BLM-administered public lands around Moab continuing to increase (and with the need for additional facilities already extant with the present visitation), facilities to provide for these visitors must keep pace in order to protect the land and to provide for human sanitation. Current use levels continue to produce degradation of resources, and additional facilities are needed to accommodate visitation and stabilize resource values. Examples of demand-driven development include: 1) providing camping facilities where dispersed camping activity exceeds capacity, or 2) providing marked OHV or bike routes when numbers and types of users change so that route marking can maintain public safety and protect resources. In addition, providing for vehicular users often requires building parking lots, trailheads and toilet facilities.

3.11.2.6 User Conflict and Displacement

As recreational use has increased throughout the MPA, recreationists have moved into areas historically used by other resource users, such as ranchers and the oil and gas industry. Sometimes, conflicts have developed among these user groups, as long-term users resent encroachment of recreationists on the public lands. In turn, some recreation users see their use of

the public land as the highest and best use, and feel that the established users have a lesser claim to that land.

There has also been a displacement of certain recreation groups from some areas due to conflicts with other recreation user groups. For instance, the growing popularity of Gemini Bridges for OHVs has led to fewer numbers of mountain bikers, as they have been displaced by the faster moving and louder modes of transportation.

Another source of tension is among various recreation user groups. When recreational use reaches a certain threshold, user groups start to resent the multi-use nature of public lands. For example, some hikers resent mountain bikers and motorized users on shared trails, while mountain bikers may seek some trails free from motorized use. The multi-use concept becomes strained when use levels reach a threshold. Specific areas in which BLM staff have had reports of user conflict and displacement include:

- Monitor and Merrimac Trail – conflicts between motorcycle users and mountain bikers
- Bartlett Wash – conflict between grazing and recreation uses and between motorized and non-motorized use
- Kokopelli's Trail – conflict between OHVs and mountain bikers
- Hurrah Pass/Kane Creek Crossing – conflict between OHVs and mountain bikers
- Slickrock Trail – conflict between dirt bikes and mountain bikers
- Gemini Bridges – conflict between OHVs and mountain bikers
- Moab Rim – conflict between OHVs, hikers, and mountain bikers
- Seven Mile Canyon –conflict between OHVs and horseback riders
- Poison Spider Trail – conflict between OHVs and mountain bikers

3.11.2.7 Resource Conflicts/Impacts

Various recreation activities impact other resources, such as riparian areas, cultural resources, vegetation, wildlife, soils, grazing, and oil and gas. Resource conflicts occur when two uses compete for the same resource, such as recreation and wildlife competing for land. Specific areas where resource conflict is occurring include:

- Moab Canyon – conflict between recreation users and vehicular traffic
- Gemini Bridges and Long Canyon Roads/Shafer Canyon – conflict between recreation and wildlife (bighorn sheep)
- Bartlett Wash – impact of camping and OHV use on riparian area; impacts to cultural resource sites
- White Wash area– impact of OHV use on visual quality, riparian resources, cultural resources, and oil and gas and ranching operations
- Crystal Geyser/White Wash area – impact of OHV use on visual quality, riparian resources, cultural resources, and oil and gas and ranching operations
- Wall Street – conflict between climbing activities and vehicular traffic

- Castle Rock – conflict between residents' wishes and current recreation use
- Tenmile Canyon – motorized use in stream conflicts with wildlife, cultural, and riparian resources
- Duma Point – motorized use conflicts with bighorn sheep escape habitat
- Kane Creek Crossing– impact of motorized vehicle use and camping on riparian area
- Tusher Canyon – motorized vehicle use in the stream is impacting the riparian area
- Seven Mile Canyon – conflict between motorized vehicle use and cultural resources
- Mill Creek Canyon – hiker and horse use conflicts with cultural resources
- Mill Canyon – motorized vehicle and mountain bike use conflicts with riparian resources, visual quality, cultural resources, and vegetation
- Upper Courthouse Wash – motorized vehicle traffic conflicts with visual quality, vegetation, riparian, and cultural resources
- Pritchett Canyon – conflicts between vehicle use and wilderness values in the Wilderness Study Area and visual quality
- Klondike Bluffs – motorized vehicle and mountain bike use conflict with paleontological resources
- Westwater Canyon – OHV use on the rims of Westwater Canyon conflicts with wilderness values of the Wilderness Study Area and with river visitors' experience along the Colorado River
- Along highway corridors – as OHV trails are created parallel to paved highways, conflict with the visual quality that drivers on the highways wish to experience

3.11.2.7.1 Off-Highway Vehicles (OHV)

The increase in the use of OHVs has created several issues for the MPA. First, the speed and increasing capability of OHVs allows easier access to remote parts of the MPA, making management of this activity more difficult, and increasing the potential range of impacts. Second, the popularity of this activity continues to grow, both in private use and in more special events taking place. Planning for areas in which OHVs can be used continues to receive national and local attention. Cross-country OHV use, both legal and illegal, is creating additional resource damage and is a real and important issue in the MPA. In addition, the issue of conflicting recreational use, primarily between OHV and other users, both recreational and resource users, continues to grow. The ability of OHV users to penetrate the backcountry where patrols are difficult may lead to secondary impacts to cultural resources from increased vandalism and theft.

3.11.2.7.2 Inadequate Facilities/Public Health and Safety

The availability of facilities is directly related to public health. Inadequate numbers of organized campgrounds and restroom facilities contribute to unhealthy levels of human waste in some areas, posing a health risk to visitors. At present, many of the problem areas (especially those close to the city of Moab) are on non-public (state and private) lands. While the BLM has

provided restroom facilities (90 in total), the number is still inadequate for the number of visitors to BLM lands. Funding for maintenance of existing and needed facilities is also a serious issue.

There is a need for more staff presence in the Colorado Riverway, given the level of visitation. Backcountry areas of the Riverway, such as Shafer Basin, areas of Onion Creek, and Castle Rock, are currently devoid of facilities; this may not be adequate for the numbers of visitors these areas are receiving.

A substantial amount of unrestricted camping occurs in the area north of U.S. Highway 191, especially around Bartlett Wash and Mill Canyon, near the Kane Creek Crossing on the way to Hurrah Pass, and in the White Wash/Ten Mile Area; this has led to sanitation problems and resource damage.

3.12 RIPARIAN

3.12.1 INTRODUCTION

Riparian and wetland areas are sensitive vegetative or physical ecosystems that develop in association with surface or subsurface water (Leonard et al. 1992). Riparian and wetland ecological systems comprise less than 1% of the 22 million acres of public lands administered by BLM in Utah, but are among the most important, productive, and diverse ecosystems on the landscape. Benefits from riparian/wetland ecosystems are essential to both human and wildlife values and include:

- Maintaining clean renewable water supplies;
- Supporting various life stages for diverse flora and fauna, including special status species and fisheries;
- Importance in cultural and historic values;
- Economic value derived from sustainable uses (open space, hunting, livestock grazing; commercial recreation);
- Greenbelt associated recreation and scenic values;
- Thermal/shade protection for both humans and wildlife, which is especially important within the arid Southwest;
- Flood attenuation.

Riparian/wetland habitats are fragile resources and are often among the first landscape features to reflect impacts from management activities. These habitats are used as indicators of overall land health and watershed condition. Healthy riparian systems filter and purify water, reduce sediment loads and enhance soil stability, reduce destructive energies associated with flood events, provide physical and thermal micro-climates in contrast to surrounding uplands, and contribute to groundwater recharge and base flow (BLM 1991b).

3.12.2 RESOURCE OVERVIEW

BLM administers 32,800 acres (1.8% of BLM-administered lands) of riparian and wetland resources on public lands within the MPA. The majority of these resources are riparian areas located along the Colorado River, Green River, Dolores River, and their associated tributary drainages including Mill Creek, Kane Creek, Onion Creek, Tenmile Wash and many others.

Riparian and wetland areas include, but are not limited to, areas adjacent to waterways (whether waters are surface, subsurface, or ephemeral), springs, potholes, wet meadows, sloughs, marshes, swamps, bogs, floodplains, lakes, and reservoirs. Riparian areas are recognized as "a form of wetland transition" between permanently saturated wetlands and upland areas (Leonard et al. 1992), and for BLM purposes, riparian and wetland areas are referred to synonymously unless specifically discerned. Riparian and wetland ecosystems are classified by type based on hydrologic, geomorphologic, and biological factors (Cowardin et al. 1979).

Within most riparian/wetland systems in the arid southwest, the potential of a riparian/wetland ecosystem is strongly dependent upon the availability of water. The amount, timing, duration and source of water availability, among other physical factors, is commonly referred to in terms of perennial (yearlong), interrupted (perennial flow discontinuous in space), intermittent (seasonal), or ephemeral (storm) water sources.

The BLM specifically manages and monitors riparian/wetland resources in terms of lotic and lentic ecosystems. Lotic riparian areas are those ecosystems associated with running waters, streams, springs or drainages, while lentic riparian areas are those associated with standing water ecosystems, such as marshes, swamps, lakes, springs, seeps, low velocity backwater areas or areas where permanent soil moisture is available. Ecological evaluations based on ecosystem attributes and processes differ between lotic and lentic systems, with current condition and activities in planning area reported annually to Congress. FY 2003 summaries regarding lotic and lentic systems indicate over 96% (31,700 acres) of riparian/wetland resources in the planning area are lotic riparian systems, with less than 4% (1,102 acres) in lentic wetland systems.

3.12.3 RIPARIAN/WETLAND STATUS

Regardless of the type of riparian or wetland ecosystem, Proper Functioning Condition (PFC) is assessed for each stream or varying segments (Table 3.22). Functioning condition is rated by category to reflect ecosystem health as affected by management practices. Definitions follow below (BLM 1998c):

Properly Functioning Condition (PFC): currently 18,584 acres (57%) of riparian/wetland areas are in PFC when adequate vegetation, landform, or woody debris is present to:

- Dissipate high-energy water flow;
- Filter sediment, capture bedload, and aid floodplain development;
- Improve floodwater retention and groundwater recharge;
- Develop root masses that stabilize streambanks;

- Develop diverse fluvial geomorphology (pool and channel complexes) to provide habitat for wildlife; and
- Support greater biodiversity.

Functioning at Risk (FAR): currently 11,192 acres (34%) of riparian-wetland areas are in functional condition, but at least one soil, water, or vegetation attribute makes them susceptible to degradation following high flow events.

Non-Functioning (NF): currently 2,973 acres (9%) of riparian-wetland areas that are clearly not providing adequate vegetation, landform, or large wood debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc.

Table 3.22. 2003 Condition Status of Riparian Areas by Watershed within the MPA

Stream System	PFC (acres/%)	FAR (acres/%)	NF (acres/%)	Total Riparian (acres)
Colorado Headwaters– Plateau Colorado River, Cottonwood Canyon	178.34 100%	0	0	178.34
Upper Colorado-Dolores–Westwater Agate Wash, Bitter Creek, Cisco Wash, Coates Creek, Colorado River, Cotttonwood Canyon, Cottonwood Wash, Danish Wash, Diamond Ck, Dolores River, Dry Gulch, East Canyon, Hay Canyon, Jones Canyon, Little Dolores, Marble Canyon, Nash Wash, Pinto Wash Renegade Ck, Ryan Ck, Sagers Wash, Star Cyn, Sulphur Canyon, Westwater Creek	6,753.21 62%	1,502.91 14%	2,692.47 25%	10,948.59
Upper Colorado-Dolores –Upper Dolores East Coyote Wash, La Sal Creek	559.19 82%	122.89 18%	0	682.08
(Upper Colorado-Dolores – Lower Dolores) Beaver Ck, Colorado River, Dolores River, Fisher Ck, Granite Ck	1,247.36 53%	1,134.60 48%	0	2,381.96
Upper Colorado-Dolores – Kane Springs Castle Creek, Bartlett Wash, Buck, Bull Canyon, Colorado River, Courthouse Wash, Day Canyon, Dolores River, Dripping Spring, Dry Oak Spring, Fish Seep Wash, Gold Bar Canyon, Hatch Wash, Hunters Canyon, Ice Box, Jackass Canyon, Kane Springs Ck, Little Canyon, Little Valley, Lockhart, Mill Canyon, Mill Creek, Muleshoe, Negro Bill Canyon, Onion Creek, Pritchett Canyon, Professor Creek, Rill Creek, Sagers Wash, Salt Valley, Salt Wash, Sevenmile, Shafer Basin, Trough Springs, Trout Water, Tusher Wash, West Coyote Wash, Yellow Jacket	7,035.90 78%	1,923.16 21%	26.47 1%	8,985.53
Lower Green – Desolation Canyon Coal Creek, Green River, Rattlesnake	1,133.97 61%	677.63 37%	43.93 2%	1,855.53

Table 3.22. 2003 Condition Status of Riparian Areas by Watershed within the MPA

Stream System	PFC (acres/%)	FAR (acres/%)	NF (acres/%)	Total Riparian (acres)
Lower Green – Willow Moon Ridge, Willow Creek	30.51 100%	0	0	30.51
Lower Green – Lower Green Tenmile Wash, Browns Wash, Crescent Wash, Dubinky, Floy Creek, Green River, Hell Roaring, Little Grand Wash, Mineral Bottom, Rattlesnake, Red Wash, Salt Valley, Salt Wash, Spring Canyon, Thompson Wash, Tusher Canyon, White Wash	1,646.50 21%	5,831.29 76%	210.61 3%	7,688.40
Total	**18,584.98**	**11,192.48**	**2,973.48**	**32,750.94**

3.12.4 Invasive and/or Non-native Species

While functional ratings can indicate the health of an ecosystem and be used as management tools, they do not in themselves reflect the degree of ecosystem diversity relative to invasive, exotic or noxious plant species. This factor has severely altered the majority of native riparian and wetland ecosystems throughout the west (see Table 3.23 for a list of native and non-native plant species). Under this condition, a system can be severely altered and still function to a lesser degree than its desired or potential condition. Riparian areas are naturally dynamic zones driven by disturbance. Natural disturbance within riparian ecosystems associated with water amount, timing, duration and source supports the establishment of native vegetation but can also lead to encroachment by invasive and/or non-native plant communities if these seed sources are present.

Table 3.23. Common Riparian Plant Species Occurring in the MPA

Species Type	
Common Name	***Scientific Name***
Native Riparian Species	
Fremont cottonwood	*Populus fremontii*
Narrowleaf cottonwood	*Populus angustifolia*
Gooding willow (black willow)	*Salix goodingii*
Coyote willow	*Salix exigua*
Yellow willow	*Salix lutea*
Water birch	*Betula occidentalis*
Box elder	*Acer negundo*
Bulrushes	*Scirpus* spp.
Rushes	*Juncus* spp.
Spike-rushes	*Eleocharis* spp.
Cattail	*Typha* spp.

Table 3.23. Common Riparian Plant Species Occurring in the MPA

Species Type	
Common Name	***Scientific Name***
Invasive/Exotic Species	
Russian olive	*Elaeagnus angustifolia*
Tamarisk	*Tamarix* spp.
Chinese elm	*Ulmus parvifolia*
Ravenna grass	*Erianthus ravennae*
Clematis	*Clematis* spp.
Phragmites	*Phragmites* spp.
Noxious Species	
Russian knapweed	*Acroptilon repens*
Purple loosestrife	*Lythrum salicaria*
Spotted knapweed	*Centaurea maculosa*
Bermudagrass	*Cynodon dactylon*
Bindweed	*Convolvulus* spp.
Broad-leaved peppergrass (tall whitetop)	*Lepidium latifolium*
Canada thistle	*Cirsium arvense*
Diffuse knapweed	*Centaurea diffusa*
Perennial sorghum (including Johnson grass)	*Sorghum* spp.
Musk thistle	*Carduus nutans*
Quackgrass	*Elytrigia repens*
Scotch thistle	*Onopordium acanthium*
Squarrose knapweed	*Centaurea squarrosa*
Whitetop	*Cardaria* spp.

Exotic and noxious species (namely tamarisk, Russian olive, and Russian knapweed) are now common within most riparian/wetland ecosystems along major riverways in the planning area. Possibly the most devastating aspect of invasive exotic species is their contribution to making healthy riparian ecosystems unhealthy. The individual riparian functions or processes that exotic species can alter include:

- Exotics often dewater riparian sites since they have deeper tap roots to out-compete natives for availability of water in arid environments;
- Tamarisk secretes salt and increases soil and water salinity, resulting in reduced seed establishment of native species, and reduced downstream water quality. This has severe economic impacts;
- Exotics compete for sun and space in narrow available habitats;
- Exotics have large numbers of seeds and long seed establishment periods (very prolific in comparison to native species);

- Exotic communities typically reduce biodiversity (significant decreases in numbers and types of associated biotic species, including birds, bats, insects, amphibians, etc.); and
- Exotic or invasive communities (e.g., *Typha* spp. *and Phragmites australis*) because of root and stem densities can armor stream banks promoting entrenched systems with highly destructive flooding energies which remain undissipated within deep channels, resulting in high bank loss downstream, sedimentation, and salinization.

3.12.5 RIPARIAN/WETLAND IMPROVEMENT AND RESTORATION

3.12.5.1 IMPACTS TO RIPARIAN AREAS BY WATERSHED

Improvements and restoration efforts are conducted to ensure proper management of riparian/wetland ecosystems based on monitoring and on evaluations of individual resources, resource objectives or in response to activity plans (Table 3.24). Improvements are actions such as protective fencing or adjustments in management uses, while restoration refers to the repair of ecological functions of a riparian/wetland system.

Table 3.24. Watersheds and Issues Receiving Corrective Restoration Action

Watershed	Issues Receiving Corrective Action
Negro Bill Canyon	Exotics, trail realignment
Kane Springs Creek	Exotics, OHV route delineation
Ten-mile Wash (and tributaries)	OHV route delineation, camping control, exotics, livestock
Seven-mile Wash	OHV route delineation, exotics, livestock control
Hunters Canyon	Exotics, camping
Lost Spring	Exotics
Hay Canyon	Livestock control, exotics
Westwater Canyon	Livestock control
Cottonwood Creek	Fire, stream restoration
Diamond Creek	Fire, stream restoration
Onion Creek	OHV route delineation, stream restoration
Bartlett Wash	OHV route delineation, camping control, road maintenance
Moonflower Canyon	Trail erosion
Granite Canyon	Fish habitat improvement
Dolores River	Exotics/weeds, livestock control
Mill Creek Canyon	Trail realignment, exotics, road control, stream restoration

3.12.5.2 CURRENT RIPARIAN/WETLAND CONDITION STATUS

The 2003 status of riparian/wetland ecosystems in the planning area reflect that approximately 57% of lotic riparian systems are in PFC, while only 30% of lentic wetlands are in PFC. These findings followed a 2002 catastrophic wildfire within Cottonwood and Diamond Creeks which degraded 35% (450 acres) of the total wetlands within the MFO planning area (refer to riparian/wetland status at the beginning of this chapter).

Changes in riparian/wetland functioning condition generally occur dramatically rather than gradually, and often in response to cumulative impacts that cause failure following high flood events when functioning processes are most critical to dissipate destructive flows. However, in assessing the 1990 priority of riparian/wetlands in the planning area, very few changes in management priority are reflected, indicating that similar issues or conditions have been maintained over the last few years. Some notable differences in riparian/wetland condition and priorities have occurred in areas with popular OHV use (and associated dispersed camping), reoccurring livestock grazing, and increased use of county access roads.

Riparian/wetland ecosystems prioritized for restoration (1- high to 4- low) within MFO are listed in Table 3.25. Recent revisions of riparian/wetland priorities are based on the protection of important riparian/wetland resources or the need for additional management in response to impacts resulting in Functioning-At-Risk conditions or declining trends.

Table 3.25. Priority Riparian/Wetland Ecosystems in the MPA, 2004 vs. 1990

Priority Status	2004 Priority	1990 Priority
1	Colorado River (including Day Canyon) Green River Dolores River	Colorado River (Colorado - Utah Stateline to Potash)
2	Mill Creek Canyon Onion Creek Ten Mile Wash Kane Spring Canyon Negro Bill Canyon Cottonwood and Diamond Creeks	Negro Bill Mill Creek Canyon Kane Springs Canyon
3	Seven Mile Creek Bartlett/Tusher/Mill/Courthouse Rattlesnake Canyon	Dolores River Green River (Rattlesnake to GR City)
4	Westwater Creek Hatch Wash Floy Creek Flat Nose George Canyon East Coyote Wash Fisher/Beaver/Granite Creeks	Seven-Mile Creek Courthouse Wash Westwater Creek Cottonwood Creek Hatch Wash Rattlesnake Canyon Flat Nose George Canyon

High priority management is also given to special riparian/wetland ecosystems or conditions including:

- Isolated riparian/wetland areas where exotic/noxious encroachment is low;
- Arid or remote regions where riparian/wetlands are especially critical to wildlife and susceptible to impacts from grazing and recreation uses;

- Riparian/wetlands which contain unique, rare or diverse functions or values, such as rare hanging garden ecosystems, rare plant or wildlife species, or health indicator species including amphibians, arthropods, bats, etc;
- Perennial streams, springs, or seeps that develop and support diverse and developed biotic or aquatic ecosystems including fish;
- Sites containing native riparian/wetland species. Of particular importance are ecosystems containing Fremont cottonwood due to its current recruitment history and susceptibility to fire, grazing and beavers; willows (especially Gooding willow) due to their sparseness from overgrazing; and any wetland/lentic systems, sites or species due to their importance in stabilizing soils and water recharge.

In fall of 2005 the biological control agent, *Diorhabda elongata* or tamarisk leaf beetle, was released on private lands along a stretch of the Colorado River adjacent to the Potash Road north of Moab. This population established successfully and in 2006 spread many miles up and downstream (and into several side canyons) with several miles of significant defoliation near the original release site. The beetle has established itself and is defoliating trees on BLM managed lands near the original release site. Repeated defoliation and spread of the beetle is expected to continue at a rapid pace in the next several years. Eventual death is expected for many of the trees after 4-5 years of continual defoliation, however that is still an estimate based on results of releases in other states or in slightly different ecosystems, it may differ slightly at this location. There will likely be standing dead skeletons, release of other suppressed weed species such as knapweed. Potentially some recovery of willow and other native species may occur, especially in headwaters or areas with less dense tamarisk infestations; however due to salinization of soils from dense tamarisk stands or hydrologic controls which may affect flooding and potential for cottonwood establishment, natural revegetation may not readily occur and more active restoration techniques may be necessary to prevent erosion or degradation of riparian resources.

3.13 Socioeconomic Resources

3.13.1 Social and Economic Conditions

The socioeconomic context of this RMP/EIS refers to the social, cultural and economic settings of communities impacted by the implementation of the BLM's management actions. The following section provides a summary of the planning area's social history and current demographic and economic trend information as well as a description of the key industries that are may be affected by management action implementation.

The southern third of the MPA is in San Juan County, Utah. The full socioeconomic context for San Juan County is presented in the Monticello Resource Management Plan Revision, currently in progress. Relevant portions of the San Juan County socioeconomic report are contained in this chapter. For a full report on the social and economic conditions in San Juan County, see the Monticello RMP.

3.13.1.1 Grand County Overview

Grand County is situated in the eastern part of Utah, bordered by Emery County to the west, Uintah County to the north, San Juan County to the south, and the state of Colorado to the east. The county comprises 2,284,117 acres (3,689 square miles), with approximately 2.3 persons per square mile; Grand County has one of the lowest population densities in the state, (27.2 persons per square mile is the statewide average) (Grand County 2004). The Federal government administers 71% of the land in Grand County. The BLM manages the majority of the Federal land within the county, with jurisdiction over 66% of the land (1,559,814 acres). With just over 95% of the land being managed by Federal, state, and tribal governments, only 4.3% of the land is privately owned. Table 3.26 shows the land composition of Grand County.

Table 3.26. Land Jurisdiction in Grand County

	Total Acres	% of County
Federal Lands	1,694,128	71.0
BLM Lands	1,559,814	66.0
USFS	27,321	1.2
National Park	75,362	3.2
State Lands	365,255	15.5
Private	100,763	4.3
American Indian	198,090	8.4
Total Acres Within the County	**2,363,594**	**100.0**

Source: Utah Division of Travel Development 2004

The large tracts of privately owned land in the county are located in Spanish and Castle valleys, along the Colorado River northeast of Moab, and along the Green River, north of the city of Green River. Because of the concentration of private land in the Spanish Valley, the availability of potable water, proximity to the National Parks, and the lack of infrastructure in other areas, the majority of the county's population resides in the city of Moab or in the unincorporated area of Spanish Valley (Grand County 2004).

The natural landscape in Grand County draws over two million visitors per year and provides a scenic backdrop for a community that values a high quality of life. With the Book Cliffs in the northernmost part of the county, the Manti-La Sal National Forest to the south, the Colorado River running through the county, Arches and Canyonlands National Park, and thousands of acres of BLM Recreation Area, Grand County hosts visitors from all over the world. The remarkable red rock landscape has allowed local residents to develop a strong connection to the area and create a sense of place, identity, and community character unique to Utah.

3.13.1.2 San Juan County Overview

An approximately 300,000-acre portion of San Juan County falls under the jurisdiction of the MFO. The Monticello Field Office is concurrently preparing a RMP/EIS for the San Juan County area and was consulted regarding the socioeconomic analysis of San Juan County and the characteristics of the tract of land administered by the MFO. Because the northeast third of San

Juan County is within BLM, MFO jurisdiction, the land management decisions out of the MFO could have a potential impact on socioeconomics of San Juan County. Therefore, social and economic conditions in San Juan County will be mentioned as appropriate throughout this section.

3.13.1.3 Historical Social Context

The MPA is an area rich in cultural and natural history. Past settlements and uses in the planning area by a variety of peoples has been as important as the ecological processes that have created and shaped the place that the BLM manages today. A brief review of the social and cultural history in the area will provide background information on the present-day social setting. Archeological evidence suggests that Grand County and the larger Four Corners area was inhabited by Native Americans, called Anasazi, between the years 1 and 1300 AD, with some evidence dating back as early as 1500 BC (BLM 2005h). The Anasazi, or Ancestral Puebloan People as they are often referred to today, successfully farmed the Four Corners Area for over a thousand years but evidence suggests they left the region by A.D. 1300. Other Native Americans occupied the Grand County area after the Anasazi, including the Utes. These Native American residents used the crossing of the Colorado River at the edge of the Spanish Valley. Remains of Native American dwellings and rock art around the MPA provide glimpses into the history of the cultures that once inhabited the region. The first white people to enter into the area were Spanish explorers who developed a trade route through the Spanish Valley. It was not until the late 1870s and early 1880s that the Moab area was permanently settled by a few Mormon families. Throughout the 1880s and 1890s the settlement grew slowly and its economy was based on farming, ranching, and fruit growing. In the 1890s, as mining efforts began along the Colorado River and in the LaSal Mountains, construction of the Denver and Rio Grande Western Railroad between Denver and Salt Lake City was completed, bringing a railroad connection within 35 miles of the Moab Valley.

3.13.1.4 Recent Regional History

Farming and ranching continued to be the primary way of life in the Moab Valley until the uranium boom of the early 1950s. The population of the Moab area grew significantly in the 1950s as scores of prospectors, miners, and workers hoped to benefit from the uranium boom. In 1956 the nation's second largest uranium processing mill was completed just outside of Moab, employing more than 200 workers (Bearnson 1994). As the demand for uranium began to decrease in the 1960s, potash, salt mining and milling operations contributed to the economy. But by the early 1980s milling and most mining operations in the Moab area ceased given the lack of demand.

In the later half of the twentieth century the Moab area saw the benefits of utilizing its natural resources in other ways: recreation and tourism. Arches National Monument was established in 1929 and declared a National Park in 1971. Canyonlands National Park was established in 1964. The National Parks in the area drew numerous visitors to the area each year and Moab began serving as the gateway to these unique places (Grand County 2004). After World War II, river-running became a popular form of recreation and by the 1970s it contributed significantly to Moab's economy as people would come to Moab to run sections of the Colorado River. During the 1970s and 1980s, Moab continued to grow as a tourist destination as mountain bikers and

motorized vehicle users discovered the recreation potential in the slickrock hills surrounding the Moab Valley.

3.13.1.5 CURRENT SOCIAL CONTEXT

Today, Grand County is an area that has historically been known for its rural character and, according to local residents, preservation of this character is a priority. While the term "rural character" means different things to different people, residents concluded that it meant the following: affordable, modest, low density housing, open space with farmlands and fields, protected viewsheds, and low population, crime, and traffic levels (Grand County 2004).

The above characteristics illustrate the community's desire to maintain and preserve the quality of life currently enjoyed by its residents. The residents also acknowledge that the public lands in Grand County are the foundation of the county's economic prosperity. Residents in the Moab area define their community as one based on recreation and tourism. The economic benefit is derived from the management of public lands for multiple use, including livestock grazing, tourism, mineral extraction, recreation, watershed protection, hunting, and the film industry. Grand County's goal is to achieve a stable economic base while minimizing degradation of the economic, social, ecological and cultural resources of the public lands (Grand County 2004). Within the Grand County area, there are a variety of social communities that interact with each other and with the BLM. The majority of these groups are concentrated in and around the city of Moab, as it serves as the social and political center for the county. The social communities maintain diverse views on many issues, including public land management, but they do share the common connection to the unique landscape that surrounds their community. Many of the sociocultural groups within the Moab area define themselves through the physical proximity to the area and their interactions within it, their trade, shared worldview, common interests and experiences. Although community groups within the Moab area are quite difficult to define and quantify, groups in the area could be listed as: tourists, motorized and non-motorized recreationists, ranchers/farmers, tourism business community, non-tourism business community, and relative newcomers.

A statewide social survey was conducted by Utah State University (USU) in 2007 to assess the ways in which Utah residents use and value public land resources and their views about public lands management. A complete analysis of the results had not been completed as of February, 2008. "Public lands", as described in the study, consist of all federal and state managed lands, and not only BLM. Surveys were mailed to a random sample of residents of all 29 Utah counties. According to the authors, the study and sample sizes are designed to produce results generalizable at the state-wide level, with generalization increasingly risky as the sample area diminishes. For example, the data may lose much of its generalizability at the individual county level, but increase as additional counties are aggregated into the sample. (Grand County, for example, has 6902 residents 18 years of age or older, which normally would require a random sample of 364 individuals, considerably more than the USU study, to have a reasonable degree of generalizability). The areas sampled do not necessarily coincide with field office planning area boundaries, as that was not the focus of the study. Nonetheless, the study provides current and interesting results not available elsewhere, and shows the dependence of local communities on public lands for a variety of economic and recreational pursuits. Appendix T contains initial summary results for Grand and San Juan Counties lying within the Moab Field office. Where

appropriate, study results are incorporated within the discussion of individual resources in Chapter 4. There is nothing in the preliminary USU results that affect the formulation of alternatives in Chapter 2 or the analysis of impacts in Chapter 4.

3.13.1.6 Economic Context

This section describes existing economic conditions surrounding the MPA and provides a baseline for assessing the potential impacts of the RMP alternatives. Based on the implementation of a particular alternative, the BLM can affect (directly or indirectly) the local economic conditions of the nearby communities. For example, local employment and income levels can be directly impacted by changing the way it manages natural resources or grazing allotments. The construction of new recreation trails or facilities, road maintenance, and other activities can also influence local socioeconomic conditions described in this section. The BLM can also indirectly influence local economic conditions by pursuing new management strategies that alter visitation levels, thus affecting total future spending by recreationists and other tourists (BLM 2004e). Demographic information and selected economic indicators of social well-being (poverty, unemployment, and per capita household income) are also presented in this section to help provide context and put local conditions in perspective relative to statewide conditions.

3.13.1.6.1 Population

Grand County's population data is illustrative of an area that is driven by booms in the local economy. The county's recent history illustrates this trend. As the county's economy plummeted with the decreased need for uranium and other minerals in the 1980s, people quickly left the county in search of jobs and opportunities elsewhere. The county's population was at its height in 1981 with 8,400 residents but net out migration left the county with 6,620 residents in 1990 (Table 3.27). As the tourism industry in Grand County began to take root, the number of county residents began to rise. Between 1990 and 2000 the population grew by 28% which was only slightly less than the state's 30% increase (UDWS 2005).

Table 3.27. Population by Category in Grand County, 1990 and 2000

	1990	% of Total	2000	% of Total	% Chg 1990–2000	% Chg per Year 1990–2000*
Population	6,620		8,485		28%	2.50%
Male	3,214	49%	4,163	49%	30%	2.66%
Female	3,406	51%	4,322	51%	27%	2.42%
Under 20 years	2,250	34%	2,496	29%	11%	0.96%
65 years or over	826	12%	1,061	13%	28%	2.50%

Source: Sonoran Institute 2003 and *BLM staff.

In 2000, the U.S. Census reported a population of 8,485 in Grand County (see Table 3.27; U.S. Census Bureau 2000). The population has grown only slightly since then with a total of 8,611 in 2004 and it is forecasted the growth within the county will continue in the near future but at a much slower pace than in the 1990s (UDWS 2005). The annual population growth rate of Grand

County is slower than that of the state of Utah: approximately 1.9% annual growth in the county, versus 2.3% annual growth in the state. The Governor's Office of Planning and Budget for the state of Utah projects that population in Grand County will reach 10,288 by 2030.

The greatest concentration of people living in Grand County is in the city of Moab, where the population is 4,779. Unincorporated areas account for 3,357 people, most of whom live immediately south of Moab. Castle Valley, approximately 20 miles from Moab, is another unincorporated area within the county that has a significant residential community with a population of 354.

Grand County's population is older than the Utah state average. The median age for the county is 35.6, whereas the state's median age is 27.5. Median age rose by 4% between 1990 and 2000, showing that the community is aging. Another indicator of an aging population is the continuing decline of school-aged children since 1995 (Grand County 2004).

Population Migration

While the population of Grand County has steadily grown over the last 30 years, the migration patterns have experienced slight dips and peaks. In the mid 1970s, the population increased dramatically as a result of the energy boom. Throughout the 1980s, out-migration of the population occurred as the energy market fell. The population continued to decline until the early 1990s, when the tourist economy began to emerge in Grand County. The current influx of migrants can be illustrated by data from the 2000 Census that report 53.3% of Grand County residents were born in a different state and of that percentage, 4.0% were born outside of the U.S. (Sonoran Institute 2005).

San Juan County Population

The 2004 population estimate data shows San Juan County has a total of 14,353 residents, slightly below 14,413 residents reported in the 2000 Census data (UDWS 2005).

In San Juan County the American Indian/Alaskan population is more than half of the total population at 55.7%, but makes up only 1.33% of the Utah population (UDWS 2005). Population on the Navajo Nation has grown steadily over the last two decades. In 1980 population on the reservation was 4,554, 5,252 in 1990 and 6,280 in 2000.

The only town within the MFO jurisdiction in San Juan County is La Sal, Utah. La Sal borders the Manti-La Sal National Forest and is 30 miles north from Monticello. Because it is a "densely settled concentration of population that is not within an incorporated place," it is declared a Census Designated Place according to the Census Bureau (GOPB 2001). According to the 2000 Census, the population of La Sal is 339.

3.13.1.6.2 UNEMPLOYMENT

Unemployment levels are frequently used as an indicator for economic strength of the local economy and social well being of its population. Table 3.28 presents the size of the labor force

and average annual unemployment rates in Grand County. State of Utah unemployment information is given for comparative purposes.

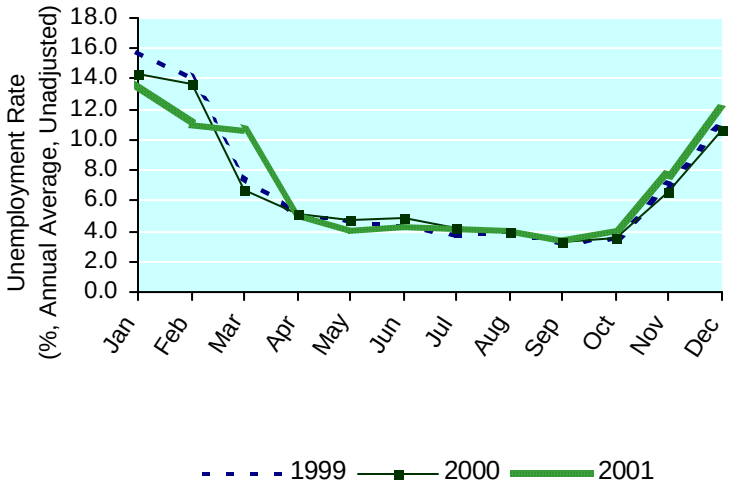
Table 3.28. Unemployment Rates

	1990		2000		2004 (projected)	
	Labor Force	Unemployment Rate	Labor Force	Unemployment Rate	Labor Force	Unemployment rate
Grand County	3,249	6.4%	5,362	6.5%	5,936	6.9%
San Juan County	4,032	7.4%	4,754	9.2%	4,682	11.0%
State of Utah	814,000	4.3%	1,143,200	3.3%	1,208,400	4.7%

Source: Utah Department of Workforce Services 2005

Unemployment in Grand County is higher than the state or national average. In 2004 the unemployment rate in Grand County was 6.9%, compared to 4.7% for the state and 5.3% for the nation (UDWS 2005). The unemployment rates in Grand County are consistently nearly twice the state average and this is attributed to the seasonality of employment in the county. Unemployment in San Juan County has also been consistently above the state or national average. In 2004, San Juan County had the highest unemployment in the state at 11% (UDWS 2005).

In the summer months, unemployment in Grand County matches the state average more closely, while in winter, unemployment is extremely high, reaching over 15% in recent years (Figure 3.6). Members of the community cite seasonality of employment as one reason for this trend. Since tourism is a major factor in the job base, and tourism is highest from spring through fall, jobs are more abundant during these times. According to community input, lifestyle choice may be a second reason for a high unemployment rate in Grand County. Residents may be intentionally choosing jobs or careers that are seasonal in nature. The figure below shows the seasonality of employment in Grand County, with unemployment rates highest in the winter months for 1999, 2000 and 2001.



Source: Sonoran Institute 2003.

Figure 3.6. Seasonal unemployment in Grand County, 1999–2001.

3.13.1.6.3 Per-Capita Personal Income

Personal income[1] is another indicator of social wellbeing. Table 3.29 shows per capita personal income (i.e., total personal income divided by population) in Grand and San Juan Counties and in Utah. Per-capita personal income in Grand County was higher than the state average in 1980. The elevated income is attributed to the mining and mineral extraction jobs (which often pay higher than average wages) that were available at the time. As mineral extraction jobs became virtually non-existent, personal income levels have decreased to below the state average (see Table 3.29). Per-capita personal income has remained well below the state average for San Juan County. In 2003 San Juan County had the lowest per capita income in the state.

Table 3.29. Per-Capita Personal Income

Area	1980	1990	2000	2003
Grand County	$9,991	$12,464	$20,181	$20,634
San Juan County	$5,841	$8,995	$12,881	$14,363
State of Utah	$8,510	$14,913	$23,878	$25,407

Source: BEA 2005.

[1] Personal income is the income that is received by persons from all sources. It is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. This measure of income is calculated as the personal income of the residents of a given area divided by the resident population of the area. In computing per capita personal income, BEA uses the Census Bureau's annual midyear population estimates. (BEA 2005)

3.13.1.6.4 POVERTY

The poverty rate of an area is an estimate of the percentage of the area's total population living at or below the poverty threshold established by the U.S. Census Bureau. Table 3.30 presents poverty rates in Grand and San Juan Counties, with statewide figures included for comparative purposes.

Table 3.30. Poverty Rates

Area	1989	2003
Grand County	19.3%	13.9%
San Juan County	36.4%	22.6%
State of Utah	11.8%	10.0%

Source: U.S. Census Bureau 2005

Poverty rates for Grand County decreased 5.4% in absolute value between 1989 and 2003 and San Juan's decreased 13.8%. Statewide poverty levels also decreased over time by 1.8%, but not to the extent that Grand and San Juan Counties did. Through recent decades, both counties' poverty rates have been significantly higher than the state average. The most recent data shows poverty levels in San Juan County are more than double the state's rate at 22.6%. Poverty rates on the Navajo Nation Reservation (located in the southernmost portion San Juan County) in 2000 were significantly higher than county or state rates at 49.7% (GOPB 2002).

3.13.1.6.5 HOUSING

According to the 2000 Census, Grand County has a total of 4,062 housing units, 84.5% of which are occupied. Of these units, 6.8% are for seasonal and recreational use, and 29% are renter-occupied. Average household size is 2.5 residents, lower than the state's average. The median housing price in 1999 was $120,000, up from $105,000 in 1997. Table 3.31 shows that seasonal housing is much more than the state average, at 6.8% (U.S. Census Bureau 2000).

Yet another indicator of economic strength is the amount of new residential building permits granted for a particular area. An increase or decrease in the amount of building permits granted reflects the growth of a community and allows planners and local governments to plan for the amount of necessary infrastructure (i.e., roads, water, sewer, and power).

Residential buildings permits for Grand County peaked in 1996 at 187 and have dropped sharply since. In 2002, in response to a national recession, the amount of building permits issued was the lowest in recent decades at 36 (Grand County 2004). The amount of permits sharply increased in 2003 to 106 and has leveled off in 2004. Residential construction in the unincorporated areas of Grand County has consistently exceeded that within the city of Moab. For example, in 2004, 31 permits were issued for dwelling units in Moab, and 75 permits were issued for unincorporated areas in the county (UDWS 2005).

Table 3.31. Population by Household Type in Grand County, 2000

	County	% of Total	State	% of Total
Total Housing Units	4,062		768,594	
Occupied Housing Units	3,434	84.5%	701,281	91.2%
Vacant Housing Units	628	15.5%	67,313	8.8%
For Seasonal, Recreational, or Occ. Use	276	6.8%	29,685	3.9%
Homeowner Vacancy Rate (%)	2.0%		2.1%	
Rental Vacancy Rate (%)	13.4%		6.5%	
Housing Tenure				
Total Occupied Housing Units	3,434		701,281	
Owner-occupied Housing Units	2,437	71.0%	501,547	71.5%
Renter-occupied Housing Units	997	29.0%	199,734	28.5%
Avg Household Size - Owner Occupied	2.5		3.3	
Avg Household Size - Renter Occupied	2.4		2.8	

Source: Sonoran Institute 2003.

One recent and difficult to measure trend in the Moab area is the increase in construction of second homes. The challenge is to track the percentage and valuation of new second home permit versus permits for new houses for full-time residents. According to a 2003 BLM MFO study, 13% of all homes in Grand County are second homes and the trend is expected to increase (Goldhor-Wilcock and Stevens 2003). According to the Grand County Assessor's office, nearly 40% of new housing construction permits in 2005 were for non-resident owned housing. The second homes currently being built are often larger and more expensive than those of local residents and this leads to an increase in property taxes and cost of living for residents. This can be problematic for full-time residents as personal income in Grand County is consistently less than the state average. It is likely that the owners of the second homes are choosing to build in Moab because of the scenic beauty and recreation potential. This would be consistent with a recent study of second home ownership sponsored by local county governments in central Colorado. This study found that scenery was cited by 95% of second home owners, and recreation opportunities (where hiking and skiing were the most mentioned activities) by 91% as being important amenities driving the choice of locale (Venturoniet al. 2005). These two qualities, recreation opportunities and scenery, are clearly abundant in lands managed by MFO, making it reasonable to assume that these factors are driving second home ownership trends in Grand County, as well. This may conflict with the full-time residents desire to diversify their economic base, become less-dependant on tourism, and meet the basic needs of the community with respect to affordable housing and education (Grand County 2004). While the trend to build new second homes in the area appears initially beneficial to the county, it may be somewhat problematic given the cost of living increases and conflicts over public land use.

A recent study assessed the impact of second homes on the economies of four central Colorado counties. Using IMPLAN software, the study came up with several conclusions that might be applicable to Grand County:

- Second home construction and subsequent spending by owners for goods and services accounted for over 38% of all jobs in the counties studied. Although the Colorado counties have a higher percentage of second home properties (over 60% of all housing units), the study clearly indicates there are economic benefits to local communities from second homes.
- Resident spending of non-local income (dividends, interest, rent) accounted for about 16% of all jobs in the four counties studied. This type of income is closely linked to the type of wealthy households that tend to retire in amenity-rich, resort type communities. Again, Grand County may be moving in this direction (Lloyd Levy Consulting 2004).

There is, however, a potential downside to the above. As demand for second homes increase, especially in areas with relatively little land available for development (such as in Grand County), housing prices can rise dramatically. This phenomenon decreases the supply of affordable housing for both full-time residents and for workers needed to support the second home economy (Venturoni et al. 2005).

3.13.1.6.6 EMPLOYMENT

Local and regional employment levels could be affected directly or indirectly by the implementation of the updated RMP. The following information reflects trends in employment since the 1970s.

Jobs are typically classified with two systems: the Standard Industrial Classification System (SIC) and the National American Industrial Classification System (NAICS). Each system categorizes jobs differently. Historically, SIC codes have been used to describe employment, but they are limited in their scope. The more recent NAICS codes provide more detail but fail to show historic patterns. Both systems were used in this analysis.

In 2000, the Grand County economy supported 5,692 jobs with most employment (70.4%) in the Services and Professional sector. Government jobs account for 14.9% of all jobs in the county. The remainders of jobs are in farm and agricultural services, mining, manufacturing, and construction. Note that the services sector includes services, retail trade, finance industries, transportation and public utilities, and wholesale trade, essentially everything that is not farming, mining, or government. Of these subcategories, services provide 32% of total employment, and retail trade accounts for 29% of total employment. The prominence of the Services and Professional sector, as a percentage of total employment in the county, has grown over time, from 47.3% in 1970 to 70.4% in 2000. The significant growth within this industry sector highlights the county's shift towards a service-based economy. Table 3.32 presents absolute levels of employment between 1970 and 2000 for Grand County.

Table 3.32. Employment by Industry in Grand County

	1970	% of Total	2000	% of Total	New Employment	% of New Employment
Total Employment	2,724		5,692		2,968	
Wage and Salary Employment	2,320	85.2%	4,424	77.7%	2,104	70.9%
Proprietors' Employment	404	14.8%	1,268	22.3%	864	29.1%

Table 3.32. Employment by Industry in Grand County

	1970	% of Total	2000	% of Total	New Employment	% of New Employment
Farm and Agricultural Services	84	3.1%	146	2.6%	62	2.1%
Farm	78	2.9%	93	1.6%	15	0.5%
Ag. Services	6	0.2%	53	0.9%	47	1.6%
Mining	549	20.2%	120	2.1%	-429	NA
Manufacturing (incl. forest products)	88	3.2%	138	2.4%	50	1.7%
Services and Professional	1,289	47.3%	4,009	70.4%	2,720	91.6%
Transportation and Public Utilities	183	6.7%	147	2.6%	-36	NA
Wholesale Trade	55	2.0%	107	1.9%	52	1.8%
Retail Trade	425	15.6%	1,628	28.6%	1,203	40.5%
Finance, Insurance and Real Estate	115	4.2%	315	5.5%	200	6.7%
Services (Health,						
Legal, Business, Others)	511	18.8%	1,812	31.8%	1,301	43.8%
Construction	211	7.7%	433	7.6%	222	7.5%
Government	503	18.5%	846	14.9%	343	11.6%

Agricultural Services include soil preparation services, crop services, etc. It also includes forestry services, such as reforestation services, and fishing, hunting, and trapping. Manufacturing includes paper, lumber and wood products manufacturing.

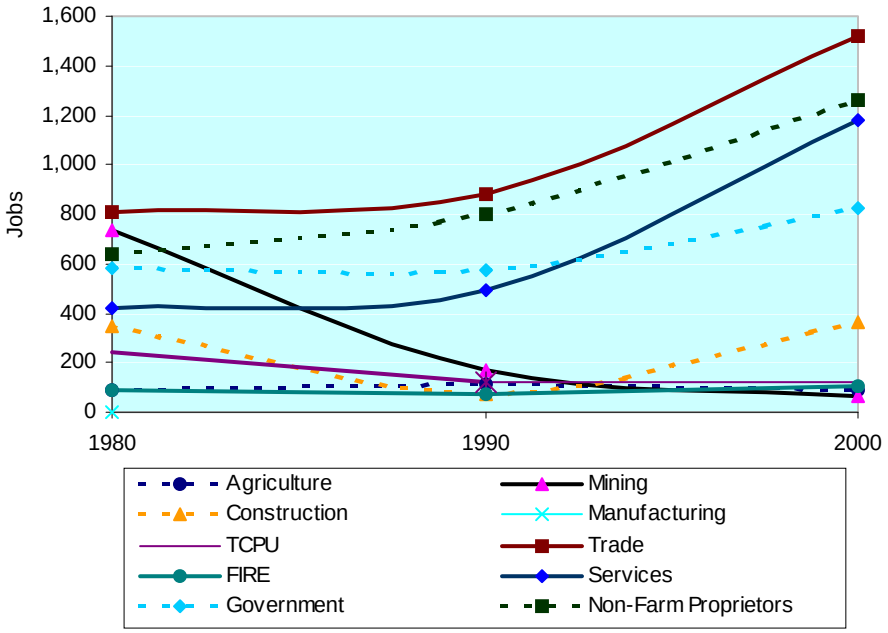
Source: Sonoran Institute 2003.

Shift in Regional Economic Activity

For over 20 years Grand County has been facing a decline in its traditional resource-based economy while other economic sectors have become more dominant (Figure 3.7). The agricultural industry, which was once the primary way of life for the county's residents, has become virtually non-existent as a revenue generator for the county. As mentioned earlier, the bottom fell out of the mining industry by the early 1980s and the county's largest industrial boom came to an abrupt end. By the mid-1980s it was clear that tourism was taking over as Grand County's primary source of revenue and this trend has continued into the twenty-first century. According to the Grand County General Plan, it is likely that tourism will remain important to the county for the foreseeable future.

Table 3.33 shows the trends in Grand County Employment over the last 20 years. Both community perceptions and the data shown below suggest that most jobs in the county are either indirectly or directly related to the tourist industry. Many of the area residents currently feel that the county's economy is too dependent on service jobs related to the tourism industry, which almost always offers lower wages and less stability. Employment data collected by local and national agencies does not include "recreation" specifically as an employment category; "leisure and hospitality" comes closest to this. In Grand County, the average annual earnings in this

sector were $13,615, considerably lower than the Grand County private sector annual average earnings of $21,449. This disparity is likely offset somewhat by earnings in other sectors which likely have a recreation influence. For example, construction in 2005 accounted for 7 per cent of private sector employment in Grand County, with average annual earnings of $27,760. The second home phenomenon in the County is driven, in large part, by the recreation opportunities the area provides. Hence, some of the residents are interested in diversifying the economy and bringing in higher-paying year-round employment to the county. As discussed above, there may be potential for job diversification resulting from the second home phenomenon, as in construction and other second home spending on goods and services in the local economy.



SIC= Standard Industrial Classification System used to categorize employment trends over time
TCUP=Transportation, Communications, and Public Utilities
FIRE=Finance, Insurance, and Real Estate
Source: Sonoran Institute 2003.

Figure 3.7. Changes in the Grand County economy (by SIC code), 1980–2000.

Table 3.33. Trends in Employment (SIC code), Grand County, 1980, 1990, and 2000

Industry	1980	1990	2000	% Change from 1980
Mining	18%	5%	1%	-94%
Construction	9%	2%	6%	-33%
Manufacturing	2%	2%	1%	-50%
TCPU (Trans./Comm./Public Util.)	6%	4%	2%	-67%
Trade	20%	26%	27%	35%
FIRE (Finance, Insurance, Real Estate)	2%	2%	2%	0%
Services	10%	15%	21%	110%

Table 3.33. Trends in Employment (SIC code), Grand County, 1980, 1990, and 2000

Industry	1980	1990	2000	% Change from 1980
Government	14%	17%	15%	7%

SIC= Standard Industrial Classification System used to categorize employment trends over time
Source: Utah Department of Workforce Services with calculations for % change completed by MFO.

The shift in economic activity has been similar in San Juan County over the past several decades. As jobs were lost in mining in the late 1970s and early 1980s, jobs in trade and services increased dramatically. Today, the trade and service sector employees a large amount of people to support the tourism industry around Lake Powell; however, many of these jobs are seasonal in nature, with most lasting from April to mid October.

Direct BLM Contributions to Area Economic Activity

Under the Federal Payment-in-Lieu-of-Taxes (PILT) Program, payments from the BLM and other Federal agencies assist in financing the operations of local governments containing tax-exempt public lands. The annual PILT payments serve as a subsidy to the local governments because, unlike privately owned lands, taxes are not collected from Federal lands. Payment amounts are based on a complex formula that considers among other things revenue sharing from the previous year, county population, and acreage of a county in Federal ownership. The PILT payments may be used for any governmental purpose including improving schools, road, water, and other infrastructure systems. Nearly 72% of Grand County is Federally owned land; therefore PILT payments are an important economic contribution to the area. PILT payments to Grand County have continually increased in recent years. Table 3.34 shows PILT Payments to Grand County between FY 2001 and FY 2005.

Table 3.34. PILT Payments to Grand County

Year	Total PILT Payment
2001	$492,256
2002	$516,376
2003	$622,831
2004	$640,349
2005	$653,761

Source: USDI 2005.

3.13.1.6.7 Local Economic Activity Affected by BLM Management

Recreation and Tourism

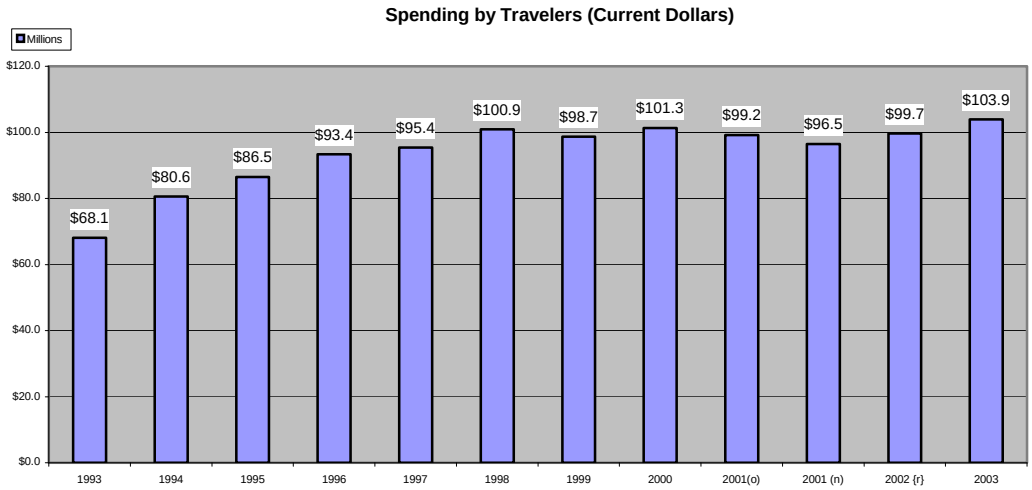
The MFO hosts a variety of recreation enthusiasts to its 1.8 million acres of public lands. Persons visiting the planning area are involved in a multitude of outdoor activities, including mountain biking, hiking, boating, camping, climbing, off-highway vehicle (OHV) driving and general

recreation. These activities occur in this area because of the large expanses of vast and relatively undeveloped lands and because of the unique geologic and scenic beauty the area has to offer. A BLM, MFO study indicates there were approximately 1.6 million recreational visitors to BLM lands in the MPA in 2004 (personal communication between Bill Stevens, BLM – MFO and Laura Burch, SWCA on January 6, 2006). This number exceeds visitation to Arches and Canyonlands National Parks and local state parks combined. More information on recreational visitation can be found in Section 3.10 – Recreation.

Visitation and related recreation activities on Grand County's public lands generates positive income and employment effects in the local economy as visitors spend money on gasoline, lodging, and various supplies including food and equipment. These expenditures generate earning for local proprietors and support local employment. As mentioned in the Updated Grand County General Plan, tourism is the most important economic resource for the county today. As discussed above, the second home phenomenon and the demand of their owners for access to visual resources and recreation opportunities may also contribute positively to Grand County's economy. Given patterns in the rest of the West, as well as the recent trend in Grand County, there is no reason to believe that this sector of the economy will not grow in importance.

Trends in traveler spending follow trends shown in other measures of the economy. As it became clear in the early 1990s that mining would not be the main contributor to the economy, tourism spending contributed just over $60 million to the county's economy. Throughout the 1990s traveler spending continued to grow to over $100 million in 1998 (Figure 3.8). The recession and the terrorist attack on September 11, 2001 caused a slight decrease in tourist spending but the tourist contribution to the Grand County economy continues to remain around $100 million per year.

In 2003, recreation and tourism generated $100.1 million out of $163.64 million in taxable sales of goods and services in Grand County. Thus, Moab's economy for 2003 was 61% tourism based. Although Grand County ranks seventh in the state for spending by travelers, taxable sales actually decreased 8.4% from 2002 (UDTD 2004). Travel and tourism-related employment has increased steadily since 1990s, with tourism spending levels in Grand County supporting 1,999 jobs in 2003.



Source: Utah Division of Travel Development 2004.

Figure 3.8. Tourist spending in millions, Grand County, 1993–2003.

Local sales tax revenue from tourist related services has also risen steadily since the early 1990s. Similar to gross taxable sales, sales tax revenue decreased somewhat in 2001, quickly increased in 2002 and dropped slightly in 2003. In 2003 estimated local tax revenue was estimated at $2 million, 8.4% less than 2002. Other tourism related tax revenue, such as gross taxable room rents, transient room tax, restaurant tax, and car rental tax, declined in 2001 and 2003. Despite recent rises and falls in traveler spending and sales tax revenue, the tourism-related revenues appeared to have leveled off and are not expected to make significant gains in the near future. Table 3.35 shows the contribution of tourism to the local economy.

Table 3.35. Tourism-Related Tax Trends in Grand County

County Indicator	1997	2000	2003
Spending and Employment			
Spending by Traveler (millions)	$100.9	$99.2	$100.1
Travel and Tourism Related Employment (jobs)	1,853	1,878	1,999
Tourism Tax Revenues (000s)			
Local Tax Revenue from Traveler Spending	$2,098	$2,063.0	$2,095
Gross Taxable Room Rents	$25,557	$26,674	$25,148
Transient Room Tax	$754.8	$800.2	$754.4
Restaurant Tax	$29.3	$205.8	$222.4
Car Rental Tax	$2.9	$25.1	$14.2
Gross Taxable Retail Sales (millions)	**$136.7**	**$162.9**	**$163.6**

Source: Utah Division of Travel Development 2004.

It is important to note that on January 1, 2003, Grand County relinquished its portion of the city of Green River to Emery County. The annexation led to the loss of tourist revenue and tourism related employment because Green River serves as an important thoroughfare, with gasoline stations and lodging, for people traveling along I-70.

Visitation data can also be used to illustrate tourism and recreation trends in the Grand County area. According to a BLM, MFO report, the BLM hosted at least 1.6 million visitors to its public lands (Goldhor-Wilcock and Stevens 2003). The most recent data out of the MFO suggests that visitors to BLM lands have increased and in 2004 visitation to the area is estimated at 2 million (personal communication between Bill Stevens, BLM – MFO and Laura Burch, SWCA on January 6, 2006).

Visitation to the Grand County area, outside of BLM lands, follows the traveler-spending trend, as it increased throughout the 1990s and has leveled off in the new century. The following table shows visitation numbers for several locations in Grand County that can be used as indicators for visitation to the area.

Table 3.36. Visitation Trends

Regional Visitation Counts	1997	2000	2003
I-70 UT/CO Traffic Count	1,888,875	2,314,830	2,459,005
Thompson Springs Welcome Center	108,212	97,896	93,905
Glen Canyon N.R.A.	2,504,986	2,568,111	1,842,942
Arches N.P.	856,016	786,429	757,781
Canyonlands N.P.	447,527	401,558	386,985
Dead Horse Point S.P	202,452	173,680	161,774
Green River S.P	110,921	138,531	83,951

Source: Utah Division of Travel Development 2004.

Budget and Fee Collection for Programs

The Moab BLM Recreation Program is important to the local economy. Of the nearly $100 million in sales revenue in Grand County, approximately $45 million is attributable to recreation on public lands.

Due to a relatively flat base budget, the MFO has come to rely on user generated fees for needed funds to support intensive public use. Services to the public are provided from these fee monies, such as campground maintenance and expenses related to the Westwater Canyon permit system. Maintenance and operation of facilities is costly and requires a commitment of funds to provide safe and proper facilities. Given the large number of visitors to BLM lands and the lack of Federal funding to support the visitors, the MFO has had to become much more self-sufficient than typical BLM offices in order to provide for public safety and enjoyment. Table 3.37 describes the current (2003) budget and fee programs and their allocations for the MFO.

Table 3.37. Budget and Fee Collections for Programs in the MPA, 2003

Revenue Generated on BLM Lands	YR 2003
Base recreation from non-fee accounts	$208,000
Annual recreation fees collected	$512,000
Total recreation budget (base and fees)*	**$720,000**

*Excludes Sand Flats Recreation Area

Source: BLM 2005i.

Recreation fees on BLM land also provide an economic benefit for Grand County. The county collected $236,498 in 2004 and $236,607 in 2005 for the Sand Flats Recreation Area. The revenue is used by the county to maintain and manage this area and employ local Grand County residents. None of the fees collected in this recreation area go to the MFO.

Agriculture and Grazing

The agriculture industry has declined dramatically in the last three decades. In 1970, total net income from farming and ranching in Grand County was $901,000. By 1985, that number had dropped to $88,000. In 2000 this number had dropped to $-830,000. Negative income means that expenses outweighed revenue for farming and ranching operations. Most agricultural income (approximately 80%) is from cash receipts from livestock and crops, while the remaining 20% is from government payments. Employment based on farming and agricultural services accounts for only 2.6% of people working in Grand County in 2000 and this percentage has decreased since 1970 when it was 3.6%.

The composition of livestock and crops has also shifted in the last decade. In 1970, 73% of gross farm income was from livestock, while 9% was from crops. By 2000, 47% of gross income was from livestock, and 32% from crops. Figure 3.9 below shows trends in agriculture as it relates to farm income since 1970.

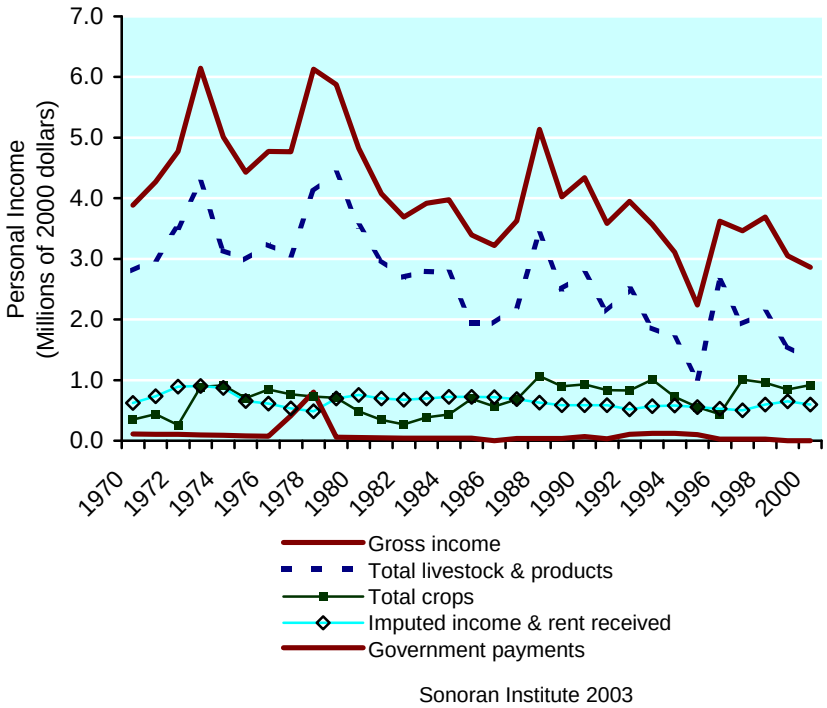


Figure 3.9. Farm income by category.

While the income generated from farming and ranching has decreased significantly in past decades, the number of farms has actually increased. In 1982 the number of farms was 59 and in 2002 the number grew to 94. It is important to note that even with the numerical growth of farms, the amount of lands in farms decreased nearly 66% over the twenty-year span from 156,557 in 1982 to 52,729 acres in 2002. The increase in the number of smaller farms may represent the rise in both long-time and new residents in the area who choose to have a farm as a hobby or for land conservation purposes, but who do not solely make their living on the agriculture industry. Table 3.38 shows the agricultural trends in Grand County.

Table 3.38. Grand County Agricultural Data

	1982	1987	1992	1997	2002
Farms (Number)	59	81	88	85	94
Land in Farms (Acres)	156,557	169,325	63,116	75,801	52,729
Average Size of Farm	2,654	2,090	717	892	561
Farms by Size					
1 to 9 Acres	10	19	26	23	36
10 to 49 Acres	17	26	26	22	20
50 to 179 Acres	14	12	14	13	17
180 to 499 Acres	8	10	10	14	10
500 to 999 Acres	2	5	4	2	5
1,000 Acres or More	8	9	8	11	6

Table 3.38. Grand County Agricultural Data

	1982	1987	1992	1997	2002
Market Value of Ag Products Sold	1,183	1,870	2,347	2,289	2,176
Operators by Principal Occupation-Farming	25	33	42	41	51
Operators by Principal Occupation-Other	34	48	46	44	43

Source: USDA 2002.

The MPA provides livestock grazing opportunities for local ranchers through the administration of livestock grazing on public land allotments. These leases generate local income and employment benefits to ranchers and their employees as well as other economic benefits to the county, including sales, income tax revenue, and indirect expenditures made by ranchers to local service or industry. Changes in MFO grazing practices could potentially affect the local economy. Currently, 71% of the 42 livestock permittees in the planning area live outside of Grand or San Juan Counties.

Livestock grazing allotments occur on approximately 95% of all lands located within the MPA. A total of 83 allotments occur within the boundaries of the MPA. Of this total, 77 are permitted for use by domestic livestock, and 6 allotments were unavailable to grazing by domestic livestock in 1995 and 1996. Reasons for closing the 6 allotments to grazing by domestic livestock included enhancement of wildlife, improvement of riparian vegetation, watershed benefits, and recreation values.

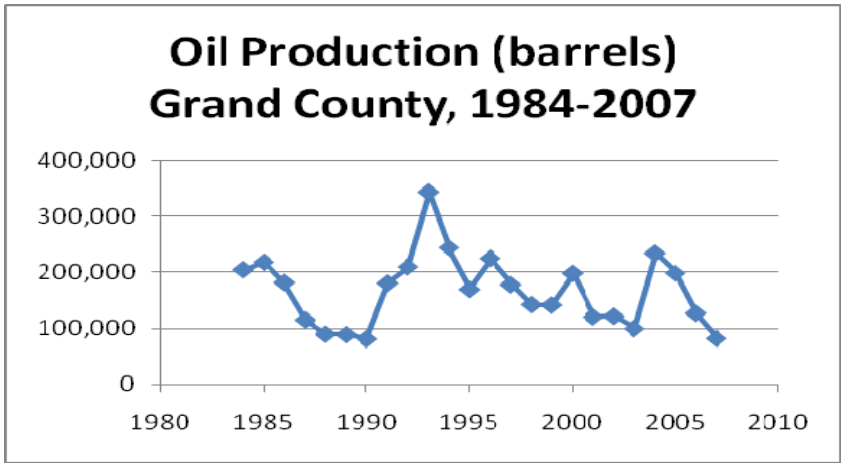
Of the total 83 allotments within the MPA boundary, 73 are administered by the MFO. The Vernal Field Office administers 4 allotments, and 6 allotments are administered by the Grand Junction, Colorado, Field Office.

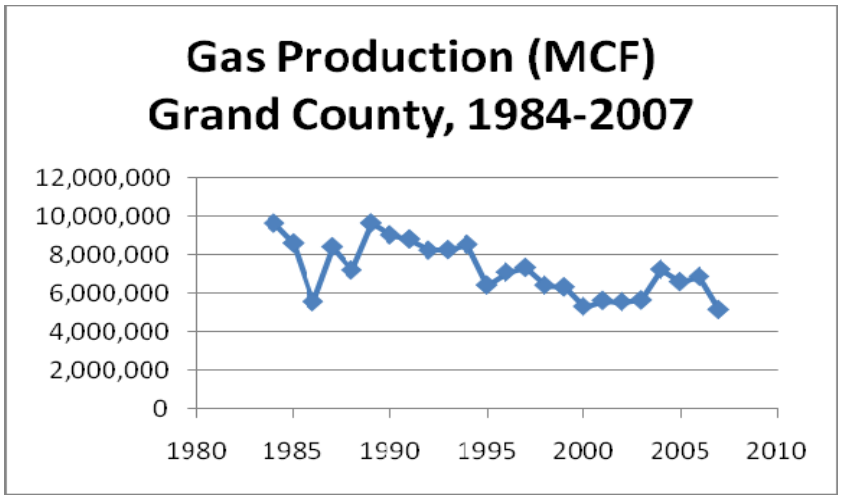
A total of 107,931 animal unit months (AUMs) are currently active within boundaries of the MPA. Of the total authorized AUMs, 87,097 (81%) are used by cattle, 18,466 (17%) are used by sheep, and 485 (less than 1%) are used by horses. Through agreement with permittees, 1,883 AUMs (2%) are held inactive due to conservation purposes. An additional 25,972 AUMs are allowed through exchange of use other ownership. Grazing is discussed in detail in section 3.5 of this RMP.

Mineral Resources

In the second half of the twentieth century, mineral extraction served as the foundation for population and economic growth in Grand County. The minerals industry, including uranium, potash, oil, and gas, generated more than 62% of all income received by county residents in 1980. In 2003 that number has fallen to 2% (Grand County 2004). Today, recreation and tourism has replaced resource extraction as the primary revenue and employment generator.

According to the Utah Division of Oil, Gas and Mining, oil production peaked in 1994, but dropped to approximately 200,000 barrels in 2000 (Figure 3.10). Gas production has fallen since 1984, from approximately 10 million cubic feet (mcf) to under 6 million mcf in 2000.





Source: UDOGM,2008

Figure 3.10. Oil (barrels) and gas production (mcf) in Grand County, 1984–2007.

Over the last 100 years, a large number of oil and gas wells have been drilled in Grand County. Most of these, however, are no longer producing and have been long since abandoned. The following table (Table 3.39) summarizes the current production situation in Grand County.

Table 3.39. Current Oil and Gas Activity on Lands Administered by the MFO

Activity	Number
Producing gas wells	244
Producing oil wells	30
Shut-in gas wells	113
Shut-in oil wells	51
Acres under lease (BLM lands only)	490,079

Source: BLM 2004e

.

The economic benefit to Grand County of oil and gas activities comes primarily in the form of mineral lease payments and royalties from the state of Utah to Grand County. The state of Utah collects payments from a variety of sources, including lease and royalty payments made to the BLM and to the Minerals Management Service of the Department of the Interior. Royalties are based on the sale of oil and gas and increase or decrease based on quantity of production and prices. Approximately one-half of the payments received by these agencies are remitted to the state of Utah, which in turn distributes about one-half to the counties. The state of Utah payments to the counties are based very closely on actual leasing and production activities within each county. In Fiscal Year 2003, Grand County received $312,000 in mineral lease monies from the state of Utah, most of which was the product of oil and gas activities on BLM lands in Grand County. Corresponding figures for FY 2001 and FY 2002 were $373,000 and $647,000, respectively. The decline in recent years has been due primarily to lower production in Grand County, according to the state of Utah.

A potential benefit to Grand County from oil and gas production is in the jobs created, both in direct production activities and associated services; however, there are currently relatively few people employed in these areas in Grand County. Most of the current oil and gas activity is in the far eastern part of the county, which provides employment primarily to residents of western Colorado, who are located much closer to the activities. Goods and services are purchased in adjoining towns, including Grand Junction and Green River, by oil field workers. There is some employment provided to Grand County residents who work in the Lisbon Valley area, located south of Moab in San Juan County. There is also some oil and gas production occurring in San Juan County that is currently managed by the MFO. The revenue generated from this activity is difficult for the BLM to track because it goes directly to San Juan County.

3.13.2 TRIBAL INTERESTS

Grand County comprises 198,339 acres (8.4%) of lands owned by Native Americans all of which are located in the northwest corner of the county on the Uintah and Ouray Indian Reservation. The Reservation is home to the Ute Indian Tribe and is located in a three-county area in Northeastern Utah, known as the Uintah Basin. The Uintah and Ouray Reservation covers a large potion of western Uintah and eastern Duchesne Counties, and at approximately 4.5 million acres it is the second largest Indian Reservation in the United States. The Reservation is home to the Whiteriver, Uintah, and Uncompahgre bands of Utes (UDTD 2004).

According to the U.S. Census there are 19,182 people living on the Uintah and Ouray Indian Reservation. Of the people who identified themselves as residents of the Reservation, 2,780 (14%) identified themselves as American Indian or Alaska Native (GOPB 2002). The majority of people living on the Reservation reside in Uintah and Duchesne Counties. Given the high elevation and rugged terrain of the Reservation in Grand County, it is unlikely that anyone lives on the Reservation in the county.

The interaction with Tribes on the Uintah and Ouray Reservation and the MFO is minimal. There is no road in Grand County that leads to the Reservation and given that, minimal activity occurs on the Reservation that prompts BLM involvement in Grand County, there is very little

communication between the tribes and the MFO. The Vernal Field Office handles the tribal issues pertaining to the Reservation in Uintah and Duchesne County.

According to the 2000 Census, 327 Native Americans live in Grand County and it is assumed that few live in the city of Moab and most live in the unincorporated areas of the county.

The Navajo Nation Reservation comprises 1.2 million acres (26%) of San Juan County. The entire Reservation also includes land in Arizona and New Mexico and totals nearly 14 million acres. Population on the Navajo Nation has grown steadily over the last two decades. In 1980 population on the Reservation was 4,554, 5,252 in 1990 and 6,280 in 2000. Interactions between the Navajo Nation and MFO are minimal given that the Reservation is several hundred miles south of the MFO.

3.13.3 Environmental Justice

3.13.3.1 Background and Regulatory Guidance

"Environmental justice" refers to the fair and equitable treatment of individuals regardless of race ethnicity, or income level, in the development and implementation of environmental management policies and actions. In February 1994, President Clinton issued Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority and Low Income Populations." The objective of this EO is to require each Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of it programs, policies, and activities on minority and low income populations" (EO 12898).

Convened under the auspices of the EO, the Interagency Working Group defines Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut and other non-white persons as minority populations. Low-income populations are defined as persons living below the poverty level based on total income of $13,359 for a family household of four based on the 2000 census. Minority populations are identified as either: (1) the minority population of the affected area exceeds 50%, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate geographic area (BLM 2002c).

3.13.3.2 Minority and Low-Income Populations

Minority populations in Grand County have increased slightly since 1990. Of the total population in 1990, 95.8% of residents identified themselves as "White" as did 92.6% in 2000. Grand County is ranked eighth in the state in terms of minority percentage and minorities make up only 10.8% of the county's population compared to 14.7% of the state population as a whole. As mentioned earlier, Grand County poverty levels are higher than the state as a whole (13.9% for Grand County vs. 10.0% for Utah). Table 3.40 illustrates the slight growth in minority populations in Grand County.

As mentioned earlier within the context of "poverty" as an economic indicator for the economic well being, persons in Grand County living below the poverty line in 2003 was higher than the

state average (13.9% vs. 10%). While Grand County poverty trends show a decrease over time they remain higher than the state average. The poverty level established by the by the Census Bureau in 2000 for a family of four is $18,244. In 2000 15.2% of Grand County residents were living below the poverty level.

Table 3.40. Grand County Population by Race and Ethnicity

	1990		2000	
	Total Population	Percent of Total	Total Population	Percent of Total
Race				
White	6,341	95.8%	7,861	92.6%
Black	7	0.1%	21	0.2%
American Indian	203	3.1%	327	3.9%
Asian	19	0.3%	19	0.2%
Hawaiian/Pacific Islander	5	0.1%	4	0.0%
Other	45	0.7%	141	1.7%
Two or more races	NA	0.0%	112	1.3%
Total	**6,620**	**100.0%**	**8,485**	**100.0%**
Ethnicity				
Hispanic	291	4.4%	471	5.6%
Non-Hispanic	6,329	95.6%	8,014	94.4%
Total	**6,620**	**100.0%**	**8,485**	**100.0%**

NOTE: Population is broken out by is broken out by both race and ethnicity because Hispanics can be of any race.
Source: GOPB 2002.

San Juan County: Unique to any other Utah county, populations typically known as "minority" comprise more than half of the population in San Juan County. San Juan County ranks first in the state for Native American/Alaskan Native population. San Juan County is home to 27% of the state's Native American population and at 55.7% of the county's total population, Native Americans are not the minority. In Utah, 93.8% of the entire population identify themselves as white and 1.3% of the population identify themselves as Native American/Alaskan Native (GOPB 2002). Therefore, when considered state or region-wide, Native Americans are considered a minority race. Despite the population data that indicates non-minority status within San Juan County, Native Americans are considered a minority group for the purposes of achieving environmental justice during this RMP process.

The number of people in San Juan County living below the poverty line in 2003 was higher than the state average (22.6% vs. 10%). While San Juan County poverty trends show a decrease over time they remain higher than the state average. In 2003 the poverty level established by the by the Census Bureau for a family of four was $18,810 and in that year 31% or 4,443 people in San Juan County were living below the poverty level (U.S. Census Bureau 2005). In terms of race, the Native American population has the highest poverty level in the county at 48% or 3,809 individuals.

3.14 Soil and Water

3.14.1 Watersheds

3.14.1.1 Delineated Watersheds

The USGS has divided and subdivided the United States into successively smaller hydrologic units which are classified into 6 levels: regions (largest), sub-regions, accounting units, sub-basins, watersheds and sub-watersheds. Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to fourteen digits based on the level of classification (UGS 2003. The MPA, located within the Upper Colorado Region, has portions of 8 sub-basins and 39 watersheds in the planning area.

3.14.1.2 Critical Watersheds and Sole Source Aquifers

A critical watershed is a planning designation for a watershed with a high percentage of sensitive soils such as highly saline soils and/or highly erodible soils. (See Map 2-13, Moderate to High Saline Soils). These watersheds need special management prescriptions to protect resources at risk. Some critical watersheds were delineated in the 1985 RMP.

3.14.1.3 Municipal Watersheds

The Federal Safe Drinking Water Act requires protection of underground sources of drinking water. The State of Utah requires owners of drinking water supplies to establish 2 levels of protection zones around their water sources and must obtain an agreement with the landowner if the applicants do not have complete ownership of the watershed or recharge area. Protection Zone 1 is a circle of a 100-foot radius from the well or margin of collection area. Protection Zone 2 has a two-mile radius or is a variable area based on recharge characteristics. This protection zone can extend up to 15 miles above the source and 300 feet from each stream bank.

The municipalities of Moab, Castle Valley, Thompson, Crescent Junction, and LaSal have water supplies that are wells and/or springs with recharge areas on adjacent BLM lands. There are several small public water supply systems within the planning area, including Hole 'n the Rock Rest Area, Windwhistle Campground, and Pack Creek Ranch. Thompson, Hole 'n the Rock Rest Area, and Pack Creek Ranch filed water source protection plans with the State of Utah that include adjacent BLM lands.

A sole source aquifer designation is a Federal acknowledgement that an aquifer system is the sole source of drinking water available to the community. This acknowledgement supports efforts to keep the aquifers free from contamination. The designation requires that Federally financially assisted projects in the review area of the sole source aquifer undergo an EPA environmental review for compliance with the goals of the regulation.

Both Moab and Castle Valley have filed for sole source aquifer designation. A total of 24,000 acres in and around Castle Valley has been designated as the sole source aquifer recharge area (EPA 2003d). The city of Moab has requested 76,000 acres as its sole source aquifer recharge area.

3.14.2 Soils

3.14.2.1 General

Soils are the medium for plant growth, and provide nourishment for nearly all terrestrial organisms. They support a wide variety of plant and animal communities within the planning area. Soils have developed in bedrock, sedimentary ocean deposits, materials washed down by rivers and streams, and windblown sands and silts known as loess, residuum, colluvium, alluvium, eolian sands, and loess. They are derived primarily from the sedimentary geologic deposits that occur throughout the planning area. Soil temperature regimes are predominantly vary from mesic (moderate, mean annual soil temperatures are 46 to 59 F) at lower elevations to but may be cryic (cold, mean annual soil temperatures are less than 46 F, and they don't warm significantly in the summer) at higher elevations. Soil moisture ranges from aridic (very dry) to ustic (dry, but with some moisture in the growing season) throughout the MPA, with hydric (wet) soils occurring in riparian and wetland areas.

There are a variety of soil types in the planning area, including highly saline and erodible soils. Sensitive soils need special management to protect resources at risk. This includes management of highly saline and/or highly erodible soils, biotic crusts, steep slopes, drought intolerant soils, dust source, and sink areas. Soils that are highly saline, highly erodible, have low water holding capacity (drought intolerant) may be especially vulnerable to impacts and harder to reclaim or restore after disturbance. Certain biological crust communities provide significant protection from wind and water erosion for some soils. Disturbance of soil biological crusts affects most soils, but some more than others, depending on the type of soil and biotic community.

3.14.2.2 Sensitive Soils

"Sensitive soils" are those identified as having characteristics that make them extremely susceptible to impacts or they may be more difficult to restore or reclaim after disturbance -- characteristics such as high wind or water erosion hazard, moderate to high salinity, low nutrient levels, high runoff, limitations to grazing, or very steep slopes. In this document, a *sensitive soils* designation refers to highly erodible soils, saline soils, drought intolerant soils, biotic soil crusts, and steep slopes. Sensitive soils are difficult to reclaim or restore. Once they are disturbed, the impact usually is long-lasting (BLM 1993c:11). These soils need special management to protect resources at risk.

3.14.2.2.1 HIGHLY ERODIBLE SOILS

There are soils in the planning area that are highly susceptible to wind and water erosion. Although these soils have naturally high rates of erosion, the erosion rates are easily accelerated by surface-disturbing activities. Best management practices to protect soil stability include limiting surface-disturbing activities such as grazing, off road travel, and mineral exploration and development.

Wind erosion strips the surface horizon of soil and nutrients necessary for seed germination and plant recruitment. Wind erosion and subsequent deposition can result in the formation and expansion of sand dunes. These soils are especially susceptible to wind erosion when plant cover and/or biological soil crust cover is removed. In the planning area, moderately wind erodible soils occur over 1,303,433 acres based on SSURGO data. Highly wind erodible soils occur on 39,350 acres of BLM-managed lands. Approximately 15,900 acres of soils with high water erosion ratings occur in the MPA. Potential for water erosion is commonly estimated using a combination of slope and k-factor (an erodibility constant or measure of how easily particles detach from one another). Soils considered to have a high potential for water erosion have a slope over 10% and a *K*-factor (erodibility constant) greater than or equal to 0.37; or a slope greater than 30% and a K-factor between 0.20 and 0.36. Accelerated erosion causes the formation of rills and gullies, and can contribute to excess sedimentation in streams and reservoirs.

3.14.2.2.2 SALINE SOILS

Soil salinity can affect erosion levels and reclamation potential. Erosion of saline soils impacts the water quality of downstream watersheds. Highly saline soils are soils with electrical conductivity levels of greater than 16 mmhos/cm. Moderately saline soils fall between 8 and 16 mmhos/cm. The planning area contains approximately 314,901 acres of saline soils, primarily confined to the Mancos lowlands along I-70 are shown in Map 2-13, Moderate to Saline Soils as determined from SSURGO data (BLM 2000).

Specifically, The Greater Sagers Wash watershed (153,200 acres) was identified as one of the major salt production watersheds in the planning area (BLM 1993d). Approximately 60% of the watershed has Mancos Shale derived soils, which are naturally high salt producers. In addition to natural geologic processes, land uses that contribute to accelerated erosion include grazing, OHVs, mineral exploration and development, and road building (BLM 1993d). Areas undergoing accelerated erosion make up 64% of the watershed and contribute 29% of the potential salt yield (BLM 1993d:3).

3.14.2.2.3 DROUGHT INTOLERANT SOILS

Certain soil types are severely impacted during drought conditions. The Grand County, Central Part Soil Survey (NRCS 1989) identified a number of soil units as drought intolerant. These soils and associated vegetation may be severely affected by drought. Severe drought may adversely affect the production of perennial vegetation.

3.14.2.2.4 BIOTIC SOIL CRUSTS

Many of the vegetative communities found in the MPA have evolved with the presence of biological soil crusts. Biotic soil crusts are made up of mats or filaments of cyanobacteria, lichens and mosses. Development of biotic soil crust is strongly influenced by soil texture, soil chemistry and soil depth. Crusts are more developed in shallow, sandy, non-saline soils, but can also be found throughout saline soil areas. They tend to be commonly found associated with soils high in gypsum. Although soil crusts can be found throughout the MPA, there are areas with high density or well-developed crusts or unusual crust components.

Biotic soil crusts play a major role in reducing water and wind erosion and in preventing the establishment of invasive annual grasses (BLM 2001d). They fix atmospheric nitrogen and carbon, retain soil moisture, and provide surface cover. Crust composition and level of abundance can be used to determine the ecological history and condition of a site (BLM 2001d).

Loss of biotic soil crust leads to reduced soil productivity, decreased plant cover and vigor, and increased wind and water erosion. Severity, size, frequency, and timing of a surface-disturbing activity affect the degree of impacts to biotic soil crusts. Fine-textured soils have faster crust recovery rates than coarse-textured soils (BLM 2001d). Aeolian deposition of sediments can bury and kill biological soil crusts by prohibiting photosynthesis.

3.14.3 SURFACE WATER

There are three large rivers in the planning area: the Colorado, Green and Dolores Rivers. One thousand sixty-two miles of perennial stream flow year-round in at least some reaches. In addition, there are 8,995 miles of intermittent stream systems that flow at least part of the year (more than just storm runoff, UDEQ 2002). Major reservoirs include Ken's Lake. Perennial stream segments in the MPA include all or portions of:

Beaver Creek	Floy Creek	Muleshoe Creek	Seven Mile (north)
Burkholder	Granite Creek	Nash Wash	Spring Creek
Castle Creek	Green River	Negro Bill Creek	Ten Mile
Coates Creek	Hatch Wash	Onion Creek	Thompson Wash
Colorado River	Hatch Ranch Wash	Pack Creek	Three Mile Wash
Cottonwood (Books)	Hunter Creek	Poverty Creek	Trough Springs Creek
Cottonwood (Black R.)	Kane Creek	Professor Creek	Tusher (Books)
Cowskin Canyon	La Sal Creek	Rattlesnake Creek	Westwater Creek
Diamond Creek	Little Dolores	Rill Creek	
Dolores River	Little Water	Ryan Creek	
Fisher Creek	Mill Creek	Salt Wash	

3.14.3.1 WATER QUANTITY

BLM cannot hold instream flow rights in the state of Utah, but can protect senior water rights as needed. This is an issue in Thompson Wash, as the Thompson Special Service District has diverted most of the flow in Thompson Creek for municipal use.

Another area with water quantity issues is Mill Creek. Water from Mill Creek is diverted to Ken's Lake to provide irrigation water to Spanish Valley. The diversion structure is on BLM lands, and is authorized with a Right of Way grant. BLM requires the Right of Way holder to maintain a minimum of 3 cfs in the stream downstream of the diversion.

Many perennial streams in the MPA have diversions for agricultural use (Mill Creek, Thompson Wash, Granite Creek, Cottonwood Wash, Beaver Creek, Castle Creek, Buck Hollow, and Pack Creek.)

3.14.3.2 WATER QUALITY

3.14.3.2.1 GENERAL

The BLM monitors surface water quality conditions by conducting both water chemistry and macroinvertebrate studies. BLM participates in a cooperative program with the Utah Department of Environmental Quality (Utah DEQ) to sample sites for water chemistry. BLM personnel take field measurements and samples. The State of Utah provides lab analysis and data management (including maintaining the STORET database, EPA 2003e). When necessary, BLM uses other EPA certified labs for analysis (i.e., American West Analytical Labs).

The Utah DEQ also conducts an intensive sampling program every 5 years. This was conducted from July 2002 through June 2003. Sampling is conducted every 6 weeks on major streams and other requested sites. The next intensive survey will be held in 2007-2008.

With sufficient data it can be determined if a stream is meeting state standards. If a problem is documented, that stream segment will be included by the State of Utah on the List of Impaired Waters of Utah (303d list) submitted to the EPA every 2 years. A schedule for a Total Maximum Daily Load study (TMDL) is set. This study determines how to reduce pollutants and restore all beneficial uses. The TMDL also establishes the amount of a pollutant allowed in the water.

In 2000, the State of Utah identified Onion Creek, Mill Creek, Castle Creek and Ken's Lake as impaired. The TMDLs were completed in 2002 for Mill Creek, Onion Creek and Ken's Lake. The Castle Creek TMDL was completed in 2004.

The Mill Creek TMDL entails an assessment of total dissolved solids (TDS) and stream temperature problems. The TMDL states the main sources of TDS are natural groundwater inflow and irrigation return flow, from the Pack Creek watershed. Impairments to temperature are related to riparian health and stream flow levels. The TMDL recommended riparian improvements and increased stream flow levels to improve temperature impairments.

The Onion Creek TMDL entails an assessment of TDS and stream temperature levels. State standards for TDS may not be achievable due to high TDS input from natural sources. The TMDL also states high stream temperatures are a result of poor riparian conditions. The TMDL recommends better management of vehicle travel, restricting travel in the stream as much as possible. Other recommendations include riparian and floodplain improvements to reduce stream temperature.

The Castle Creek TMDL addressed water quality impairments in 2002. The report concluded that impairments were a combination of natural conditions and low stream flows due to irrigation diversions.

The Ken's Lake TMDL entails an assessment of water temperature conditions. The report concluded temperature impairment is a result of natural causes, and is not an impairment to the fish habitat.

3.14.3.2.2 SALINITY

High salinity levels in water are a surface water quality concern of national significance recognized in the Colorado River Basin Salinity Control Act of 1974. Salinity contributions are from both point sources and nonpoint sources. During low flow periods, salt contribution comes solely from seeps, springs, and groundwater flow. During high flow periods, erosion of saline soils becomes a major contributor to salinity problems.

Point sources for salinity include discharge of saline groundwater from natural springs, seeps, flowing wells and gaining streams. The primary nonpoint sources of salinity are the diffuse overland runoff from saline soils and erosion and transport of saline soils during flow events.

The Mancos Shale is recognized as the largest contributor of salinity in the Upper Colorado River Basin (Laronne 1977). There are approximately 314,900 acres of Mancos Shale-derived soils in the planning area. Any surface disturbance on these soils increases erosion and associated salinity contribution.

3.14.3.3 GROUNDWATER

Groundwater occurs in both consolidated and unconsolidated rock aquifers. The main consolidated rock aquifer is known as the N aquifer, and includes the Wingate and Navajo Sandstones. Water from the N aquifer is generally of good quality and suitable for drinking. Unconsolidated rock aquifers are an important source of groundwater in Spanish Valley and Castle Valley. Recharge is from infiltration of precipitation and stream flow, primarily from the La Sal Mountains.

There are five other potential aquifers in the planning area: Entrada, Morrison, Dakota, Wasatch, and Parachute Creek aquifers. These aquifers are not laterally or vertically homogenous (Eisinger and Lowe 1999). Shallow aquifers are better sources as they usually contain higher quality water and are more easily accessible.

Due to evaporite deposits in the Paradox formation underlying much of the planning area, there is a significant occurrence of briny groundwater, with TDS concentrations exceeding 10,000 milligrams per liter (mg/L). Groundwater quality below the N aquifer is generally saline. The unconsolidated aquifers have the potential for mixing with high saline groundwater, due to no confining layer in between.

Groundwater use in the planning area is not fully documented, due to unreported withdrawal from industry and domestic wells. Groundwater is diverted from both springs and wells. The primary uses of groundwater within the planning area are for potable drinking water supply and industrial supply (UDWRe 2000). In 2002, municipal water suppliers provided approximately 2,850 acre-feet of groundwater for potable supply (includes Moab, Thompson, Grand, and Arches National Park; UDWRi 2003). In 1996, 940 acre-feet of water were used for industrial purposes (UDWRe 2000).

3.15 Special Designations

For the purposes of this analysis, Special Designations fall into three categories: Areas of Critical Environmental Concern (ACECs), Wild and Scenic Rivers (WSRs), and Wilderness Study Areas (WSAs). Special designations may be given to areas meeting certain eligibility criteria. Descriptions of each of these areas and the criteria they meet are given below.

3.15.1 Areas of Critical Environmental Concern (ACECs)

3.15.1.1 Resource Overview

FLPMA defines an ACEC as an area "within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards."

The Federal Land Policy and Management Act (FLPMA) states that the Bureau of Land Management (BLM) will give priority to the designation and protection of Areas of Critical Environmental Concern (ACECs) in the development and revision of land-use plans.

With ACECs, there is no one method of management for all areas. Special management is designed specifically for the relevant and important values, and therefore varies from area to area. The one exception is that a mining plan of operation is required for any proposed mining activity that would create surface disturbance greater than casual use within a designated ACEC (43 CFR 3809 Regulations).

A total of 35 nominated areas (many of which overlap with each other in area) were evaluated for relevance and importance as part of the Moab land-use planning process. These evaluations have been completed in accordance with guidance provided in BLM regulations at 43 CFR part 1610.7-2 and *BLM Manual 1613-Areas of Critical Environmental Concern*, which identify relevance and importance criteria that must be met for a nominated area to be considered as a potential ACEC. The boundaries of the potential ACECs were crafted by the BLM

interdisciplinary team and its cooperators to best incorporate the relevant and important values of each nomination. The proposals included areas previously nominated, nominations received from the public as part of scoping, and areas nominated, refined, or expanded by BLM staff specialists. As a result of work completed by the BLM ACEC interdisciplinary team and its cooperating agencies, 14 potential ACECs that meet both the relevance and importance criteria have been identified. A summary of these 14 potential ACECs are listed in Table 3.41 and are shown in Map 2-14. A description of the potential ACEC nomination along with its relevance and importance criteria follows Table 3.41.

Table 3.41. Summary of Potential Areas of Critical Environmental Concern

Area Name	Relevant and Important Values, Resources, Natural Processes or Systems, or Natural Hazards	Acres
Behind the Rocks	Scenic values, sensitive plant species, cultural values	17,836
Book Cliffs Wildlife Area	Wildlife resources	304,252
Canyon Rims	Scenic values	23,400
Cisco White-tailed Prairie Dog Complex	Wildlife resources	125,620
Colorado River Corridor	Scenic, and cultural values, wildlife resources, rare plants, natural systems	50,483
Cottonwood-Diamond Watershed	Natural hazards and natural systems	35,830
Highway 279 Corridor/ Shafer Basin/ Long Canyon	Scenic values and wildlife resources	13,500
Labyrinth Canyon	Scenic and historic values	8,528
Mill Creek Canyon	Scenic and cultural values, natural systems, fish resources	13,501
Ten Mile Wash	Cultural values, wildlife resources, natural systems, natural hazards	4,980
Upper Courthouse	Historic values, natural systems, rare plants	11,529
Westwater Canyon	Scenic values and fish resources	5,069
White Wash	Natural systems	2,988
Wilson Arch	Scenic values	3,700

More detailed information on the designation process, the ACEC team, and MFO relevance and importance evaluations can be found in Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations.

3.15.1.2 Description of Area and Relevance and Importance Criteria for Potential ACECs

The following descriptions and relevance and importance criteria are taken from the Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) nominations (BLM 2004f).

3.15.1.2.1 Behind the Rocks (17,836 acres)

Description of Area: Behind the Rocks is located west of the city of Moab and east of Kane Creek Canyon. It is an area of sandstone fins and deeply entrenched canyons, with arches and other features. Various boundaries were proposed by the several nominators**.** From these, BLM crafted the boundary of the potential ACEC to include all of the relevant and important cultural, wildlife, plant and scenic resources of the area.

Relevance Criteria: The area contains significant cultural resources, including rock art and habitation sites. The scenic values are outstanding in the area, with slickrock domes and fins present on a grander scale than in Arches National Park. There are also several large natural arches in the area. The area contains habitat for several special-status wildlife species, including the peregrine falcon, southwest willow flycatcher, spotted bat and big free-tailed bat. Three special-status plant species occur in the area: the Canyonlands biscuitroot, alcove rock daisy and alcove bog orchid. The area is one of only three major population centers (and of these, the least imperiled) for the Canyonlands biscuitroot. Two narrowly distributed plants, the western hop-hornbeam and alcove death camas also occur. In addition, there are relict plant communities within the area that are valuable for scientific study.

Importance Criteria: Within the area, cultural sites are distinctive and of special worth. Scenic values are nationally significant; Behind the Rocks is the best example of Navajo sandstone fins in the world, and provides the scenic backdrop to the town of Moab. The rare and endemic plants are fragile, rare and irreplaceable. Behind the Rocks is one of only 12 known areas with occurrences of the alcove rock daisy, and one of three areas in which the Canyonlands biscuitroot is found. The area also contains plant communities and soils that have been little disturbed or altered, providing an uncommon remnant of the presettlement landscape.

3.15.1.2.2 Book Cliffs Wildlife Area (304,252 acres)

Description of Area: The Book Cliffs Wildlife Area ACEC is located on the southern flanks of the Book Cliffs from the Green River to Hay Canyon and from the Book Cliffs terraces north to the MPA boundary. (The boundary proposed by the Southern Utah Wilderness Alliance differed from that of BLM staff. BLM staff adjusted the boundary of the area with the assistance of data from the Utah Division of Wildlife Resources).

Relevance Criteria: The Book Cliffs Wildlife Area nomination meets the relevance criteria for wildlife and cultural values. The Book Cliffs area contains habitat essential for maintaining species diversity, including that of endangered, threatened and Utah sensitive animal species. In addition, the Book Cliffs provides important habitat for the following big game species: Rocky

Mountain bighorn sheep, mule deer, Rocky Mountain elk, mountain lion and black bear. Crucial fawning and calving grounds and crucial winter ranges for elk and deer are within the area. The Book Cliffs are essentially a natural system encompassing unfragmented, contiguous habitat for a great diversity of plant and animal communities. The area is also rich in cultural resources, and includes rock art, camp sites, cave excavations and brush structures.

Importance Criteria: The Book Cliffs wildlife habitat is of more than local significance. There are no areas in the Western United States (outside of Alaska) that offer such a large, contiguous, unfragmented, and undisturbed habitat for such a large variety of animal species. This extensive habitat promotes biological and genetic diversity that is unavailable in most wildlife habitat areas. The remote areas of the Book Cliffs are important scientific reference sites. Human disturbance and/or development would permanently alter the unfragmented, remote and undisturbed nature of this wildlife habitat. This makes the Book Cliffs proposed ACEC highly vulnerable to adverse change. The habitat is also irreplaceable, exemplary and unique due to the rareness of large, unfragmented and undisturbed habitat for both plants and animals.

In addition, cultural sites within the Book Cliffs have special worth because their remoteness has left them largely undisturbed, and thus of great importance to scientific study.

3.15.1.2.3 Canyon Rims (23,400 acres)

Description of Area: The Canyon Rims ACEC nomination consists of the western rims of the Canyon Rims Recreation Area. This encompasses Needles, Anticline, Canyonlands and Minor Overlooks, which are developed recreation sites within the recreation area.

Relevance Criteria: The scenic values of the western portions of the Canyon Rims Recreation Area are outstanding in quality and due to location, highly visible to the recreating public.

Importance Criteria: The scenic values of the western portions of Canyon Rims are important to regional, national, and international visitors who view this area from developed overlooks. The Canyon Rims views are some of the most spectacular in the Western United States. They have special worth and consequence to many visitors, many of whom comment that the views are "more spectacular than the Grand Canyon."

The threats to these scenic resources include oil and gas development and off highway vehicle use, making them subject to adverse change.

3.15.1.2.4 Cisco White-tailed Prairie Dog Complex (125,620 acres)

Description of Area: The ACEC boundary proposal from the Center for Native Ecosystems has been refined with the help of the Utah Division of Wildlife Resources data to include public lands on both sides of I-70 from the Colorado State Line to the Cisco area.

Relevance Criteria: The area meets the relevance criterion for wildlife values. White-tailed prairie dog is a Utah sensitive species, and has been nominated as threatened under the

Endangered Species Act. UDWR has mapped historic and current prairie dog towns and their habitat. The habitat within this area is essential for maintaining this species.

Importance Criteria: White-tailed prairie dogs are a Utah sensitive species; conservation plans are being developed to avoid the need to list them. The population of this species is declining throughout the West, including the area managed by the MFO. Large tracts of land are needed to maintain populations of this animal and of the predator species that depend on it. White-tailed prairie dog habitat is fragile and very sensitive to damage from OHV use, heavy grazing, drought and oil and gas disturbance.

3.15.1.2.5 COLORADO RIVER CORRIDOR (50,483 ACRES)

Description of Area: The Colorado River Corridor area lies along Utah Highway 128 east of Moab, Utah. It includes the entire Richardson Amphitheater (including Fisher Towers, Onion Creek and Castle Rock), the canyon of Negro Bill and the Slickrock Bike Trail on the south side of the Colorado River. On the north side of the river, Dry Mesa, Cache Valley and other lands east of Arches National Park are included. (Boundary proposals by various nominators were adjusted by BLM staff and cooperators to determine the potential ACEC boundary.)

Relevance Criteria: This area meets the relevance criteria for scenic, fish and wildlife, and rare and endangered plants. The scenery in the area is of outstanding quality**,** and as it is traversed by Utah State Scenic Byway 128, the scenery is accessible to all types of visitors. The area contains such scenic western icons as Fisher Towers, the Colorado River and Castle Rock.

The potential ACEC includes crucial habitat for mule deer and desert bighorn sheep. It includes crucial bighorn lambing and rutting areas for desert bighorn sheep (particularly in the lands east of Arches National Park). The Colorado River is home to the razorback sucker, bonytail chub, humpback chub and the Colorado pikeminnow, all endangered species. Several birds on the state sensitive list, including yellow-breasted chats and Lewis woodpeckers, have known occurrences within the potential ACEC. State sensitive animals occurring in the area include river otter, spotted bat and big free-tailed bat.

Three rare plants occur within the Richardson Amphitheater section of the area: the Jones cycladenia (Threatened), the Shultz stickleaf (Sensitive), and the Dolores rushpink (Sensitive). Relict plant communities also occur in the proposed ACEC. Two BLM sensitive plants (alcove rock daisy (*Perityle specuicola*) and alcove bog orchid (*Habenaria zothecina*) occur in Negro Bill Canyon. In addition, the endemic alcove columbine is also found. The hanging gardens of Negro Bill in which these plants are found range in size from a few square meters to huge classic alcoves. The Colorado River corridor is rich in rare and endangered plants.

Importance Criteria: This area meets the importance criteria for scenic, fish and wildlife and rare and threatened plants. The entire area possesses Class A scenery of widely recognized value. It is internationally renowned for scenery, and has been the location site for 88 film permits from 1998-2002. This area has some of the most significant, internationally recognized scenery in the Western United States. People throughout the world recognize the scenic resources contained within the area. The visual resources in this area are very rare, and do not exist anywhere else in

the world. At the same time, the area is subject to intense visitation, making the area susceptible to inadvertent damage.

The wildlife habitat in the area is of more than local significance, and is rare and irreplaceable. The very presence of the Colorado River provides wildlife habitat that is unique in the arid West. The rare and endangered fish in the Colorado River (razorback sucker, bonytail chub, humpback chub and the Colorado pikeminnow) are unique and irreplaceable. Lands crucial to desert bighorn sheep lambing and rutting (in Cache Valley east of Arches National Park) are similarly unique and vulnerable to adverse change. Several birds on the state sensitive list, including yellow-breasted chats and Lewis woodpeckers, have known occurrences within the proposed ACEC. State sensitive animals occurring in the area include river otter, spotted bat and big free-tailed bat.

The potential ACEC contains the only known location in the world of the sensitive Schultz stickleaf. Although only on the BLM state sensitive plant list (and not on the endangered species list), the Schultz stickleaf grows nowhere else in the entire world but in the proposed ACEC because of the special combination of soils in the area. The potential ACEC also contains threatened Jones cycladenia plants. This makes the area of special worth and consequence to these rare species. Although it is only listed as sensitive, the population of Shultz stickleaf plants is unique and irreplaceable as it is known to grow nowhere else in the world; the presence of other special species, both plant and animal, make the area unique and exemplary.

The rare plants found in the hanging gardens of Negro Bill Canyon area also rare, fragile and exemplary. The cave primrose, alcove bog orchid, alcove columbine and alcove rock daisy are of far more than local significance, given their rarity.

The heart of Negro Bill Canyon was designated an Outstanding Natural Area in the 1985 Grand RMP to protect both scenery and these sensitive plants. The scenery is of more than local significance, both in the canyon, and from the Slickrock and Porcupine Rim Trails above it.

3.15.1.2.6 COTTONWOOD-DIAMOND WATERSHED (35,830 ACRES)

Description of Area: This area is located in the Cottonwood-Diamond drainage of the Book Cliffs area. The area to be considered in this ACEC proposal is the area that was severely burned in 2002.

Relevance Criteria: The area meets the relevance criteria for natural processes and for natural hazards. Due to severe fire damage in July 2002, the functioning of the natural system is at risk. Riparian areas and stream channels are the most at risk. This area is extremely susceptible to (and has experienced) dangerous flooding and landslides as a result of the large fire. Because of major vegetation loss and damage to soils (hydrophobic) and steep rocky slopes, storm runoff is at extreme levels and is causing peak flood levels and massive erosion. This area was identified by the Burned Area Emergency Rehabilitation (BAER) team in 2002 as posing significant hazards to life and property. In 2007, the floodplains and stream channels continue to substantially erode with each flood, making canyon bottoms unstable and unsafe. Restoring riparian vegetation and stable stream channels and floodplains is crucial to a functioning natural

process. Watershed health is not expected to return for another 4 to 10 years, requiring special management in the interim.

Importance Criteria: The area meets the importance criteria for natural hazards and natural processes. The Burned Area Emergency Rehabilitation report highlights significant hazards from floods, mudflows, and landslides that have already occurred, and are expected to reoccur. The severely burned area has qualities that warrant highlighting in order to satisfy concerns about human life and safety. BLM has spent significant amounts of money to date on emergency stabilization (reseeding, hydro-mulching, and monitoring) to help restabililize the area to reduce these threats to human life and safety.

3.15.1.2.7 Highway 279 Corridor/Shafer Basin/Long Canyon (13,500 acres)

Description of Area: The area is a corridor along Utah Highway 279, including the extension of that road into the Shafer Basin. The Shafer Basin provides the viewshed from Dead Horse Point State Park. In addition, Long Canyon to the Dead Horse Mesa is included in this proposal. BLM has modified the boundary of the SUWA nomination to better incorporate the resource values that were found relevant and important in this area.

Relevance Criteria: The area meets the relevance criteria for scenic, plant and wildlife resources. Utah Highway 279 is a state scenic byway; its scenery is enjoyed by over 250,000 thousand visitors per year as they drive along the Colorado River. The Shafer Basin provides the spectacular foreground scenery as viewed from the road and from Dead Horse Point State Park. Long Canyon also provides a scenic backcountry drive just off Utah Highway 279. The scenery is classified as Class A.

A Utah BLM sensitive plant, Jane's globemallow, is found in the Shafer Basin. In addition, both the Shafer Basin and Long Canyon are important habitat to the desert bighorn sheep. As a result, the uplands north of Dead Horse Point State Park were found to have relevant values for wildlife and plants.

Importance Criteria: The nomination meets the importance criteria for scenery, plant and for wildlife values only within the modified boundary. The stunning scenery within Shafer Basin and Long Canyon as viewed from State Scenic Byway 279 and Dead Horse Point State Park is internationally renowned. Highway 279, Shafer Basin and Long Canyon are also venues for many film permits**,** due to their spectacular scenic backdrops. Thus, these portions of the nominated area were found to meet the importance criterion for scenery, as they have more than local significance.

Jane's globemallow, a BLM sensitive plant species, is rare and unique and is susceptible to harm. The presence of this plant in the Shafer Basin area meets the importance criteria.

The wildlife values within the adjusted boundary also meet the importance criteria, as the Shafer Basin is primary habitat for desert bighorn sheep, which also utilize Long Canyon. These distinctive animals are unique and of more than local significance. Indeed, it is the Shafer Basin habitat that enabled the dwindling desert bighorn herd to survive. This bighorn herd is one of

only two indigenous native desert bighorn herds in the state of Utah, and the Shafer Basin herd has provided stock for restoring desert bighorns to other environments. The wildlife values in the uplands portion (north of Dead Horse Point) were not found to be of more than local significance, and thus did not meet the importance criterion.

3.15.1.2.8 LABYRINTH CANYON (8,528 ACRES)

Description of Area: Labyrinth Canyon is located along the Green River, and extends from Ruby Ranch to the border of Canyonlands National Park. This proposal is for the eastern side of that canyon. It complements that of the Price Field Office, which has an ACEC proposal for the western side of Labyrinth Canyon. BLM staff has modified the boundary to better incorporate those resource values identified as both relevant and important.

Relevance Criteria: This nomination meets the relevance criteria for scenic, historic, fish and natural processes. The scenery in Labyrinth Canyon is outstanding, and is enjoyed by many river runners. Historic sites are prevalent along the Green River, and these meet the historic criterion. The Green River is home to four endangered fish species: Colorado pikeminnow, razorback chub, bonytail chub and humpback chub. The upland regions east of the river corridor do not meet the relevance criteria for scenic, historic, fish or natural processes. The wildlife relevance criterion is met for these upland regions, as the area is habitat to many animals, including desert bighorn sheep.

Importance Criteria: The nomination meets the importance criteria for scenery and for historic values only in the Green River Canyon corridor. The scenery and the history along the river is of far more than local significance, which give it special worth and meaning. The Green River is nationally and internationally famous for its high cliff walls and outstanding scenery. It is an internationally recognized destination for canoe touring. The historic resources are unique and irreplaceable, telling the story of the early settlement of this region (and dating back to the time of the fur trappers). The importance criterion is also met for fish resources, as the endangered fish species live only in the Colorado River system, and are rare, irreplaceable and unique. The importance criteria for terrestrial wildlife values involving the upland regions east of the river corridor are not met, as these wildlife values are only of local significance. While the river corridor is a unique resource for endangered fish species, the upland regions are duplicated in many places across the Colorado Plateau.

3.15.1.2.9 MILL CREEK CANYON (13,501 ACRES)

Description of Area: Mill Creek Canyon is located directly east of Moab. It consists of both the North Fork and South Fork drainages of Mill Creek from the National Forest boundary to Spanish Valley.

Relevance Criteria: This nomination meets the relevance criteria for scenery, cultural values, fish and wildlife resources and natural systems. Mill Creek Canyon has significant scenic values, with Class A scenery and high sensitivity. The outstanding visual resources of the canyon are stunning, and of rare scenic quality.

Cultural resources (including rock art, campsites, rock shelters, alcoves and special activity areas) are exceptional in the forks of Mill Creek, and have been the subject of several scientific studies. Mill Creek is one of five coldwater trout fisheries in the Colorado River system. Due to its perennial water, many wildlife species depend on Mill Creek. A rare and especially high quality riparian area, Mill Creek's ecological condition requires special management. The Mill Creek watershed is the municipal watershed of Moab and Grand County, providing water that sustains the human population.

Importance Criteria: Mill Creek Canyon meets the importance criteria for scenery, cultural resources, natural riparian systems and fish and wildlife values. The scenery in Mill Creek Canyon is of national quality, and is far more than locally significant. Cultural resources are extensive and span the entire prehistoric context, giving these resources special worth and consequence. Both the scenic and cultural values in Mill Creek Canyon are easily damaged and in need of protection. Cultural resources are especially sensitive, irreplaceable and exemplary; similar cultural resources exist nowhere else. Mill Creek Canyon's cultural resources have also been identified as being of exceptional importance to Native Americans. Protection of these rich archeological areas is a national priority concern. The proximity of Mill Creek to Moab makes the drainage particularly vulnerable to adverse change.

Fish and wildlife values meet the importance criteria, as the stream is one of the few cold water fisheries in the region. The wildlife importance criterion is met, as Mill Creek Canyon provides a migration corridor from the mountain range to the desert; the richness of the Mill Creek riparian habitat provides for a diversity of species not often found in a desert environment. The rarity of this type of habitat gives importance to this value.

The water resource is a significant factor in the municipal water supply; the watershed is crucial to the public welfare of Moab and Grand County.

3.15.1.2.10 Ten Mile Wash (4,980 acres)

Description of Area: Ten Mile Wash is located northwest of Moab; it drains into the Green River just downstream of White Wash and upstream of Spring Canyon. The nominated area is composed of the Ten Mile drainage from the Green River to two miles upstream of Dripping Spring.

Relevance Criteria: Ten Mile Wash meets the relevance criteria for scenic, cultural, wildlife, natural processes and natural hazards. Ten Mile Wash contains high quality scenery related to sandstone buttes, cliffs, side canyons and alcoves; the scenery is enhanced by the presence of a riparian greenbelt. Ten Mile Wash contains significant cultural resources, including important habitation sites and unusual artifacts.

Ten Mile Wash contains perennial and intermittent flows that maintain ecological diversity in upland and riparian/wetlands-dependent wildlife within extremely arid portions of the basin. Ten Mile Wash contains a rich mixture of riparian, wetland and hydrologic resources. Perennial segments support well-developed wetlands that are rare and unusual in arid regions. Ten Mile Wash is subject to extreme flooding, increasing potential safety hazards to vehicle and camping

activities. The potential for flooding is great because the Ten Mile Wash watershed basin drains 175,185 acres, making it the second largest tributary drainage in the MPA.

Importance Criteria: This nomination meets the importance criteria for cultural, wildlife values, natural systems and natural hazards. Cultural resources in Ten Mile Wash are of more than local significance, and are fragile, rare and exemplary. Ten Mile Wash is wildlife habitat of extremely important consequence in the driest portion of the MPA, because it provides water and habitat to wildlife from a large geographic area.

Riparian/wetland resources comprise less than 1% of the 22 million acres of public land within Utah. Within the MPA, just over 1,000 acres have been identified with wetland potential, of which Ten Mile Wash contains textbook examples. Riparian/wetland ecosystems in Ten Mile Wash are rare, sensitive resources vulnerable to degradation from surface disturbances. These wetland ecosystems are exemplary and rare; they serve as attractors for wildlife and for human activities, making the wash extremely susceptible to adverse impact. Riparian/wetland ecosystems are a national priority concern, and are managed for health and diversity as required by the Clean Water Act, Floodplain and Wetland Executive Orders, Rangeland Standards and Guidelines, and the National Riparian Area Policy. Ten Mile Wash contains extreme seasonal flooding potentials that warrant special management regarding public access and camping within the drainage.

3.15.1.2.11 UPPER COURTHOUSE (11,529 ACRES)

Description of Area: The area of the Upper Courthouse proposal is immediately south of the Blue Hills Road, 16 miles north of Moab. It includes Courthouse, Mill, Tusher and Bartlett Canyons, as well as the tops of various isolated mesas, including Big Mesa.

Relevance Criteria: This nomination meets the relevance criteria for historic, paleontological, natural systems and rare plants. Courthouse Springs is a known location on the Old Spanish Trail, a National Historic Trail. This location later became the Halfway Stage Station, a significant historic resource. The area contains significant paleontological resources, and includes deposits of surface dinosaur bone

Two rare plants occur within the area: the stage station milkvetch and Trotter oreoxis, both of which are on the state sensitive list. In addition, several of the mesa tops within the proposed ACEC have been little altered by direct human influences and thus support relict plant communities and well-developed, mature cryptobiotic soil crusts. Big Mesa is the largest of these untouched areas. It has never been grazed, nor has it been driven upon.

Importance Criteria: This nomination meets the importance criteria for historic, rare plant and natural systems. The area has special worth due to the rare plant species and relict plant communities. The area contains almost all of the stage station milkvetch plants known in the entire world. This stage station milkvetch population is unique and irreplaceable, as is that of the Trotter oreoxis. Areas of relict vegetation on the mesa tops are representative of conditions on surrounding lands; these uncommon remnants of the presettlement landscape are extremely vulnerable and valuable for scientific study.

Historical resources in the area (including a known watering spot on the Old Spanish Trail) are distinctive and irreplaceable. Increasing recreation activity in the area makes these resources vulnerable to adverse change. The richness of its paleontological resources are of more than local significance, as the variety of dinosaur bone in the area rivals that found in Dinosaur National Park.

3.15.1.2.12 WESTWATER CANYON (5,000 ACRES)

Description of Area: Westwater Canyon is along the Colorado River six miles downstream from the Colorado border.

Relevance Criteria: This nomination meets the relevance criteria for scenery and for endangered fish. The dramatic, scenic canyon is rated as Class A scenery, as well as VRM inventory Class I. Visiting the canyon and viewing the scenery is a highly sought experience. The most dramatic scenery within the canyon is the contrast of jet black Precambrian rock with the red sandstones above. These two rock layers are in rare juxtaposition in Westwater, making the scenic experience unique. In addition, four endangered fish inhabit the Colorado River, the Colorado pikeminnow, humpback chub, razorback sucker and bonytail chub. The upland regions surrounding Westwater Canyon do not meet the relevance criteria, as they do not have significant values.

Importance Criteria: This nomination meets the importance criteria for scenery and for endangered fish. The inner gorge of Westwater Canyon is visually unique, with the primordial black Precambrian schist layer overlain by the red rocks of the Wingate sandstone. This irreplaceable canyon is a one-of-a-kind visual experience, which visitors from all over the world vie to enjoy. Westwater Canyon is rare, exemplary and unique in terms of its scenic values. Westwater Canyon has been described as the most scenic one day river trip in the entire United States. The endangered fish that inhabit its waters are also unique and found only in the Colorado River system.

3.15.1.2.13 WHITE WASH (2,988 ACRES)

Description of Area: White Wash is located 30 miles northwest of Moab. It consists of active sand dunes interspersed with cottonwood trees, surrounded by a intermittent wash that drains to the Green River.

Relevance Criteria: White Wash meets the relevance criteria for scenery, cultural, wildlife and natural systems. The high quality scenery is related to the active sand dunes, Entrada sandstone buttes and a unique cottonwood riparian ecosystem. White Wash also contains significant sensitive cultural resources, including habitation sites.

White Wash contains intermittent and ephemeral flows vitally important to support wildlife diversity within this extremely arid region. A small resident desert bighorn sheep population relies on upper White Wash for habitat and for water. White Wash contains a unique ecological/geological system related to cottonwood riparian woodlands located within the active

dune field and supported by localized subsurface moisture. This population of cottonwoods represents a relict ecosystem and is a rare riparian feature.

Importance Criteria: This nomination meets the importance criteria for natural systems. Riparian resources comprise less than 1% of the 22 million acres of BLM land within Utah. Riparian resources in similar combination are not known elsewhere within the region. The White Wash Sand Dunes is a unique ecosystem with sensitive soils that are highly mobile and active. This ecosystem is highly unusual, rare, sensitive and vulnerable to degradation from surface disturbances, especially OHV riders using the cottonwood trees as slalom poles, adversely impacting soil and moisture patterns which support the reproduction and sustainability of the riparian ecosystem.

Riparian/wetland ecosystems are national priority concerns and are managed for health and diversity as mandated by the Clean Water Act, Floodplain and Wetland Executive Orders, Rangeland Standards and Guidelines, and the National Riparian Area Policy.

The area does not meet the importance criterion for cultural, scenery or for wildlife. Cultural sites in the area are not unique; similar wildlife habitat is available across the Colorado Plateau.

3.15.1.2.14 WILSON ARCH (3,700 ACRES)

Description of Area: Wilson Arch is located approximately 25 miles south of Moab on the east side of U.S. Highway 191. The nominated area includes the red rock basin that contains Wilson Arch.

Relevance Criteria: Wilson Arch has significant scenic value.

Importance Criteria: Located immediately adjacent to U.S. Highway 191, Wilson Arch is viewed and photographed by many visitors to the Colorado Plateau. This makes the scenic value of the arch more than locally significant, due to its extreme visibility.

3.15.2 WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act of 1968 (WSRA) established legislation for a National Wild and Scenic Rivers System (NWSRS) to protect and preserve designated rivers throughout the nation in their free-flowing condition and to protect and preserve their immediate environments. The WSRA includes policy for managing designated rivers and created processes for designating additional rivers for the NWSRS. Section 5(d) of the Act directs Federal agencies to consider the potential for national wild, scenic, and recreational river areas in all planning for the use and development of water and related land resources. A wild and scenic river (WSR) review is being conducted as part of the current planning process.

The first phase of the WSR review is to inventory all potentially eligible rivers within the planning area to determine which of those rivers are eligible for consideration as part of the NWSRS. To be eligible, rivers must be free-flowing and possess at least one outstandingly remarkable value (ORV). ORVs are evaluated in the context of regional and/or national

significance and must be river-related. Each river/segment determined to be eligible is then given a tentative classification based on the current level of human development associated with that river/segment. The tentative classification is based on the criteria listed in the classification table from *Wild and Scenic River Review in the State of Utah* (BLM 1996) as noted below.

- A *Wild* river is free of impoundments, with shorelines or watersheds essentially primitive, and with unpolluted waters.
- A *Scenic* river may have some development, and may be accessible in places by roads.
- A *Recreational* river is accessible by road (or railroad), may have more extensive development along its shoreline, and may have undergone some impoundment or diversion in the past.

The MFO ID Team has established WSR eligibility determinations and tentative classifications for 29 rivers/segments and they are summarized along with their ORVs in Table 3.42. For detailed information on MFO's WSR eligibility review, please see Appendix J – Wild and Scenic Rivers Review Eligibility Determination.

The second phase of WSR review is to determine suitability through the planning process for this DEIS. The 29 eligible segments will be furthered reviewed as to their suitability for congressional designation into the National System. Please see Chapter 4, Envionmental Consequences of Proposed Plan and Draft Alternatives.

It is BLM policy (8351 Manual, Section .32C) to manage eligible segments to protect their free-flowing nature, outstandingly remarkable values, and tentative classifications to the extent that BLM has the authority to do so. Until the ROD for the Moab RMP is signed, such protection involves case-by-case review and mitigation of any actions proposed that might affect the eligible river. Protective management will continue for any segments determined suitable in the ROD for the Moab RMP. For each suitable river, the ROD will identify specific management conditions that are in keeping with a suitability decision. Management that would apply, should any rivers be designated by Congress, is identified in BLM's 8351 Manual, Section .51.

3.15.3 Wilderness Study Areas and Designated Wilderness

3.15.3.1 Resource Overview

In 1964 Congress passed the Wilderness Act, establishing a national system of lands for the purpose of preserving a representative sample of ecosystems in their natural condition for benefit of future generations. With the passage of FLPMA in 1976 Congress directed the BLM to inventory, study, and recommend which public lands under its administration should be designated wilderness.

Between 1979 and 1980, BLM inventoried approximately 22 million acres of public land in Utah for wilderness characteristics including the appearance of naturalness, outstanding opportunities for solitude or primitive, unconfined recreation, and adequate size. With the completion of the inventory and resolutions of appeals, the BLM designated about 3.3 million acres of wilderness study areas (WSAs) statewide. Eleven of these WSAs (349,824 acres) are located completely or partly within the MPA. They are currently being managed to preserve their wilderness

characteristics until Congress either designates them as wilderness or releases them for other uses. Table 3.43 summarizes these areas, and Map 2-16, Wilderness Areas and Wilderness Study Areas shows their location.

Table 3.42. River Segments in the MPA Meeting Wild and Scenic River Eligibility

River/Segment Name	Segment Description and Approximate Length in Free-Flowing BLM River Miles (BLMRM), Total River Miles (TRM)*	Outstandingly Remarkable Value(s)	Tentative Classification
Colorado River TRM segments 1-6 is 99.5	(1) Colorado/Utah Stateline to Westwater Canyon (BLMRM 1) (TRM 6.7)	Scenery, recreation, wildlife, fish, cultural, ecological	Scenic
	(2) Westwater Canyon, Mile 125, to River Mile 112 (BLMRM 11.8) (TRM 13)	Scenery, recreation, wildlife, fish, cultural, geology, ecological	Wild
	(3) River Mile 112 to confluence with the Dolores River (BLMRM 11.2) (TRM 15.7)	Recreation, wildlife, fish, cultural, ecological	Scenic
	(4) Confluence with the Dolores River to mile 49 near Potash (BLMRM 32.6) (TRM 53.5)	Scenery, recreation, wildlife, fish, cultural, geology, ecological	Recreational
	(5) River Mile 44.5 to Mile 38.5 State land boundary (BLMRM 6.1) (TRM 6.8)	Scenery, recreation, wildlife, fish, cultural, ecological	Scenic
	(6) River Mile 37.5 State land to Mile 34 Canyonlands NP (BLMRM 3.8) (TRM 3.8)	Scenery, recreation, wildlife, fish, cultural, ecological	Wild
Cottonwood Canyon	Source near Cottonwood Point to Private land boundary including the first half mile of Horse Canyon (BLMRM 10.4) (TRM 13.6)	Scenery, wildlife, ecological	Scenic
Onion Creek	(1) Source to Onion Creek road (BLMRM 3.5)	Scenery, geology, ecological	Wild
	(2) Beginning of Onion Crk Rd to Colorado River (BLMRM 9) (TRM13.22)	Scenery, geology	Recreational
Professor Creek (Mary Jane Canyon)	Forest Service and State land boundary to Diversion near private land (BLMRM 7.4) (TRM 7.7)	Scenery, recreation	Wild
Salt Wash	Arches NP boundary to the Colorado River (BLMRM 33) (TRM 6.33)	Scenery, recreation, wildlife, fish, geology	Wild
Negro Bill Canyon	(1) From state land below rim to ¼ mile from Colorado River (BLMRM 7.2)	Scenery, recreation, ecological	Wild
	(2) Last ¼ mile to Colorado River (BLMRM .25) (TRM 7.45)	Scenery, recreation, ecological	Recreational
Mill Creek (Upper)	(1) Forest boundary to private property below the diversion (BLMRM 1.4)	Scenery, recreation, fish, cultural, ecological	Recreational
(Middle)	(2) T.26 S. R. 23 E., Sec. 19 to Power Dam (BLMRM 4.6) (TRM 12.6)	Scenery, recreation, fish, cultural, ecological	Scenic
North Fork Mill Crk	Forest boundary near Wilson Mesa to Mill Crk (BLMRM 11.2) (TRM 11.7)	Scenery, recreation, cultural, ecological	Wild

Table 3.42. River Segments in the MPA Meeting Wild and Scenic River Eligibility

River/Segment Name	Segment Description and Approximate Length in Free-Flowing BLM River Miles (BLMRM), Total River Miles (TRM)*	Outstandingly Remarkable Value(s)	Tentative Classification
Dolores River	(1) Colorado-Utah Stateline to Fisher Creek (BLMRM 5.9)	Scenery, recreation, wildlife, fish, geology, ecological	Scenic
	(2) Fisher Creek to Bridge Canyon (BLMRM 6.2)	Scenery, recreation, wildlife, fish, geology, ecological	Wild
	(3) Bridge Canyon to Colorado River (BLMRM 9.9) (TRM 23.63)	Recreation, wildlife, fish, geology, ecological	Scenic
Beaver Creek	(1) FS boundary to 1 mile from Dolores River (BLMRM 6.7)	Scenery, recreation, fish, ecological	Wild
	(2)One mile to Dolores River (BLMRM 1) (TRM 9)	Scenery, recreation, geology	Scenic
Thompson Canyon	Source of Thompson to Fisher Creek (Cottonwood Cyn) (BLMRM 5.5)(TRM 5.5)	Scenery, ecological	Wild
Green River**	(1) Coal Creek to Nefertiti Boat Ramp (TRM 6)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Wild
	(2) Nefertiti Boat Ramp to Swasey's Boat Ramp (TRM 8)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Recreational
	(3) Swasey's Boat Ramp to I-70 bridge (TRM 13)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Recreational
	(4) I-70 Bridge to river mile 91 below Ruby Ranch (TRM 28)	Scenery, recreation, fish, cultural/historic, paleontology	Scenic
	(5) Mile 91 below Ruby Ranch to Hey Joe Canyon (TRM 15)	Scenery, recreation, fish, cultural/historic	Wild
	(6) Hey Joe Canyon to Canyonlands NP boundary (TRM 29)	Scenery, recreation, fish, cultural/historic	Scenic
Rattlesnake Canyon	Source to Green Rvr (including Flat Nose George Trib) (BLMRM 31.6) (TRM 36)	Scenery, wildlife, geology, ecological	Wild

Source BLM 2004g.

* Total River Miles (TRMs) are estimated. Segment 4 of the Colorado River TRM includes river along the Potash Plant.

** The Price Field Office (in coordination with the MFO) reviewed the Green River as part of the Price Field Office RMP. The Moab RMP will carry forward eligibility findings for the Moab side of the Green River.

Table 3.43. BLM Wilderness Study Areas under Jurisdiction of the MFO[1]

Name	Acreage
Behind the Rocks	12,635
Black Ridge	52 [2]
Coal Canyon	60,755
Desolation Canyon	81,603 [3]
Floy Canyon	72,605
Flume Canyon	50,800
Lost Spring Canyon	1,624 [4]
Mill Creek Canyon	9,780
Negro Bill Canyon	7,820
Spruce Canyon	20,990
Westwater Canyon	31,160
Totals	**349,824**

[1] Except as noted, all acreage figures are from Utah BLM Statewide Wilderness Final Environmental Impact Statement (BLM 1990).

[2] Acres remaining after creation of Black Ridge Wilderness

[3] Desolation Canyon WSA spans three field offices; acreage shown is for MFO only

[4] Acres remaining after transfer of part of this WSA to National Park Service

A discussion of the current resource values and uses in each WSA, established in 1980 under the authority of Section 603(c) of FLPMA, can be found in the *Utah BLM Statewide Wilderness Final Environmental Impact Statement* (BLM 1990). Those values and resources described in the 1990 document have not changed significantly since that time, as documented in monthly WSA monitoring reports available in the MFO.

Although WSAs are by definition roadless, several of the WSAs in the MPA do include inventoried ways or known impairments (Table 3.44). During the 1979-1980 Utah Wilderness Inventory, it was necessary to divide routes used by motorized vehicles into "roads" and "ways." To be considered a road, three criteria had to be met: (1) constructed; (2) maintained by mechanical means; and (3) regular and continuous use. All other motorized routes were defined as ways, which could be left open to motorized travel as long as their use did not "impair" the suitability of the area for wilderness designation.

Within the MPA, there is a portion (5,200 acres) of the congressionally designated Black Ridge Wilderness Area. The Black Ridge Canyons Wilderness is a Congressionally designated wilderness that is part of the McInnis Canyon National Conservation Area. It was established under the Colorado Canyons National Conservation Area and Black Ridge Canyons Wilderness Act of 2000 (P.L. 106-353 of the 106th Congress). It was approved on October 24, 2000.

Table 3.44. Inventoried Ways and Known Impairments within WSA in the MPA

WSA Name	Acres	Inventoried Ways (miles)[1]	Known Impairments
Behind the Rocks	12,635	3.55	
Coal Canyon	60,755	8.0	
Desolation Canyon (MFO)	81,603	8.2[2]	
Floy Canyon	72,605	23.5	
Flume Canyon	50,800	12.5	
Lost Spring Canyon	1,624	0.25	
Mill Creek Canyon	9,780	1.83	
Negro Bill Canyon	7,820	3.54[3]	
Spruce Canyon	20,990	1.0	
Westwater Canyon	31,160	22.5	
Black Ridge	52	0	Agriculture trespass with irrigation pivots
Total	**353,615**	**84.62**	

Except as noted, motorized travel routes identified in the October, 1991, *Utah Statewide Wilderness Study Report (BLM 1991c)*

[2] Described in above document, but mileage not stated; estimated from GIS.

[3] Motorized travel routes (estimate) as depicted on the WSA legislative map submitted to Congress. No summary available in *Utah Statewide Wilderness Study Report*

3.15.3.2 Guidance and Management for WSAs and Designated Wilderness

FLPMA Section 603 (c) directs the BLM to manage the lands under wilderness review in a manner that will preserve their suitability for congressional wilderness designation. This language is referred to as the "nonimpairment" mandate or standard, and will remain in effect until Congress acts on the President's wilderness recommendation for WSAs in Utah.

BLM policies and guidance providing for management of existing WSAs and consideration of values associated with wilderness characteristics in land-use planning are detailed in:

- Manual Handbook H-1601-1, Land-use Planning Handbook
- Manual Handbook H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP)

The BLM's IMP (BLM 1995) provides specific policy and guidance for management of most resource values and uses in WSAs. However, visual resource management decisions and off highway vehicle designations and route designations are made during land-use planning. A summary of some aspect of WSA management are as follows:

- This standard applies to all uses and activities except those specifically exempted from this standard by FLPMA (grandfathered uses and valid existing rights).

- Activities that are permitted in WSAs (except valid existing rights and grandfathered uses) must be temporary, create no new surface disturbance, and not involve the permanent placement of structures. There are exceptions to this standard.
- Grazing, mining, and mineral leasing uses that existed as of the passage of FLPMA (October 21, 1976) may continue in the same manner and degree, even if this would impair wilderness suitability.
- WSAs may not be closed to location under the mining laws in order to preserve their wilderness character (although the wilderness character of the area cannot be impaired through actions to perfect claims located after October 21, 1976). Valid existing rights will be recognized.
- WSAs will be managed to prevent unnecessary and undue degradation, as required by law.
- The Black Ridge Wilderness Area is managed under the Management Plan for McInnis Canyons National Conservation Area and Black Ridge Canyons Wilderness. This plan was approved October 28, 2004.

3.16 Special Status Species

Special status species occur in a variety of cover types across the planning area. For BLM management purposes, special status species include species listed as endangered, threatened, proposed, and/or candidate under the Endangered Species Act, as well as those species listed as sensitive in the State of Utah by the BLM.

Species listed as threatened or endangered are afforded protection under the Endangered Species Act (ESA) (BLM Manual 6840). The BLM is required to consult with the USFWS on potential impacts to Federally listed species. The USFWS does not consult on candidate species, although they are included for informational purposes in consultation documents and USFWS may provide information and suggestions regarding them during consultation. Periodic review of the special status species list allows for additions and/or removals depending on the status of populations, habitats, and potential threats. A total of 10 Federally listed species were identified as having the potential to occur within Grand and San Juan Counties. These include 1 plant, 5 wildlife and 4 fish species.

Sensitive species shall be managed to prevent further listing, with the same level of protection as candidate species (BLM Manual 6840). BLM sensitive species are designated by the State Director under 16 U.S.C. 1536 (a) (2). The BLM has identified 43 Sensitive Species as having the potential to occur within Grand and San Juan Counties. These include 14 plant, 18 wildlife, 4 fish, 6 reptiles and amphibians and 1 invertebrate species. (It should be noted that some of the TES species listed in Table 3.45 may occur on lands managed by agencies or organizations other than the BLM.)

3.16.1 Threatened, Endangered, and Candidate Species

The U.S. Fish and Wildlife Service (USFWS) has identified the following Threatened, Endangered and Candidate plant, wildlife and fish species as occurring in the MPA in the last ten years. Discussions of each species follow Table 3.45.

Table 3.45. U.S. Fish and Wildlife Service Threatened, Endangered and Candidate Species Occurring in the MPA, Utah

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence in Utah**	**Designated Critical Habitat Within MPA**
Plants				
Cycladenia humilis var. *jonesii* Jones cycladenia	Gypsiferous or saline soils on the Chinle, Cutler, and Summerville Formations. Barren slopes of the Moenkopi Formation. Mid-May to June. 4,400-6,000'.	Threatened	Emery County, Garfield County, Grand County, and Kane County.	None
Wildlife				
Mustela nigripes Black-footed ferret	Prairie dog towns associated with open grassland and prairies.	Endangered	May occur throughout eastern Utah, only known population occurs in the Uinta Basin.	None
Haliaeetus leucocephalus Bald eagle[1]	Roosts and nests in tall trees near bodies of water,	Threatened	Throughout Utah.	None
Strix occidentalis lucida (Mexican) spotted owl	Steep rocky canyons.	Threatened	Southern and eastern parts of Utah.	55,645 acres
Empidonax traillii extimus Southwestern willow flycatcher	Low scrub, thickets, or groves of small trees, often near watercourses.	Endangered	Throughout southern Utah.	None
Coccyzus americanus occidentalis (Western) yellow-billed cuckoo	Riparian habitats.	Candidate	Throughout Utah.	None
Gymnogyps californianus (California Condor)	Roosts and nests in cliff habitat. Forages in open areas.	Endangered, Experimental	Very rarely throughout Utah. Usually south of Interstate 70.	None
Fish				
Gila elegans Bonytail	Eddies, pools, and backwaters near swift current in large rivers	Endangered	Mainstem of the Colorado and Green rivers	205 km

Table 3.45. U.S. Fish and Wildlife Service Threatened, Endangered and Candidate Species Occurring in the MPA, Utah

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence in Utah**	**Designated Critical Habitat Within MPA**
Ptychochelius lucius Colorado pikeminnow	Adults can be found in habitats ranging from deep turbid rapids to flooded lowlands. Young prefer slow-moving backwaters	Endangered	Mainstem of the Colorado, Green, and San Juan rivers	408 km
Gila cypha Humpback chub	Fast, deep, white-water areas	Endangered	Mainstem of the Colorado and Green rivers	257 km
Xyrauchen texanus Razorback sucker	Slow backwater habitats and impoundments	Endangered	Mainstem of the Colorado and Green rivers	345 km

[1] Bald eagle was removed from federal list of threatened and endangered species on August 8, 2007.

3.16.1.1 JONES CYCLADENIA

Jones cycladenia is endemic to Utah and Arizona, and has been identified as occurring in Grand County, Utah, near lower Castle Valley. Jones cycladenia grows on barren slopes of the Chinle, Cutler and Summerville Formations in gypsiferous, saline soils. This species occurs in Eriogonum-ephedra, cool desert shrub and juniper communities at elevations ranging from 4,400 to 6,000 feet. Blooming takes place from mid-May through June (Utah Native Plant Society 2005; personal communication between Daryl Trotter, BLM and Susan Kammerdiener, SWCA on January 6, 2006).

3.16.1.2 CALIFORNIA CONDOR

The California Condor is an federally-listed endangered species with non-essential, experimental status in Utah south of Interstate 70 and west of Highway 191. Under Section 10(j) of the Endangered Species Act (ESA; 16 USC 1536[c]), this means that the species is treated as though it is proposed for federal listing, rather than as endangered. No condors are known to nest in the MPA, however, they have the potential to move through the area and potentially suitable nesting habitat does exist there. A few condors have been sighted throughout Utah since being released in northern Arizona in 1996 (USFWS 1996a). Any condors that leave the experimental population area will be considered as endangered. The agreement includes provisions for the capture and return of condors to the experimental population area should they be found outside of it (61 FR 54043 54060). California Condors prefer mountainous country at low and moderate elevations, especially rocky and brushy areas near cliffs. Condor colonies often roost in snags, tall open-branched trees, or cliffs, often near important foraging grounds (UDWR 2007). This species lays a single egg between late January and early April. The California Condor feeds only on the carcasses of dead animals and it prefers to do so in relatively open areas (USFWS 1996b).

3.16.1.3 BLACK-FOOTED FERRET

The endangered black-footed ferret is considered the rarest mammal in North America; once common throughout the Great Plains now all native population have been extirpated. Successful captive breeding programs and reintroduction efforts are returning small population to their native ranges. Because the majority of their diet is comprised of prairie dogs, recent declines in prairie dog numbers have put reintroduced populations at risk. Within the MPA, no known populations occur, but historical native ranges exist.

3.16.1.4 BALD EAGLE

Utah's wintering bald eagle population is typically found near rivers, lakes, and marshes where unfrozen, open waters offer the opportunity to prey on fish and waterfowl. The Colorado and Green River corridors are used frequently by Utah's wintering bald eagles. The eagles begin to arrive in November and head north by March. Utah also hosts a small population of desert bald eagles that can be found in desert valleys, far from any water. These eagles feed primarily on carrion such as road and hunter kill. There are only eight known nest sites in Utah, three of which occur on the Colorado River within the MPA. Nesting bald eagles in the planning area return to their nesting territories in early spring. Egg laying and incubation occurs from February through May with eaglets hatching during May and early June and fledging by early July.

The bald eagle was removed from the federal list of threatened and endangered species on August 8, 2007. It continues to be protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

3.16.1.5 Mexican Spotted Owl (MSO)

Steep slopes and canyons with rocky cliffs characterize much of the Mexican spotted owl (MSO) habitat in Utah. Within the Colorado Plateau, owls are known to nest in steep-walled canyon complexes and rocky canyon habitat within desert scrub vegetation. The owl exists in small isolated subpopulations and is threatened by habitat loss and disturbance from recreation, overgrazing, road development, catastrophic fire, timber harvest, and mineral development. The MPA contains 55,645 acres of designated critical habitat for this species (Map 2-18, Mexican Spotted Owl Habitat). Within the planning area, one known nesting territory has been identified and is located approximately 0.5 miles outside the designated critical habitat. No known nesting territories have been identified within the planning area designated critical habitat. Nesting and breeding begins in March and eggs are laid in late March or early April and are incubated for approximately 30 days. The eggs usually hatch in early May. Nesting owls fledge from early to mid-June and disperse out of the natal area in the fall.

3.16.1.6 Southwestern Willow Flycatcher (SWFL)

The southwestern willow flycatcher (SWFL) utilizes and breeds in patchy to dense riparian habitats along streams and wetlands near or adjacent to surface water or saturated soils. These dense patches are often interspersed with small openings, open water, and/or shorter/sparser vegetation, creating a mosaic habitat pattern. Historically, nests were constructed in native willow species but currently the SWFL will utilize both native and exotic species, such as tamarisk and Russian olive that provide desired habitat requirements (Sogge et al. 1997). Nesting season typically begins in May when males arrive to establish breeding territories. The females arrive a week or two later and nest building begins. Eggs are laid and incubated from late May through July. Chicks fledge 12 to 15 days after hatching during July and August and migrate south in late August through early fall. Population declines are attributed to numerous, complex, and interrelated factors such as habitat loss and modification, invasion of exotic plants into breeding habitat, brood parasitism by cowbirds, vulnerability of small population numbers, and winter and migration stress. The MPA contains potential riparian habitat for this species. The exact amount of potential habitat is unknown and will require further field habitat evaluations.

3.16.1.7 (Western) Yellow-billed Cuckoo

The yellow-billed cuckoo is a Federal Candidate species that has been listed due to loss of riparian habitat from agricultural use, water use, road development and urban development. No known population of this species exists at present within the MPA. The yellow-billed cuckoo, however, is a neotropical migrant that utilizes riparian valleys throughout the state. Migrant or nesting populations may occur within the Book Cliffs, but there is inadequate sampling of potential habitat at this time UDWR). The planning area contains potential riparian habitat for this species. The exact amount of potential habitat is unknown and will require further field habitat evaluations.

3.16.1.8 Bonytail Chub

The bonytail chub has drastically declined in numbers since the 1960s and little is known about its biological requirements. Historically it was once widespread throughout the Colorado River Basin. Today it is thought to be found in large river reaches of the Colorado and Green Rivers. The MPA contains both possible populations and designated critical habitat for this species. The designated critical habitat within the planning area is found on the Green River between the Yampa River and the Colorado River (74,644 m) as well as between the Desolation area and the Gray canyons area (130,729 m) (USFWS 1990b).

3.16.1.9 Colorado Pikeminnow

Natural populations of the Colorado pikeminnow are restricted to the upper Colorado River Basin in Wyoming, Colorado, Utah, and New Mexico. The main stem of the Colorado River from Palisade, Colorado to Lake Powell has known population within this region (UDWR 2005b). Flow regulations, migration barriers, habitat loss/alteration, and introduced non-native fish have all been identified as causes for population decline (UDWR 2005b). The MPA contains both populations and designated critical habitat for this species. The designated critical habitat within the planning area is found on the Green River between the Yampa River and the Colorado River (74,644 m), between the Desolation area and the Gray canyons area (130,729 m), the Dolores River 2km from the Colorado River (63,183 m), the Colorado River from I-70 to the boundary with the Monticello Field Office (13,210 m), and the Colorado River from the Westwater Canyon Area (125,972 m) (USFWS 1991).

3.16.1.10 Humpback Chub

Populations of humpback chub have been identified in the Upper Colorado River Basin with the highest concentrations found in the Black Rocks and Westwater Canyon reaches of the Colorado River near the Colorado/Utah state line (UDWR 2005b). The presences of juvenile population suggest spawning may occur in the Upper Colorado River at Black Rocks, Westwater Canyon, Cataract Canyon, and Desolation/Gray Canyon (UDWR 2005b). Flow alterations have been identified as a significant cause of decline. The MPA contains both populations and designated critical habitat for this species. The designated critical habitat within the planning area is found on the Green River between the Desolation area and the Gray canyons area (130,729 m), and the Colorado River from Westwater Canyon Area (125,972 m) (USFWS 1990a).

3.16.1.11 Razorback Sucker

The Green River has the only known spawning areas (UDWR) for the razorback sucker, some of which are found in the MPA. Populations have been identified in the Colorado River from Rifle Colorado to Lee's Ferry Arizona and also in areas of the Green, Gunnison, and Yampa Rivers (UDWR 2005b). The planning area contains both populations and USFWS designated Critical Habitat for this species. The designated critical habitat within the planning area is found on the Green River between the Yampa River and the Colorado River (74,644 m), between the Desolation area and the Gray canyons area (130,729 m), the Colorado River from I-70 to the boundary with the Monticello Field Office (13,210 m), and the Colorado River from Westwater Canyon Area (125,972 m) (USFWS 1999).

3.16.2 BLM SENSITIVE SPECIES

3.16.2.1 BLM SENSITIVE WILDLIFE SPECIES

The BLM Sensitive Fish and Wildlife Species presented in Table 3.46 have been detected in the MPA in the past ten years. A discussion of each of these species follows.

Table 3.46. BLM Sensitive Species Occurring in the MPA

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Wildlife			
Idionycteris phyllotis Allen's big-eared bat	Rocky and riparian areas in woodland and scrubland regions, roosts in caves or rock crevices.	BLM Sensitive [b]	Throughout southern Utah.
Nyctinomops macrotis Big free-tailed bat	Rocky and woodland habitats, roosts in caves, mines, old buildings, and rock crevices.	BLM Sensitive [a/b]	Throughout southern Utah.
Myotis thysanodes Fringed myotis	Desert and woodland areas, roosts in caves, mines, and buildings.	BLM Sensitive [b]	Throughout southern Utah.
Euderma maculatum Spotted bat	Found in a variety of habitats, ranging from deserts to forested mountains; roost and hibernate in caves and rock crevices.	BLM Sensitive [b]	Throughout Utah.
Corynorhinus townsendii Townsend's big-eared bat	Occur in many types of habitat, but is often found near forested areas; roosts and hibernates in caves, mines, and buildings.	BLM Sensitive [a/b]	Throughout Utah.
Vulpes macrotix Kit fox	Semi desert grasslands and open shrublands	BLM Sensitive	Throughout Utah.
Cynomys gunnisoni Gunnison's prairie dog	Grasslands, semidesert and montane shrublands	BLM Sensitive	Throughout southeastern Utah
Cynomys leucurus White-tailed prairie dog	Semi desert grasslands and open shrublands	BLM Sensitive	Throughout northcentral Utah.
Pelecanus erythrorhyanchos American white pelican	Along lakes, ponds, creeks, and rivers.	BLM Sensitive [b]	Throughout Utah.
Dolichonyx oryzivorus Bobolink	Riparian or wetland areas.	BLM Sensitive [a/b]	Throughout Utah.
Athene cunicularia Burrowing owl	Open grassland and prairies.	BLM Sensitive [a]	Throughout Utah.
Buteo regalis Ferruginous hawk	Flat and rolling terrain in grassland or shrub steppe; nests on elevated cliffs, buttes, or creek banks.	BLM Sensitive [c]	Throughout Utah.

Table 3.46. BLM Sensitive Species Occurring in the MPA

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Centrocercus minimus Gunnison sage-grouse	Sagebrush and sagebrush/grassland habitats.	BLM Sensitive [a/b]	Southeastern Utah.
Centrocercus urophasianus Greater sage-grouse	Sagebrush plains, foothills, and mountain valleys.	BLM Sensitive [a/b]	Throughout Utah.
Melanerpes lewis Lewis's woodpecker	Burned-over Douglas-fir, mixed conifer, pinyon-juniper, riparian, and oak woodlands, but is also found in the fringes of pine and juniper stands, and deciduous forests, especially riparian cottonwoods	BLM Sensitive [a/b]	High and mid-elevation mountain ranges of Utah.
Accipiter gentilis Northern goshawk	Mature mountain forest and riparian zone habitats.	Conservation Agreement Species	High and mid-elevation mountain ranges of Utah.
Asio flammeus Short-eared owl	Grasslands, shrublands, and other open habitats.	BLM Sensitive [a]	Throughout Utah.
Picoides tridactylus Three-toed woodpecker	Engelmann spruce, sub-alpine fir, Douglas fir, grand fir, ponderosa pine, tamarack, aspen, and lodgepole pine forests.	BLM Sensitive [b]	High and mid-elevation mountain ranges of Utah.
Oreohelix yavapai Yavapai Mountainsnail	Coves and valleys.	BLM Sensitive [b]	Navajo and Abajo Mountains.
Fish			
Oncorhynchus clarki pleuriticus Colorado River cutthroat trout	Cool clear water, high-elevation streams and lakes	Conservation Agreement Species	Upper Colorado River drainage
Catostomus discobolus Bluehead sucker	Fast flowing water in high gradient reaches of mountain rivers	BLM Sensitive [a] Conservation Agreement Species	Tributaries of the Colorado and Green rivers
Gila robusta Roundtail chub	Large rivers, and is most often found in murky pools near strong currents	BLM Sensitive [c] Conservation Agreement Species	Mainstem and tributaries of the Colorado and Green rivers
Catostomus latipinnis Flannelmouth sucker	Large rivers, where they are often found in deep pools of slow-flowing, low gradient reaches	BLM Sensitive [a] Conservation Agreement Species	Mainstem and tributaries of the Colorado and Green rivers

[a] Listed by the State of Utah as a species of special concern due to declining population sizes within the state.

[b] Listed by the State of Utah as a species of special concern due to its limited distribution within the state.

[c] Listed by the State of Utah as Threatened

Sources: BLM 2002d; Atwood et al. 1991; Welsh et al. 2003.

Table 3.47 contains BLM Sensitive Species, which may occur within the MPA, but have not been detected in the MPA in the past ten years.

Table 3.47. State/BLM Sensitive Wildlife Species Potentially Occurring in the MPA, though Not Detected in the Last 10 Years

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Amphibians and Reptiles			
Bufo microscaphus Arizona toad	Streams, washes, irrigated croplands, reservoirs, and uplands adjacent to water.	State Sensitive (SP)	Throughout Southern Utah
Sauromalus ater Common chuckwalla	Predominantly found near cliffs, boulders, or rocky slopes, where they use rocks as basking sites and rock crevices for shelter.	State Sensitive (SP/SD)	Along the Colorado River in Southern Utah
Elaphe guttata Cornsnake	Near streams, or in rocky or forest habitats	State Sensitive (SP/SD)	Throughout Southeast Utah
Xantusia vigilis Desert night lizard	Extremely secretive, spending much of its time hiding under desert shrubs.	State Sensitive (SD)	Throughout Southeastern Utah
Opheodrys vernalis Smooth greensnake	Moist grassy areas and meadows.	State Sensitive (SP/SD)	Occurs in the Wasatch, Uinta, Abajo, and La Sal Mountains.
Bufo boreas Western toad	Slow moving streams, wetlands, desert springs, ponds, lakes, meadows, and woodlands	State Sensitive (SP)	Throughout most of Utah.
Invertebrates			
Oreohelix Eurekensis Eureka Mountainsnail	Forested areas.	State Sensitive (SD)	East Tavaputs Plateau

SP: Listed by the State of Utah as a species of special concern due to declining population sizes within the state.

SD: Listed by the State of Utah as a species of special concern due to its limited distribution within the state.

3.16.2.1.1 ALLEN'S BIG EARED BAT

Allen's big eared bat is listed as a BLM Sensitive Species because of limited distribution within the state. Southern Utah is the northern extreme of this species distribution. It occurs in various habitats including riparian, desert shrub, pinyon-juniper and mixed forest (Oliver 2000).

3.16.2.1.2 BIG FREE-TAILED BAT

The big free-tailed bat is listed as a BLM Sensitive Species because of declining population sizes and limited distribution within the state. It is a migratory species and is known from the southern half of Utah although it may range further north. The big free-tailed bat has been captured in riparian, desert shrub and montane forest habitat types (UDWR 2005b).

3.16.2.1.3 FRINGED MYOTIS BAT

The fringed myotis bat is listed as BLM Sensitive Species because of limited distribution within the state. This species occurs predominantly in southern Utah although records of this species occur throughout the state. Fringed myotis occur in a variety of habitat including riparian, desert shrub, pinyon-juniper, mountain meadow, ponderosa pine, and montane forest (UDWR 2005b).

3.16.2.1.4 TOWNSEND'S BIG-EARED BAT

The Townsend's big-eared bat is a BLM Sensitive Species, and USFS-listed Sensitive species due to limited distribution and a declining population (Oliver 2000). The Townsend's big-eared bat is a cave-roosting species that moves into man-made caves such as mines and buildings. Unlike many other bats, they are unable to crawl into crevices and usually roost in enclosed areas where they are vulnerable to disturbance. The Townsend's big-eared bat is quite sensitive to human disturbance, and this appears to be the primary cause of population decline for this species. This bat is colonial during the maternity season, when compact clusters of up to 200 individuals might be found. Maternity roosts form in the spring and remain intact during the summer. Site fidelity is high, and if undisturbed, the bats will use the same roost for many generations (Brown 1996).

3.16.2.1.5 SPOTTED BAT

The spotted bat is listed as a BLM Sensitive Species and is considered rare in Utah (though the spotted bat's distribution ranges throughout the western states from British Columbia to Mexico). The spotted bat has a very low reproductive potential, and therefore once populations are reduced they rebuild very slowly. Several sightings were reported to the UDWR in the southern portion of the MPA in 1959 and 1965, though no current populations are known today (UDWR 2005b).

3.16.2.1.6 KIT FOX

The kit fox is listed as a BLM Sensitive Species. It opportunistically eats small mammals (primarily rabbits and hares), small birds, invertebrates, and plant matter. The species is primarily nocturnal, but individuals may be found outside of their dens during the day. The kit fox mates in late winter, with a litter of four to seven pups being born about two months later. Young first leave the den about one month after birth, in late spring or early summer. The species most often occurs in open prairie, plains, and desert habitats.

3.16.2.1.7 GUNNISON'S PRAIRIE DOG

The Gunnison's prairie dog is listed as a BLM Sensitive Species. This species is highly susceptible to sylvatic plague and has a low ability to repopulate once the plague has decimated a colony. Mortality from plague frequently exceeds over 99% within colonies. Additional threats include poisoning, agricultural conversion and urbanization and development (UDWR 2005b).

3.16.2.1.8 WHITE-TAILED PRAIRIE DOG

The white-tailed prairie dog is listed as a BLM Sensitive Species. This species has declined by an estimated 84% in southern Utah. The decline can be attributed to this species' high susceptibility to sylvatic plague. Population numbers rarely rebound to previous numbers and occupied acreage once the plague has decimated a colony. Additional threats include poisoning, grazing, fire suppression, agricultural conversion, urbanization and oil and gas development (UDWR 2005b).

3.16.2.1.9 AMERICAN WHITE PELICAN

The American white pelican is listed as a BLM Sensitive Species. This species' preferred nesting habitats are islands, especially those associated with fresh water lakes. Preferred foraging areas are shallow lakes, marshlands, and rivers. In Utah, the only known breeding colonies are located in the northern portions of the state specifically within the Utah Lake/Great Salt Lake ecological complex (Parrish et al. 2002).

3.16.2.1.10 BOBOLINK

The bobolink is listed as a BLM Sensitive Species and a State Sensitive Species because of (range-wide) declining populations and limited habitat. Wet Meadow habitats have been decreased and fragmented in Utah due to many of the same factors that impact riparian areas, e.g., agricultural encroachment, urban encroachment, road development, water development (reservoirs and in-stream flow depletions) and channelization. (Parrish et al. 2002).

3.16.2.1.11 BURROWING OWL

The burrowing owl is listed as a BLM Sensitive Species to recent decreases in population size. Burrowing owls are neotropical migrants, nest underground in burrows, and are typically found in open desert grassland and shrubland areas that are level and well drained (Gleason and Johnson 1985). They depend on burrowing mammals for nest sites and are often associated with prairie dog colonies (Konrad and Gilmer 1984). The decline of the owl's population across its range appears to be due primarily to agricultural practices, use of pesticides, and the decline of prairie dog colonies (Haug et al. 1993).

3.16.2.1.12 FERRUGINOUS HAWK

The ferruginous hawk, BLM Sensitive Species, is the largest of the North American buteos. It is a neotropical migrant breeding from southwestern Canada to central Arizona, New Mexico, and

northern Texas and wintering in California to northern Mexico. It is a year-round resident from Nevada through western and southern Utah, northern Arizona, and New Mexico to eastern Colorado and South Dakota. In Utah, the ferruginous hawk nests at the edge of juniper habitats and open, desert and grassland habitats in the western, northeastern, and southeastern portions of the state. Within the MPA they are found through the Cisco Desert, along the Colorado and the Green Rivers and the Potash area. Ferruginous hawks are highly sensitive to human disturbance and are also threatened by habitat loss from oil and gas development, agricultural practices, and urban encroachment. They have experienced a decline across much of their range and have been extirpated from some of their former breeding grounds in Utah (UDWR 2005b).

3.16.2.1.13 GUNNISON SAGE-GROUSE

Sage-grouse require a variety of habitats found in large expanses of sagebrush (*Artemisia* spp.) communities below 9,800 feet, with a diversity of grasses and forbs and healthy riparian ecosystems. Their habitat requirements differ both seasonally and for sex and age classes. The presence of each habitat type in healthy condition in close proximity to winter, lek, nest and brood-rearing habitat is essential. A large percent of each seasonal habitat must be in later seral stage ecological condition to meet the requirements of the grouse. Population declines are attributed to several factors, including habitat loss and fragmentation resulting from increased roads, housing developments, uranium mill tailings remedial action, power lines, and loss of riparian areas. Other issues decreasing habitat quality are livestock grazing, drought, land treatments, increased elk and deer populations, and herbicides. The MPA contains habitat for this species and has had documented populations through the mid-1990s. No sightings have been reported in the past ten years (UDWR 2005b).

3.16.2.1.14 GREATER SAGE-GROUSE

The greater sage-grouse is listed as a BLM Sensitive Species because of their limited distribution within the state and because of recent decreases in population size. Greater sage-grouse are found in the sagebrush foothills and plains of the Intermountain Region. Since 1967, the abundance of male grouse on known breeding grounds in Utah has declined approximately 50%. Brood counts and harvest data show a similar downward trend. Habitat loss and fragmentation from agricultural encroachment, urbanization, and overgrazing are the primary threats to the greater sage-grouse (UDWR 2005b).

3.16.2.1.15 LEWIS'S WOODPECKER

The Lewis's woodpecker is listed as a BLM Sensitive Species and USFWS Candidate species because of its limited distribution within the state and because of recent decreases in population size. This woodpecker is a permanent resident to western North America and, in Utah, is found primarily in the riparian habitats of the Uinta Basin and along the Green River. Formerly common in several areas of the state, the species distribution is currently reduced, and the species is experiencing a range-wide decline. This woodpecker usually feeds on flying insects in open areas interspersed with trees in the spring and summer. It feeds primarily on fruits and nuts in the fall and winter. It is adversely affected by loss of habitat from water development and

agricultural practices and may be increasingly affected by competition for nest cavities from non-native bird species (UDWR 2005b).

3.16.2.1.16 NORTHERN GOSHAWK

The goshawk is a neotropical migrant raptor that can be found in mature mountain forests and valley cottonwood habitats. In the winter months goshawks are known to move into lower elevation to forage (Squires and Reynolds 1997). Due to low population densities, loss of timber habitat and development in riparian areas, populations have declined across the Colorado Plateau (UDWR). A Conservation Agreement has been developed for the Northern Goshawk to maintain and restore habitat for the northern goshawk on the National Forests in Utah and in small portions of Wyoming and Colorado. Threats that might lead to listing under the Endangered Species Act of 1973, as amended, will be eliminated or reduced through implementation of the Conservation Agreement and Conservation Strategy. The goals of the Agreement are to assure the long-term population viability of goshawks by maintaining adequate connected nesting and foraging habitat throughout the State of Utah. This will be accomplished through management that mimics the variability of size, intensity, and frequency of native disturbance regimes within the full historic range of variation, including extreme events. Within the MPA there is habitat and the possible presence of goshawk along the interface between BLM lands and the Manti La National Forest.

The goshawk is a neotropical migrant raptor that can be found in mature mountain forest and valley cottonwood habitats. In the winter months goshawks are known to move into lower elevation to forage. Due to low population densities, loss of timber habitat and development of riparian areas, populations have declined across the Colorado Plateau (UDWR 2005b).

3.16.2.1.17 SHORT-EARED OWL

The short-eared owl is listed as a BLM Sensitive Species. This owl is usually found in grasslands, shrublands, and other open habitats. There is some concern that short-eared owl populations are declining. It is an uncommon breeder in the northern half of the Utah, mostly in the northwestern portion of the state (UDWR 2005b).

3.16.2.1.18 THREE-TOED WOODPECKER

The three-toed woodpecker is listed as a BLM Sensitive Species because of their limited distribution within the state. Because this species requires snags for feeding, perching, nesting, and roosting, it is threatened by activities such as logging and fire suppression which remove or eliminate snags. Salvage logging in beetle infested areas also reduces both food and nesting sites for Three-toed Woodpeckers. Salvage logging after a fire reduces or eliminates high quality foraging habitat. Fire suppression that eliminates fire-killed trees are also a threat (Parrish et al. 2002).

3.16.2.1.19 YAVAPAI MOUNTAINSNAIL

The Yavapai mountainsnail is listed as a BLM Sensitive Species. It has not been detected in Utah since the original discoveries in 1919. This species has been reported only from 2 localities in Utah, one on Navajo Mountain and one in the Abajo Mountains near Monticello, both in San Juan County (UDWR 2005b).

3.16.2.1.20 COLORADO CUTTHROAT TROUT

There is a Conservation Agreement concerning the Colorado cutthroat trout (CRCT Task Force 2001) to expedite implementation of conservation measures in Colorado, Utah, and Wyoming as a collaborative and cooperative effort among resource agencies. Threats that warrant CRCT listing as a special status species by state and Federal agencies and might lead to listing under the Endangered Species Act of 1973, as amended, will be eliminated or reduced through implementation of the Conservation Agreement and Conservation Strategy. The goals of the Agreement are to assure the long-term prosperity of CRCT throughout their historic range and to maintain areas which currently support abundant CRCT and manage other areas for increased abundance, to maintain the genetic diversity of the species, and to increase the distribution of the CRCT where ecologically, sociologically, and economically feasible. Within the MPA there is habitat and possible presence of CRCT is both La Sal Creek and Beaver Creek (according to the UDWR). The MFO manages approximately 0.08 miles of La Sal Creek and 6.6 miles of Beaver Creek as CRCT habitat (the upper two miles of Beaver Creek is considered native CRCT habitat) (UDWR 2005b).

3.16.2.1.21 BLUEHEADED SUCKER

The blueheaded sucker is listed as a BLM Sensitive Species, as it has been extirpated from 55% of its historical distribution. Within the MPA, populations can be found in the mainstream rivers and tributaries to the headwater reaches of the Colorado and Green Rivers and in the Dolores River. Declines in populations are attributed to hybridization, altered hydrological regimes, in-stream habitat loss and degradation and predation of non-native fish (UDWR 2005b).

3.16.2.1.22 ROUNDTAIL CHUB

The roundtail chub is listed as a BLM Sensitive Species as it has been extirpated from 45% of its historical distribution in the Colorado River Basin. Within the MPA, populations are known to occur in the Colorado River from the Utah border to Moab and in the Green River from the Colorado-Green confluence upstream to Echo Park. Declines in populations are attributed to hybridization with other chub, habitat loss and degradation due to dam and reservoir construction, competition and predation of non-natives, parasitism, and dewatering activities (UDWR 2005b).

3.16.2.1.23 FLANNELMOUTH SUCKER

The flannelmouth sucker is listed as a BLM Sensitive Species, as it now occupies only 50% of its historical range within the Upper Colorado River Basin. Within the MPA, populations are known

to occur in the Colorado, Green and Dolores Rivers. Populations have declined since the 1960s due to impoundment of the mainstem of the Green and Colorado Rivers. (Flannelmouths have been extirpated from portions of the Gunnison River.) This fish is also susceptible to altered thermal and hydrological regimes, hybridization and competition of non-native fish (UDWR 2005b).

3.16.2.1.24 ARIZONA TOAD

The Arizona toad is listed as a BLM Sensitive Species. It occurs in isolated areas of the southwestern United States. In Utah, the Arizona toad is found only in the southwestern portion of the state. This species inhabits streams, washes, irrigated crop lands, reservoirs, and uplands adjacent to water (UDWR 2005b).

3.16.2.1.25 COMMON CHUCKWALLA

The common chuckwalla is listed as a BLM Sensitive Species. It occurs in the southwestern United States and in parts Mexico. In Utah, the species occurs only in the southern portion of the state. It is included on the *Utah Sensitive Species List* because of habitat modification and other threats. Chuckwallas are predominantly found near cliffs, boulders, or rocky slopes (UDWR 2005b).

3.16.2.1.26 CORNSNAKE

The cornsnake is listed as a BLM Sensitive Species because of limited distribution and its potential for genetic uniqueness from the cornsnakes east of the Continental Divide. The cornsnake is associated with the Colorado and Green River corridors and population declines are attributed to habitat degradation, vegetative changes, and illegal collection (UDWR 2005b).

3.16.2.1.27 DESERT NIGHT LIZARD

The desert night lizard is listed as a BLM Sensitive Species. In Utah, the desert night lizard occurs only in a few small areas of the southern portion of the state, and it is included on the *Utah Sensitive Species List*.

3.16.2.1.28 SMOOTH GREENSNAKE

The smooth greensnake is listed as a BLM Sensitive Species because of its special habitat requirements, making it susceptible to habitat loss. The smooth green snake is associated with meadows and stream margins and habitat threats include livestock grazing, recreational activities, loss of wetlands, and human development (UDWR 2005b).

3.16.2.1.29 WESTERN TOAD

The western toad is listed as a BLM Sensitive Species. It occurs throughout most of Utah, and can be found in a variety of habitats, including slow moving streams, wetlands, desert springs, ponds, lakes, meadows, and woodlands (UDWR 2005b).

3.16.2.1.30 EUREKA MOUNTAINSNAIL

The Eureka mountainsnail is BLM Sensitive Species and is endemic to Utah and only four populations have been documented, one of which was located in northern Grand County in 1964. The precise location of this population is unknown and it has not been relocated since its discovery 39 years ago (UDWR 2005b).

3.16.2.2 BLM SENSITIVE PLANT SPECIES

The current BLM special status plant species list was updated in August 2002. The 14 sensitive plant species known in the project area are listed and discussed in Table 3.48.

Table 3.48. BLM Sensitive Plant Species with the Potential to Occur in the MPA

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Astragalus pubentissimus var. peabodianus Peabody's milkvetch	Entrenched channels of escarpments draining south and west flanks of Tavaputs Plateaus. Pinyon-Juniper and mixed desert shrub. 4,300-5,800'. Blooms May-early July.	BLM Sensitive	Grand County (type from Thompson Spring). Endemic to Grand and Emery Counties.
Astragalus sabulous var. *sabulous* Cisco milkvetch	Salt desert shrub in Mancos Shale Formation in Grand River Valley (Cisco desert). Selenophyte. Blooms late March-May. 4,260-5,250.	BLM Sensitive	Endemic. To Grand County (Thompson east to Cisco Mesa).
Astragalus sabulous var. *vehiculus* Stage-station milkvetch	Salt desert shrub in Morrison Formation. Selenophyte. Blooms April-May. 4500- 4,800'. Considered geographically isolated from var. *sabulous.*	BLM Sensitive	Endemic to Upper Courthouse Wash, Grand County.
Gilia latifolia var. *imperialis* Cataract Canyon gilia	Shadscale and other mixed desert shrub communities, esp. wash bottoms and ledges. 3,800-5,215'. Blooms June-October.	BLM Sensitive	Southeastern Utah Endemic.
Habenaria zothecina (syn. *Platanthera zothecina*) Alcove bog orchid	Moist streambanks, seeps, hanging gardens, in mixed desert shrub, pinyon-juniper, and oakbrush, associated with cottonwood and willow. Mid June-Aug. 4,360-8,690'.	BLM Sensitive	Emery, Garfield, Grand, San Juan and Uintah Counties, Utah and Coconino, Arizona.

Table 3.48. BLM Sensitive Plant Species with the Potential to Occur in the MPA

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Lomatium latilobum Canyonlands lomatium (*C. biscuitroot*, or C. desert-parsley)	Sandy soil or crevices in Entrada sandstone. Slot canyons. (Found in Navajo sandstone that weathers like Entrada in Sand Flat and Mill Creek.) Prefers the sheltered, cool habitat on all slopes and aspects. April-June. 4,800-6,855'.	BLM Sensitive	Endemic to San Juan County, Grand County (Wilson Mesa, Mill Creek Canyon, Burkholder Draw, Rill Creek) Southeastern Utah (and adj. Mesa County Colorado)
Lygodesmia grandiflora var. *doloresensis* Dolores rushpink	Reddish alluvial soil, juniper-grassland, sagebrush. June. 4,500-4,700'.	BLM Sensitive	Endemic to Grand County, Utah and Mesa County, Colorado.
Lygodesmia grandiflora var. *entrada* Entrada rushpink (or skeletonweed)	Juniper, mixed desert shrub communities. June. 4,400-4,800'.	BLM Sensitive	Endemic to Grand County, Emery Co and San Juan County. Type from Courthouse Wash.
Mentzelia shultziorum Shultz' stickleaf (or blazing star)	Shadscale, eriogonum, ephedra communities in Cutler Formation. Moderate to very steep slopes of Paradox and Moenkopi Formations. Silty clay loam or silty loam. 4,200-6,000'. Blooms from mid-June to September.	BLM Sensitive	Grand County (type along Onion Creek). Eight known populations southeast of Colorado River. Endemic to Emery and Grand Counties.
Oreoxis trotteri Trotter's oreoxis (spring-parsley)	Mixed juniper and warm desert shrub. Slickrock or Main Body Entrada sandstone on eastern slope of Courthouse Rock and Navajo sandstone below on flats. Most abundant on Moab Tongue white sandstone of Entrada. Late April-mid-June. 4,750-5,000'.	BLM Sensitive	Grand County (type Courthouse Rock, northwest of Moab). Endemic.
Pediomelum aromaticum var. *tuhyi* Paradox breadroot	Pinyon-juniper and mixed desert shrub on Entrada, Kayenta and Mossback Formations. 5,600-6,500'. Blooms May-June.	BLM Sensitive	San Juan County endemic.

Table 3.48. BLM Sensitive Plant Species with the Potential to Occur in the MPA

Scientific Name **Common Name**	**Habitat**	**Status**	**Area of Potential and/or Known Occurrence**
Perityle specuicola Alcove rock-daisy	Drier crevices in seasonally wet hanging gardens, and alcove communities. Navajo and Windgate sandstone and Rico Formation, but not substrate specific. Blooms mid-July-late Sept. 3,690-4,000'.	BLM Sensitive	San Juan County, Grand County (type north of Moab). Narrowly endemic to Colorado Plateau (from confluence of Colorado River with the Dolores and Dark Canyon.
Sphaeralcea janeae *(or S. leptophylla var. janeae)* Jane's Globemallow	Sandy soils of weathered white rim and Organ Rock members of Cutler Formation. Warm and salt desert shrub. 4,000-4,600'. Blooms May-June.	BLM Sensitive	San Juan County (type near White Rim road), Grand County (questionable). Endemic to the Canyonlands in San Juan and Wayne Counties.
Sphaeralcea psoraloides San Rafael globemallow	Eastern and southeastern footslopes of the Swell. Saline and gypsiferous substrates. Zuckin-ephedra communities of Entrada siltstone. Blooms mid-May-June. 4,000-6,000'.	BLM Sensitive	Grand County Endemic to San Rafael Swell (Wayne and Emery Counties).

Sources: BLM 2002d; Atwood et al. 1991; Welsh et al. 2003. Utah Native Plant Society 2005; personal communication between Daryl Trotter, BLM and Susan Kammerdiener, SWCA on January 6, 2006.

3.16.3 Conservation Agreement Species

There are Conservation Agreements among resource agencies in Arizona, Colorado, New Mexico, Utah and Wyoming to expedite the implementation of conservation measures concerning the following species: Colorado cutthroat trout, the blueheaded sucker, the roundtail chub, the flannelmouth sucker and the northern goshawk.

3.17 Travel

3.17.1 Overview

In the past, travel management has focused on motor vehicle use; however, travel management encompasses all forms of transportation, including mechanized vehicles such as bicycles, motorcycles, and four-wheeled all-terrain vehicles, cars, and trucks.

Off-highway vehicles (OHVs) (also known as off-road vehicles) include all-terrain vehicles (ATVs), off-highway motorcycles, and snowmobiles. These are vehicles capable of, or designated for, travel on or immediately over land, water, or other natural terrain. The current

1985 RMP included designations for Open, Closed, and Limited OHV areas. Areas designated as Open are open to cross-country motorized travel. Areas designated as Closed are entirely closed to motorized travel. Areas designated as Limited restrict motorized travel to either existing or designated routes, with Limited designations applying to both existing and designated roads and trails. Since 1992, the MFO has instituted several revisions to the original 1985 RMP (through plan amendments) as well as Federal Register notices regarding OHV use. These changes have resulted in changes from Open to Limited to Existing Roads and Trails, and in some cases from Open to Limited to Designated Routes. These changes attempted to reduce natural and cultural resource damage produced by unrestricted cross-country travel.

The increase in the use of OHVs has created numerous issues within the MPA. The speed and increasing capability of OHVs allows easier access to remote parts of the planning area, makes management of this activity more difficult, and increases the potential range of adverse impacts to natural resources. Cross-country OHV use, in particular, is creating additional resource damage and is an important issue for the MFO. Also, the popularity of OHV-related activities continues to grow, both in private use and through special events, which exacerbates the management and resource impacts issues.

3.17.2 VEHICULAR ROUTES

The MFO administers approximately 277 miles of roadway. The MFO also maintains the main entrance roads in the Canyon Rims Recreation Area (the Needles Overlook and Anticline Overlook Roads, both of which are State Scenic Backways). Other routes, which are primarily used for vehicular recreation, are those that are marked by the MFO, often in conjunction with OHV user groups.

Many motorized routes within the MPA are used for recreational purposes. The most popular motorized routes include any of the 785 miles of the Jeep Safari Route system (this figure includes dirt roads within the planning area that are permitted for Jeep Safari use) (see Section 3.10 – Recreation).

There are no routes solely dedicated to OHV use. These activities take place on the same routes as used by four-wheel drive vehicles, motorcycles, and mountain bikes, and often occur on Jeep Safari routes. Additionally, there is an informal, user-made network of motorcycle routes in the White Wash Dunes area (see below).

3.17.2.1 MOUNTAIN BIKE ROUTES

As mentioned above, mountain bike use occurs on many of the Jeep Safari routes as well as on other routes. Popular mountain bike routes include Gemini Bridges, Porcupine Rim, the Slickrock Bike Trail, Amasa Back, Flat Pass, Klondike Bluffs, Kokopelli's Trail, Poison Spider, Lower Monitor and Merrimac, Bartlett Wash, Moab Rim, Kane Creek Canyon Rim, Bar M, Hurrah Pass and Onion Creek.

3.17.2.2 EAST OF HIGHWAY 191

The area south of I-70 and east of U.S. Highway 191 borders Arches National Park. This area of public land includes the Klondike Bluffs Trail, the Copper Ridge, and the Bar M Loop Bike Trail. Cross-country OHV travel is prohibited in most of this area through a Federal Register notice.

3.17.2.3 WEST OF HIGHWAY 191

This area includes scenic driving and several motorized and non-motorized trailheads. U.S. Highway 191 from I-70 to its intersection with Utah Highway 128 is part of the National Prehistoric Highway National Scenic Byway. Although off-road driving is prohibited by Federal Register notice, substantial cross-country OHV travel is occurring. This off-road damage includes hill climbs, alternate route choice, play around OHV campsites and other forms of resources damage. The current vehicle designation (Limited to Existing Roads and Trails) is in effect until the approval of the proposed RMP.

The area west of 191, south of I-70 and east of the Green River has seen substantial growth in recreation since the time of the 1985 RMP. This recreational growth includes motorized and non-motorized recreation that often competes for the same locations. Motorized recreation includes jeeping and OHV use; non-motorized recreation includes mountain biking. The area west of Highway 191 has seen the largest growth in recreational user conflicts within the MPA (see Section 3.10 – Recreation).

3.17.2.4 UTAH HIGHWAY 313

Utah Highway 313 is also known as the Dead Horse Mesa Scenic Byway (a State Scenic Byway), providing access to Canyonlands National Park, to Dead Horse Point State Park, and to Seven Mile Canyon. Off-highway vehicle restrictions implemented for this area are a result of two Federal Register Notices published in 2001, and are in effect until the completion of the proposed RMP. Resource damage is currently occurring in this area from OHV travel.

3.17.2.5 KOKOPELLI'S TRAIL

Kokopelli's Trail is a 140-mile multiple use trail connecting Loma, Colorado and Moab, Utah. Mountain bikers use this route heavily, although most portions are also suitable for OHVs and full-sized four-wheel drive vehicles. The route passes through lands administered by the MFO, the BLM Grand Junction Field Office, and the USDA Forest Service (Manti-LaSal National Forest), and was established for multi-day bike trips.

3.17.2.6 WHITE WASH SAND DUNES/TEN MILE CANYON

White Wash Sand Dunes are located east of the Green River and south of I-70. White Wash is very popular with OHV users, especially on spring and fall weekends. Off-highway vehicle riders also visit other sites in this area, including Ten Mile Canyon, Crystal Geyser, Red Canyon, Rainbow Rocks, and Duma Point.

Off-Highway Vehicle use categories in this area are mixed. The current RMP has designated the northern part of the area as Limited to existing roads and trails. The southern portion of the area is limited to existing roads and trails through a Federal Register Notice (January 2001) and is in effect until the proposed RMP is approved. A middle portion of the area is Open to cross-country travel. Extensive resource damage is occurring from unrestricted vehicle travel. Resource damage from OHV use includes damage to soils, scenic quality, vegetation, cultural, and paleontological resource degradation as well as damage to riparian resources.

3.17.2.7 UTAH RIMS

Utah Rims Recreation Area is a 15,400-acre area immediately west of the Colorado border and south of I-70. This area is primarily used for day use by western Colorado residents. Dirt biking is the primary recreational activity but the area is also popular with mountain bikers. Currently, resource damage is occurring as a result of OHV travel.

3.17.2.8 THE COLORADO RIVERWAY

The Colorado Riverway includes the public lands managed by the BLM in the following areas:

- Utah Highway 128 from Dewey Bridge to U.S. 191. Utah Highway 128 is a State Scenic Byway, and is also a portion of the Prehistoric Highway National Scenic Byway.
- Utah Highway 279 from Moab Valley to Canyonlands National Park. Utah Highway 279 is a State Scenic Byway.
- Kane Creek Road from Moab Valley to the block of state land south of Hunter Canyon, including Amasa Back.

The Colorado Riverway is the most popular destination of MPA visitors, with recent annual visitation estimated to be over 1 million people. Visitors engage in four-wheel driving, scenic auto touring, mountain biking, and numerous other recreational activities. Since the approval of the current RMP, resource use problems within the Colorado Riverway have been addressed and corrected by the actions taken through the 1992 Colorado Riverway Management Plan (see Section 3.10 – Recreation); however, there are still some remaining resource use problem areas. Cross-country OHV travel restrictions were addressed through a Federal Register Notice (July 1992), which is in effect only until the completion and approval of the proposed RMP.

3.17.3 CURRENT MANAGEMENT

The current 1985 (Grand) RMP provides the framework for planning in the area. The RMP was completed prior to the rapid expansion of recreational vehicle use and visitation on public lands in the MPA. The RMP specifically addresses the Colorado and the Dolores Rivers, and the issuance of recreation permits as well as a few travel routes; however, most of the issues and locations that are now important to management of resources within the planning area were not addressed. The guidance given in the current RMP for management of roads, trails, and cross-country-vehicle use lacks the specificity needed to manage the current burgeoning use of vehicle within the planning area.

The 1985 RMP made the following OHV travel decisions:

1. Designate 1,183,660 acres as open to OHV use;
2. Designate 596,234 acres limited to existing roads and trails;
3. Designate 24,454 acres as closed to OHV use;
4. Designate 15,206 acres as in Mill Creek and East Mill Creek as limited to designated roads and trails.

3.18 VEGETATION

3.18.1 RESOURCE OVERVIEW

Vegetation in the MPA provides direct economic benefits such as livestock grazing, as well as indirect benefits such as wildlife cover, browse, and nesting habitat for a variety of wildlife species. Vegetation also functions in the hydrologic cycle as a dynamic interface between the soil and atmosphere. It intercepts precipitation, retards overland flow, retains soil water and nutrients (root absorption), and transports water and nutrients back to the atmosphere via stems and leaves (evapotranspiration). Vegetation is also an integral part of what makes the Moab area an aesthetically pleasing destination for visitors.

The State of Utah is divided into five major eco-regions determined by geographic and climatic similarity. The MPA occurs entirely within the Colorado Plateau ecological province. The unique climate and geology of the Colorado Plateau allow for the growth of many endemic and rare plant species and, thus, a substantial amount of biodiversity. The variety of elevations and precipitation zones within the planning area only enhances the area's biodiversity.

3.18.2 DOMINANT VEGETATION COMMUNITIES

Vegetation across the MPA has been identified using Utah Gap Analysis data (Edwards et al. 1995). Gap vegetation data were developed using multi-spectral satellite imagery in conjunction with image processing and classification software. The relationship between spectral signatures and a given vegetation type was further refined via development of models that incorporated a variety of topographic and distributional information for that given vegetation type. Utah Gap Analysis vegetation data were intended to be used for depicting the distribution of the state's various vegetation types at scales of 1:100,000 or smaller. While adequate for characterizing vegetation over large areas, this data is less accurate when viewed for smaller project areas. Utah Gap Analysis data indicate the following cover types and acreages in the planning area (Table 3.49). Similar cover types have been grouped together and are described in the sections following Table 3.49. The cover types that do not have significant native vegetation (water, urban, barren and agriculture) are presented in the table, but not discussed in the document.

Table 3.49. Acres of Land by GAP Cover Type in the MPA

Cover Type	Acres
Desert Shrub (includes salt desert scrub, grassland, blackbrush and greasewood)	1,302,389
Sagebrush and perennial grassland (includes sagebrush and sagebrush/perennial grass)	248,461
Oak/mountain shrub	310,673
Pinyon-juniper (includes juniper, pinyon-juniper and pinyon)	841,077
Conifer and mountain shrub (includes ponderosa pine, ponderosa pine/ mountain shrub, spruce-fir and fir/shrub, aspen and aspen-conifer)	117,916
Alpine	3,014
Riparian and wetland	4,948
Water	8,508
Urban	4,153
Barren	6,233
Agriculture	6,133

The distribution of vegetation types in the project area is primarily influenced by soil type, elevation, precipitation, and topography, but also by land management activities such as livestock and wildlife grazing, road and minerals development, and OHV use. Additionally, vegetation communities were impacted by severe drought conditions existing in the area from 1998 through 2004. See Map 3-15, Vegetation Types for the distribution of vegetation across the planning area.

3.18.2.1 Desert Shrub

This vegetation type accounts for 41.1% of the cover in the MPA. Areas supporting desert shrub vegetation receive relatively low annual precipitation (5 to 10 inches), which results in very little soil moisture available for plant growth. Elevations range is from 4,000 to 5,400 feet. Soils are often very saline or alkaline and vary in moisture availability, from drier, well-drained areas to areas where the water table is near the surface (MacMahon 1988). Dominant shrub species include shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), blackbrush (*Coleogyne ramosissima*), four-wing saltbush (*Atriplex canescens*), Nuttall's saltbush (*Atriplex nuttallii*), mat saltbush (*Atriplex corrugata*), Mormon tea (*Ephedra* spp.), spiny hopsage (*Grayia spinosa*), horsebrush (*Tetradymia canescens*), and rabbitbrush *Chrysothamnus spp*.). Dominant forb species include snakeweed (*Gutierrezia sarothrae*) and buckwheat (*Eriogonum* spp.). Dominant grass species include saline wildrye (*Leymus salinus*), galleta (*Hilaria jamesii*), Indian ricegrass (*Stipa hymenoides*) and sand dropseed (*Sporobolus airoides*). These communities are generally associated with Mancos-derived clay soils, which are extremely susceptible to wind and water erosion following surface disturbances (see Section 3.13 – Soils for more information).

3.18.2.2 Sagebrush and Perennial Grassland

This vegetation type accounts for approximately 7.8% of the cover in the MPA. The landscapes that support this vegetation community have moderately deep soils and precipitation totaling 11 to 16 inches per year. Elevation ranges from 5,500 to 7,300 feet with little localized relief. Big sagebrush (*Artemisa tridentata*) dominates the vegetation in this community type. Elevation and soil depth influence the species composition and density, which may include horsebrush, rabbitbrush, spiny hopsage, saltbush, Mormon tea, and winterfat (*Krascheninnikovia lanata*) (MacMahon 1988). Principle grass species include sand dropseed (*Sporobolus cryptandrus*), western wheatgrass (*Elymus smith*ii), Indian ricegrass and galleta.

Land treatments, including crested wheatgrass (*Agropyron cristatum*) seedings, have historically occurred within this community type, and are considered altered ecological sites. Additionally, significant percentages of sagebrush have also been converted to monotypic stands of exotic cheatgrass (*Bromus tectorum*) or Russian thistle (*Salsola kali*) as a result of wildfires, drought, and improper grazing management practices. Appropriate re-vegetation methods can be effective in restoring diverse community compositions in this zone, but large-scale rehabilitation has yet to be implemented successfully within the MPA (personal communication between Daryl Trotter, BLM and Susan Kammerdiener, SWCA on January 6, 2006).

3.18.2.3 Oak/Mountain Shrub

This vegetation type accounts for approximately 9.8% of the cover in the MPA. Deciduous shrubland principally dominated by alder-leaf mountain-mahogany (*Cercocarpus montanus*), cliff-rose (*Purshia mexicana*), bitterbrush (*Purshia tridentata*), serviceberry (*Amelanchier utahensis* and *Amelanchier alnifolia*), buckbrush (*Ceanothus* spp.), chokecherry (*Prunus virginiana*), snowberry (*Symphoricarpos* spp.), point-leaf manzanita (*Arctostaphylos pungens*) and bearberry (*Arctostaphylos uva-ursi*). Primary associated shrub species include gambel oak (*Quercus gambelii*), palmer oak (*Quercus chrysolepis*), Tucker's oak (*Quercus welshii*) Turbinella live-oak (*Quercus turbinella*), sagebrush and maple (*Acer* spp.) Primary associated tree species include quaking aspen (*Populus tremuloides*) and curl-leaf mountain-mahogany (*Cercocarpus ledifolius*).

3.18.2.4 Pinyon - Juniper Woodlands

This vegetation type accounts for approximately 26.5% of the cover in the MPA. These woodland species generally grow at elevations between 4,700 and 8,600 feet where precipitation totals 12 to 18 inches per year. The supporting landscape varies in topography from level to steep slopes (0% to 80%). Dominant tree species include pinyon (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). Primary associated shrub species include sagebrush, Mormon tea and blackbrush. Dominant grass species include saline wildrye. Pinyon dominates the overstory as stands reach the upper limits of the elevational range, whereas juniper dominates at lower elevations. As elevation increases within this zone, stand structure changes from open overstory with a sparsely vegetated under-story to more dense with a greater variety of species. Land treatments followed by crested wheatgrass seedings have historically occurred within this community type and are considered altered ecological sites.

3.18.2.5 CONIFER AND MOUNTAIN SHRUB

This vegetation type accounts for approximately 3.7% of the cover in the MPA. The annual precipitation ranges from 14 to 25 inches in areas that support this vegetation community. Elevations range from 6,000 to 9,000 feet, and slopes are often extremely steep. The soils are more fertile than those in other areas. Due to the extreme slopes and often rocky terrain, these community types are generally managed for wildlife habitat (Grand County Soil Survey, NRCS 1981). This vegetation community is defined as a conifer forest or woodland with Douglas fir, ponderosa pine, or quaking aspen dominate/associate or co-dominate with mountain shrub. The principle tree species are Douglas fir (*Pseudosuga menziesii*), ponderosa pine (*Pinus ponderosa*) and quaking aspen. Principle shrub species include Gamble oak, bitterbrush, bigtooth maple (*Acer grandidentatum*), snowberry, serviceberry, manzanita and ninebark (*Physocarpus* spp.). Primary associated tree species include subalpine fir (*Abies lasiocarpa*), white fir (*Abies concolor*), Englemann spruce (*Picea engelmannii*) and limber pine (*Pinus flexilis*). Primary associated shrub species include common juniper (*Juniperus communis*), sagebrush, rabbitbrush and curlleaf mountain mahogany (*Cercocarpus ledifolius*).

3.18.2.6 ALPINE

This vegetation type accounts for approximately 0.1% of the cover in the MPA. It is comprised of high elevation tundra vegetation, including grasses, forbs, sedges and shrubs. Principle species include Ross' avens (*Geum rossii*), sedges (*Carex* spp.), tufted hair grass (*Deschampsia caespitosa*), Colorado fescue (*Festuca brachyphylla*), American bistort (*Polygonum bistortoides*), and willow (*Salix* spp.). The primary associated tree species is Engelmann spruce-krummholz (*Picea engelmannii*).

3.18.2.7 RIPARIAN AND WETLAND

This vegetation type accounts for approximately 0.2% of the cover in the MPA. Riparian and wetland areas contain vegetation associated with surface or subsurface moisture. Wetlands require prolonged saturation of soils and contain certain vegetative species dependent upon soil saturation. Less than 2% of the MPA area is riparian; these areas are located along major rivers, drainages, or spring sites. Riparian vegetation in the project areas is generally located in areas with an elevation of less than 5,500 feet. Principal woody species include Fremont cottonwood (*Populus fremontii*), salt-cedar (*Tamarix chinensis*), coyote willow (*Salix exigua*) and squawbush (*Rhus aromatica* var. *trilobata*). Principal wetland species include cattail (*Typha latifolia*), bullrush (*Scirpus* spp.) and sedge (*Carex* spp.)

More detailed information concerning riparian and wetland species are located in Section 3.11 – Riparian of this EIS.

3.18.3 SPECIAL STATUS PLANT SPECIES

Special status plant species include all Federally listed threatened and endangered species and BLM sensitive species. Special status plant species with potential to occur in the MPA are listed and discussed in Section 3.15 – Special Status Species.

3.18.4 INVASIVE SPECIES AND NOXIOUS WEEDS

The BLM defines noxious weeds as "a plant that interferes with management objectives for a given area of land at a given point in time." Noxious weeds are defined in *Rangeland Health Standards and Guidelines* (BLM 1997a) as non-native plants that are especially undesirable because they have no forage value and are sometimes toxic, or are capable of invading plant communities and displacing native species. The BLM recognizes noxious weed invasions as one of the greatest threats to the health of rangelands nationwide.

Invasive species include plants able to establish on a site where they were not present in the original plant composition. Invasive species aggressively out-compete native species within a community and often alter the physical and biotic components enough to affect the entire ecological community. Invasive species are of particular concern following a disturbance. They are often exotic species that do not have naturally occurring, local predators.

Noxious and invasive species have been identified by county for the State of Utah. Russian knapweed (*Centarea repens*), salt-cedar (*Tamarix chinensis*), and Russian olive (*Elaeagnus angustifolia*) are all problematic species occurring in riparian areas of the MPA. Salt-cedar channelizes rivers with its deep roots and chokes out other vegetation. Purple loosestrife (*Lythrum salicaria*) has also been documented throughout the Colorado River system, from Westwater to Potash (personal communication with Daryl Trotter, BLM; field notes from site visit, December 2-6, 2002). In addition to noxious weed and invasive species encroachment along the river corridors, large areas of uplands and rangelands are being converted to invasive annual species including cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), and Russian thistle (*Salsola tragus*). Those species of management concern for the MPA are included in Table 3.50.

Table 3.50. Noxious and Invasive Species of Grand County, Utah

Common Name	Scientific Name
Bermudagrass	*Cynodon dactylon*
Bindweed	*Convolvulus* spp.
Black henbane	*Hysocyamus niger*
Buffalobur	*Sloanum rostratum*
Canada Thistle	*Cirsium arvense*
Cheatgrass	*Bromus tectorum*
Dalmation toadflax	*Linaria dalmatica*
Diffuse Knapweed	*Centaurea diffusa*
Dyer's Woad	*Isatis tinctoria*
Halogeton	*Halogeton glomeratus*
Hog millet	*Panicum miliaceum*
Houndstongue	*Hyoscyamus niger*
Jointed goatgrass	*Aegilops cylindrica*

Table 3.50. Noxious and Invasive Species of Grand County, Utah

Common Name	Scientific Name
Johnson Grass	*Sorghum halepense*
Perennial Sorghum	*Sorghum almum*
Musk Thistle	*Carduus nutans*
Poison hemlock	*Conium maculatum*
Perennial Pepperweed/Whitetop	*Lepidium latifolium*
Phragmites	*Phragmites* spp.
Puncturevine	*Tribullus terrestris*
Purple loosestrife	*Lythrum salicaria*
Quackgrass	*Elytrigia repens*
Russian Knapweed	*Centarea repens*
Russian Olive	*Elaeagnus angustifolia*
Russian thistle	*Salsola tragus*
Salt-cedar	*Tamarix chinensis*
Scotch Thistle	*Onopordium acanthium*
Silverleaf nightshade	*Solanum elaeagnifolium*
Spotted Knapweed	*Centaurea maculosa*
Squarrose Knapweed	*Centaurea squarrosa*
Water hemlock	*Cicuta douglasii*
Whitetop/Hoary cress	*Cardaria* spp.
Whorled milkweed	*Asclepias subverticillata*
Yellow nutsedge	*Cyperus esculentus*
Yellow toadflax	*Linaria vulgaris*

3.19 VISUAL RESOURCES

3.19.1 RESOURCE OVERVIEW

The MPA is an internationally recognized, world-famous scenic destination. Containing an unusually large number of areas that possess a high degree of scenic quality and a high level of visual sensitivity, the planning area draws an increasing number of visitors each year who come to the area to recreate and sightsee. In general, high scenic quality within the planning area is a product of the extraordinary topography, geology, and cultural history. Scenically diverse vistas and canyon river ways, rare and unusual geological formations, colorful and highly contrasting sandstones, and numerous prehistoric rock art and structures contribute to the area's high visual quality. Areas with high visual sensitivity within the planning area are the result of the high degree of visitor interest in and public concern for a particular area's visual resources, an area's

high degree of public visibility, the level of use of an area by the public, and the type of visitor use that an area receives (BLM 1992b).

The major areas within the MPA that possess both outstanding scenic quality and high visual sensitivity include, but are not limited to: the Wilson Arch area; Canyon Rims (encompassing the area from Harts Draw to Hurrah Pass); the Dead Horse Point/Shafer Trail area; Mill Creek Canyon; an area including Negro Bill Canyon and extending to Porcupine Rim; Beaver Creek; Fisher Creek and its tributaries, the area around Mill and Tusher Canyons; and the Fisher Tower/Onion Creek area. Visually scenic and sensitive river areas include: the Colorado River (from Dewey Bridge to the border of Canyonlands National Park); the Westwater Canyon/Dolores River area; and Labyrinth Canyon (the Green River and its tributaries).

Areas of high scenic quality and visual sensitivity that are associated with travel corridors include: the Kane Creek area (from U.S. Highway 191 to its confluence with the Colorado River); the non-paved portion of the Potash Road (Shafer Basin) from Utah Highway 279 to the border with Canyonlands National Park; and the State Highway 313/Seven Mile Canyon/Monitor-Merrimac Buttes area. Other major scenic travel corridors within the MPA include U.S. Highway 191 and State Highways 128, 279, and 313, which have been designated as State Scenic Byways, as well as Canyon Rims and the Manti-LaSal Loop Road that are designated as State Scenic Backways. The MPA also contains thousands of miles of jeep, bike, and foot trails that are traveled as scenic routes, many of which are internationally recognized.

3.19.2 CURRENT MANAGEMENT PRACTICES

Under the current RMP, a visual resource inventory was completed, but no management objectives were identified for VRM, and no management classes were established for the MPA. Visual resource inventory classes were considered in the EIS prepared for the RMP but the RMP did not recognize visual resources as a program requiring specific management actions. Visual resource management classes and objectives were established for Canyon Rims in 2002, through the Canyon Rims Recreation Area Management Plan (BLM 2003b). With the exception of Canyon Rims (which has VRM management objectives), site-specific mitigation of impacts to visual resources is being implemented through project-specific NEPA documents, with reference to the 1985 RMP visual resource inventory.

Impacts to the landscape within the planning area are being produced by the tremendous increases in recreation and tourism, vehicular travel, the increasing number and length of roads and trails, and the increasing numbers of sightseers attracted to the planning area because of its extraordinary scenic qualities. Additional impacts are resulting from the development of utility corridors, from oil and natural gas exploration and development, from seismic exploration, and from other land-use disturbances. The greatest impacts are being created by recreational activities and OHV use (personal communication between Rob Sweeten, Visual Resource Specialist, BLM – MFO, and David Harris, SWCA, March 26, 2003).

Recreational activities and OHV use are impacting visual resources most intensely in the areas surrounding the city of Moab north to I-70, south to Lisbon Valley, east to the Colorado state line, and west to the Green River. There have been recent resource conflicts between visual

resources and oil and gas development/exploration in the Big Flat area along State Scenic Byway 313 and in the Dome Plateau area. A conflict with visual resources also exists with the utility corridor along U.S. Highway 191. Commercial cinematography, rights-of-way, and range improvements are other sources of conflict with visual resources.

The increased number of visitors attracted by the area's scenic quality has prompted the MFO to designate more roads for scenic drives and recreational use (see Section 3.10 – Recreation). The increasing number of roads being utilized by recreationists in the MPA is having indirect affects on visual resources. Seldom Seen zones (those areas that are not visible from major travel routes) are decreasing within the MPA, and an increase in the number of vehicles and people on BLM roads are creating changes in foreground and middleground views, and changes in visual sensitivity. An increasingly utilized network of two-track roads and routes are creating conditions that allow OHV users, campers, and woodcutters to expand surface disturbances and impact visual resources.

Resource monitoring is occasional and intermittent, but monitoring does confirm the increased recreational use, the tendency for visitors to seek out new places to drive and to camp, and the associated land disturbances created by these activities.

The tourist industry within the planning area is increasing, based on increased recreational and vehicular use within the planning area, and the increase in the number of visitors to Arches and Canyonlands National Parks who subsequently recreate on BLM-administered lands (see Section 3.10 – Recreation). These increases in visitor use of recreational and tourist resources within the planning and within the nearby national parks are contributing to the impacts on visual resources.

The increased use of OHVs, the increase in dispersed camping, and increases in trail use are having an impact on visual resources. Under the existing RMP, emergency limitations on off-road vehicle travel and camping have been and may continue to be increased to preserve visual resources. Oil and gas exploration and development are expected to continue within the MPA and will contribute some additional impacts to visual resources. In general, existing trends in recreation, visitation, and sightseeing, as well as continued oil and gas exploration and development, will likely result in increasing impacts to visual resources within the planning area.

In 2003, a VRM inventory was conducted for the MPA, as part of the proposed RMP pre-planning process. Table 3.51 depicts the acreages for each VRM inventory class. The acreages within each of the 2003 VRM inventory classes constitute the baseline by which impacts to visual resources will be analyzed in the EIS (see Map 2-23-A, Visual Resource Management – Alternative A).

Table 3.51. 2003 VRM Inventory Classes

VRM Class	Acres
I	349,029
II	400,978
III	799,836
IV	271,531
Total	**1,821,374**

Source: BLM 2003c.

3.20 WILDLIFE AND FISHERIES

3.20.1 RESOURCE OVERVIEW

The MPA is in the heart of the Colorado Plateau and has a great amount of landscape diversity. This location produces a unique combination of landforms and habitat types. This diversity of habitat in the planning area is reflected in the diversity of terrestrial and aquatic life that occurs within its borders.

Species in the planning area include big game species such as mule deer (*Odocoileus heminonus*), Rocky Mountain elk (*Cervus canadensis*), pronghorn (*Antilocapra americana*), bighorn sheep (*Ovis canadensis*), black bear (*Ursus americanus*) and mountain lion (*Felis concolor*). Additional species of concern in the planning area fall within the general categories of upland game species, raptors, waterfowl, and shorebirds, fish and aquatic species, neotropical migrants and small mammals and reptiles. Management goals for most wildlife populations in the planning area are determined primarily by UDWR, with the exception of the Federally protected wildlife populations, which are determined by USFWS. The current RMP allocates forage for elk, deer and antelope. Resource allocations for raptors, reptiles, amphibians, and other non-game species in the planning area are limited to protecting individuals and the habitat of state and Federally listed species, and designating spatial and temporal barriers for nesting raptors.

BLM's management of wildlife habitat in the MPA has had and will continue to have, an impact on both local communities and those that exist outside the Colorado Plateau. There is considerable regional interest in the overall condition and management of the planning area. In the past, a majority of the local interest has been focused on big-game management and associated recreational activities. In recent years, however, non-consumptive uses in the in the planning area, such as tourism and wildlife viewing have been increasing with the continued expansion of Utah's tourism industry. Because many of the wildlife species found in the planning area regularly cross public, private, and tribal lands, a collaborative effort between all land managers and owners has been essential for effective wildlife management in the planning area.

3.20.2 BIG GAME

3.20.2.1 MULE DEER

Mule deer occupy most ecosystems in Utah but likely attain their greatest densities in shrublands on areas characterized by rough, broken terrain and abundant browse and cover. In the Rocky Mountains, winter diets of mule deer consist of approximately 75% browse from a variety of trees and shrubs and 15% forbs. Grasses make up the remaining 10% of the diet during winter. In the spring, browse is 49% of the diet and grasses and forbs make up approximately 25% each. Summer diets are 50% browse, with forbs consumption increasing to 46%. Browse use increases again in the fall to approximately 60% of the mule deer diet, forb use declines to 30%, and grasses increase to 10% (Fitzgerald et al. 1994). Mule deer summer range habitat types include spruce/fir, aspen, alpine meadows, and large grassy parks located at higher elevations. Winter range habitat primarily consists of shrub-covered, south-facing slopes and often coincides with areas of concentrated human use and occupation. Winter range is often considered a limiting factor for mule deer and Rocky Mountain elk in the Intermountain West. The portions of these acreages managed by the MFO are listed in Table 3.52 and shown on Map 2-27-A, Deer and/or Elk Protected Habitat-Alternative A.

Table 3.52. BLM-managed Mule Deer Habitat in the MPA

		Total Habitat	Crucial Winter	Fawning
Total mule deer habitat in MPA (acres)		1,489,172	757,060	442,714
Total mule deer habitat managed by BLM (acres)	Book Cliffs	534,400	266,787	72,848
	La Sal	313,498	311,271	2,275

Because of learned behavioral use patterns, passed on from one generation to the next, deer migrate for the winter into the same areas every year, regardless of forage availability or condition. These generally are areas lacking in snow depth, which allow easier movement, with pinion-juniper and sagebrush vegetation types. These vegetation types provide deer with both escape and thermal cover. Sagebrush is their primary forage during the winter season.

Over the past five years fawn production has been poor and the overall deer population has been declining in the planning area. Poor range conditions caused by severe drought could be a major factor causing the population decline (UDWR 2005a). Predation, while not within BLM's jurisdiction, can also contribute to deer population declines.

The management goals for mule deer populations located in the MPA are to provide a broad range of recreational opportunities, including hunting and viewing; balance mule deer herd impacts with human needs, such as private property rights, agricultural crops, and local economies; and maintain the mule deer population at a level that is within the long-term capability of the available habitat. The target wintering mule deer herd size and annual harvest for the two wildlife management units associated with the planning area are described in Table 3.53. Current mule deer numbers estimates are listed in Table 3.54. The deer in the Dolores subunit migrate onto this unit and are also hunted in Colorado, but Colorado figures are not known. The harvest figures are generally low for Utah because the deer are typically in Colorado at the time of the Utah deer hunting season.

Mule deer are used as a representative guild species for the following habitats in the district, deciduous woodland, riparian, mountain shrub, pinyon-juniper woodland and sagebrush. Impacts to this species can be partly assessed through the impact to these habitat types.

Table 3.53. UDWR Target Wintering Mule Deer Herd Size and Annual Harvest for the Two WMUs Associated with the Planning Area

Unit Number	Unit Name (subunit)	Winter Population Objective (# animals)*	Postseason Bucks/100 Does Objective**	Classification % Bucks ≥ 3 Points
10	Book Cliffs	15,000	15-20	43%
13	La Sal (Total)	18,100	15-20	
	13A La Sal Mountains			47%
	13B Dolores			50%

Source: UDWR 2008.
*2008 Antlerless Deer Permit Summary and Recommendations
**Utah Annual Big Game Report 2006

Table 3.54. UDWR Current Mule Deer Estimates

Unit Number	Unit Name (subunit)	Population Estimate (# animals)*	Percent of Objective	Current Buck/Doe Ratio**	2007 Harvest **
10	Book Cliffs	7,350	49%	39/100	463
13	La Sal (Total)	11,100	61%		813
	13A La Sal Mountains			15/100	
	13B Dolores			17/100	

Source: UDWR 2008.
*2008 Antlerless Deer Permit Summary and Recommendations
** Utah Annual Big Game Report 2006

3.20.2.2 Rocky Mountain Elk

The Rocky Mountain elk is considered a generalist feeder (Fitzgerald et al. 1994). In the northern and central Rocky Mountains, grasses and shrubs compose most of the winter diet, with the former being of primary importance in the spring months (Kufeld 1973). Forbs become increasingly important in late spring and summer, and grasses again dominate in the fall. These feeding relationships may change somewhat, depending on location. Associated with seasonal changes in diet are seasonal changes in habitat. The season and function of use of these habitats help distinguish various types of winter ranges, production areas (calving grounds), and/or summer range. Production or calving areas are used from mid-May through June and typically occupy higher elevation sites than winter range. Calving grounds are usually characterized by aspen, montane coniferous forest, grassland/meadow, and mountain brush habitats, and are generally in locations where cover, forage, and water are in close proximity (Fitzgerald et al.

1994). In western Colorado, for instance, most females calve within 660 feet of water (Seidel 1977). Along the Wasatch Front, typical Rocky Mountain elk winter range occurs between 5,500 and 7,500 feet elevation and comprises mountain shrub and sagebrush habitats. Crucial winter range is considered to be the part of the local deer and/or elk range where approximately 90% of the local population is located during an average of five winters out of ten from the first heavy snowfall to spring green-up. The middle and higher elevations of the MPA area sustain several large Rocky Mountain elk populations. The portions of these acreages managed by the MFO are listed in Table 3.55 and shown on Map 2-27-A, Deer and/or Elk Protected Habitat-Alternative A.

Table 3.55. BLM-managed Rocky Mountain Elk Habitat in the MPA

		Total Habitat	Crucial Winter	Calving
Total elk habitat in MPA (acres)		1,070,044	246,653	289,781
Total elk habitat managed by BLM (acres)	Book Cliffs	548,634	66,052	42,075
	La Sal	82,594	82,594	0

Rocky Mountain elk populations are associated with the two wildlife management areas found in the MPA. The management goals for Rocky Mountain elk populations are to provide a broad range of recreational opportunities, including hunting and viewing; balance elk herd impacts with human needs, such as private property rights, agricultural crops, and local economies; and maintain the elk population at a level that is within the long-term capability of the available habitat. Rocky Mountain elk goals and numbers for the planning area are displayed in Tables 3.56 and 3.57.

Table 3.56. UDWR Wildlife Management Goals for Rocky Mountain Elk

Unit Number	Unit name subunit	Winter Population Objective (# animals)*	Postseason Bulls/100 Cows Objective***	Age Objective**
10	Book Cliffs	7,500	15/100	5 to 6 years
13	La Sal (Total) 13A La Sal Mountains 13B Dolores	2,650 1,800 700	15/100	5 to 6 years

Source: UDWR 2008.

* Antlerless Elk Permit Summary and Recommendations.

**Utah Annual Big Game Report 2006.

***Elk Management Plan

Table 3.57. UDWR Current Rocky Mountain Elk Estimates

Unit Number	Unit name Subunit	Population Estimate (# animals)*	Percent of Objective	Current Bull/Cow Ratio	2007 Harvest **
10	Book Cliffs (Total)	4,500	60%		338
	10A Bitter Creek			31/100	
	10B South Book Cliffs			74/100	
13	La Sal (Total)	2,500	94%		
	13A La Sal Mountains			24/100†	239
	13B Dolores			40/100†	

Source: UDWR 2008
*Antlerless Elk Permit Summary and Recommendations.
**Utah Annual Big Game Report 2006.
†2005 Data

A large portion of the Book Cliff wildlife management unit is located north of the MPA, in the Vernal Field Office area. Most of the elk associated with this unit winter in the Ten Mile drainage along East Willow Creek, West Willow Creek, and in She Canyon. The MFO administers portions of these areas, but the majority is administered by the State of Utah. Summer and fall livestock grazing along the Willow Creek drainage in the Bogart allotment has been identified as a conflict with elk habitat use. Other allotments or portions of allotments identified as elk winter range include Cottonwood, Crescent Canyon, Diamond Canyon, Floy Canyon, Rattlesnake North, Showerbath Springs and Thompson Canyon. An amendment to the current RMP reallocated forage in the Cottonwood and Diamond Canyon allotments to elk.

Areas within the Cisco Desert contain yearlong elk habitat, and have also been identified as a conflict area between elk and livestock. Forage competition between livestock, other wildlife and elk is increasing in the Cisco Desert. These allotments include all or portions of Bar X, Cisco, Cisco Mesa, Corral Wash, Corral Wash Canyon, Crescent Canyon, Floy Wash, Floy Creek, Harley Dome, Pipeline, San Arroyo and Suphur Canyon. Other allotments containing yearlong elk range include all or portions of Bogart, Coal Canyon, Cottonwood, Diamond, Elgin, Horse Canyon, Lone Cone, Middle Canyon, Prairie Canyon, Rattlesnake North and Showerbath Springs.

A majority of the elk in the La Sal wildlife management unit stay on private and USFS lands year-round; however BLM lands do provide some winter range. The La Sal Mountains elk herds may winter on portions of the Adobe Mesa, Black Ridge, Hatch Point, Lisbon, Mill Creek, North Sand Flat, Professor Valley, and South Sand Flat allotments as well as Polar Mesa and Taylor allotments on the north side of the mountains. The Dolores Triangle provides winter range for elk, which migrate from Colorado to habitat in all or portions of Big Triangle, Buckhorn, Gateway, Granite Bench, Granite Creek, Mountain Island, Sand Flats, Scharf Mesa, Spring Creek, Steamboat Mesa and Taylor allotments. The number of elk within the Dolores Triangle varies from year to year, depending on the severity of the winter; during mild winters, relatively few elk migrate into this area.

Rocky Mountain elk are used as a representative guild species for the following habitats in the district, grasslands, deciduous woodland, riparian, mountain shrub, pinyon-juniper woodland and sagebrush. Impacts to this species can be partly assessed through the impact to these habitat types.

3.20.2.3 Black Bear

In the Intermountain West, black bears are typically associated with forested or brushy mountain environments and wooded riparian corridors. They seldom use open habitats (Zeveloff and Collett 1988). Black bears tend to be nocturnal and crepuscular and are considered omnivorous. Preferred foods include berries, honey, fish, rodents, birds and bird eggs, insects, and nuts. Black bears obtain most of their meat from carrion. From November to April, bears enter a period of winter dormancy. Winter dens are located in caves, under rocks, or beneath the roots of large trees where they are kept nourished and insulated by a several-inch-thick layer of fat (Zeveloff and Collett 1988).

The middle and higher elevations of the MPA sustain several large black bear populations. The planning area contains a total of 605,351 acres of black bear habitat. The BLM manages 146,716 acres of black bear habitat in the Book Cliffs wildlife management unit and 14,957 acres of black bear habitat in the La Sal wildlife management unit.

A black bear management plan for the State of Utah was completed by the UDWR in 2000. This plan outlines the historic and current management of black bears in the State. With respect to black bears, the goal of the wildlife management units in the planning area is to maintain a healthy bear population capable of providing a broad range of recreational opportunities (including hunting and viewing in existing occupied habitat) while considering human safety, economic concerns, and other wildlife species. The management objectives are to maintain bear distribution and increase it in suitable unoccupied or low density areas; maintain current bear populations with a reasonable proportion of older age animals and breeding females; balance bear population numbers with other wildlife species; minimize the loss in quality and quantity of UDWR-identified, crucial and high-priority bear habitat, including migration corridors between occupied areas; reduce the risk of loss of human life and reduce chances of injury to humans by bears; reduce the number of livestock killed by bears; and maintain quality consumptive and non-consumptive recreational opportunities (UDWR 2000b).

Black Bear are used as a representative guild species for old growth conifer habitat in the district. Impacts to this species can be partly assessed through the impact to this habitat type.

3.20.2.4 Pronghorn

Pronghorn can be found throughout the western United States, Canada, and northern Mexico. They are generally associated with open plains where they feed mainly on browse. Pronghorn prefer to occupy areas with large tracts of flat to rolling open terrain where they rely on keen eyesight and swift movement to avoid predators. They also rely on vegetation within the shrub and grassland plant communities for food. Pronghorn are often found in small groups and are usually most active during the day.

There are two pronghorn herds within the MPA: the Hatch Point herd and the Cisco Desert herd. The planning area contains a total of 1,000,537 acres of pronghorn habitat; the BLM manages 743,524 acres of pronghorn habitat in the Book Cliffs wildlife management unit (Cisco Herd) and 78,822 acres of pronghorn habitat in the La Sal (Hatch Point herd) wildlife management unit (Map 2-25-A, Pronghorn Habitat-Alternative A).

In 1971, 172 pronghorn were reintroduced to the Hatch Point area. The population appeared to increase for the first three years following their introduction, but has declined since 1975. Drought, severe winter weather, and predation could be factors in the depletion of this herd.

The current Cisco Desert pronghorn herd originated from 48 animals that were released in Colorado in 1968. In 1983 an additional 150 pronghorn were released. This increased the herd to approximately 250 animals. In 1988, Colorado Division of Wildlife released another 90 pronghorn near the Utah-Colorado state line. The Cisco pronghorn have expanded west and are sometimes seen near Green River and south of I-70. The herd had increased to approximately 1,000 animals. However, pronghorn are responsive to climatic conditions and while mild winters and good moisture conditions prevailed, pronghorn numbers increased and their range expanded. During drought cycles, such as currently being experienced, pronghorn numbers sharply decline. The Cisco herd is currently believed to comprise less than 300 animals.

A pronghorn management plan for the State of Utah is currently being developed by the UDWR. This plan will outline the historic and current management of pronghorn in the state as well as the management goals and objectives for pronghorn populations in the state. Table 3.58 outlines UDWR's management goals for pronghorn.

Table 3.58. UDWR Wildlife Management Goals, Estimates, and Trends for Pronghorn

Unit Number	Unit Name	Aerial Population Counts*	Population Objective	Buck/Doe Ratio**	Age Objective	2007 Harvest **
10	Book Cliffs 10A Bitter Creek 10B South Book Cliffs	 283 644	No Set Objective	 36/100 28/100	No Set Objective	29
13	La Sal	111	No set objective	31/100	No set objective	2

Source: UDWR 2007.
* Aerial Survey counts 2007.
** Utah Annual Big Game Report 2006.

Pronghorn are used as a representative guild species for grasslands and desert shrub habitats in the district. Impacts to this species can be partly assessed through the impact to these habitat types.

3.20.2.5 Desert Bighorn Sheep

Desert bighorn sheep are uniquely adapted to inhabit some of the most remote and rugged areas in the MFO. Desert bighorns are sometimes referred to as a wilderness species because of the

naturally remote and inaccessible areas they inhabit. They prefer open habitat types with adjacent steep rocky areas for escape and safety. Habitat is characterized by rugged terrain including canyons, gulches, talus cliffs, steep slopes, mountaintops and river benches (Shakleton et al. 1999). Desert bighorns generally occur in southern Utah and do not migrate.

The MPA contains 422,192 acres of desert bighorn sheep habitat (Map 2-26-A, Desert Bighorn Sheep Protected Habitat). Of these acres, BLM manages 330,129. There are four herd areas for desert bighorn sheep in the MPA. They are located 1) in the southeast area of Westwater Canyon (the Dolores Triangle herd), 2) in the Potash-Mineral Bottom-Ten Mile area (the Potash herd), 3) on the north side of the Colorado River east of Arches National Park (the Professor Valley herd), and 4) on the south side of the Colorado River along Kane Creek (The Lockhart herd. The Monticello Field Office of the BLM manages the majority of the habitat for the Lockhart herd.) The BLM manages 22,949 acres in the Dolores Triangle herd area and 245,870 acres in the Potash herd area. There are 17,707 BLM acres of desert bighorn habitat in the Professor Valley herd area, and 43,603 acres in the Lockhart herd area. There is also evidence of the animals in the Lockhart area going up the Redd Sheep Trail to Hatch Point.

Desert bighorn sheep (Potash herd) are common within portions of the Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area. Only a small percentage of the Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area is considered to be suitable bighorn habitat. The habitat types preferred by bighorn are areas with steep rough terrain with good visibility (talus slopes and canyons) and flatter valley floors, which have rough terrain or escape cover nearby. Bighorn avoid flatter open terrain and pinion-juniper forests, because of poor visibility and/or lack of escape cover or terrain.

The habitat provided by Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area contributes significantly to the area's overall desert bighorn population. The Potash and adjacent Canyonlands National Park (Island in the Sky) bighorn herd is the only remaining native (meaning not transplanted or reintroduced) self-supporting desert bighorn herd in Utah. The combined population of this herd is estimated at 450-500 bighorn. Approximately 350 of these animals occupy the Island in the Sky and 150 to 200 inhabit adjacent lands managed by the BLM.

The Professor Valley desert bighorn herd's habitat extends to the east of Arches National Park onto BLM-managed land in the Cache Valley and Dome Plateau area. This area is located north of the Colorado River.

A state of Utah management plan for desert bighorn sheep was developed in 1999. This plan assesses current information on bighorn sheep, identifies issues and concerns relating to bighorn sheep management, and establishes goals and objectives for future bighorn management programs in Utah.

Tables 3.59 and 3.60 outline the current desert bighorn sheep estimates in the MPA and the wildlife management goals for desert bighorn sheep in the planning area. Because the Lockhart desert bighorn sheep herd's habitat is primarily in the Monticello Field Office, that herd is not discussed in this table.

Table 3.59. UDWR Current Desert Bighorn Sheep Estimates in the MPA

Unit Number	Unit Name (subunit)	Population Estimate*	Population Objective**	Percent of Objective	2007 Harvest***
13 Desert Bighorn Sheep	**La Sal (Total)** Potash Professor Valley Dolores Triangle	285 230 30 25	595 345 125 125	48% 67% 24% 20%	3 not hunted not hunted
10 Rocky Mountain Bighorn Sheep	**Bookcliff** Rattlesnake	350	525	67%	5

Source: UDWR 2007.

*Utah Bighorn Sheep State-wide Management Plan.

**Utah Bighorn Sheep State-wide Management Plan – Increase all existing herds by 50% with at least a minimum population of 125

***Utah Annual Big Game Report 2006

Table 3.60. UDWR Wildlife Management Goals for Desert Bighorn Sheep in the MPA

Unit Number	Unit Name (subunit)	Objective Ram/Ewe**	Current Ram/Ewe	Age Objective*
13 Desert Bighorn Sheep	**La Sal** Potash Professor Valley Dolores Triangle	No Set objective	52/100 Unknown Unknown	30% of Rams > 6.5 yrs
10 Rocky Mountain Bighorn Sheep	**Bookcliff** Rattlesnake	No Set Objective	67/100	30% of Rams > 6.5 yrs

Source: UDWR 2007.

* Utah Bighorn Sheep State-wide Management Plan.

**Utah Annual Big Game Report 2006.

Bighorn sheep require separation from domestic sheep to prevent the transmission of diseases against which they have no natural defenses. Water and vegetation improvements have also been shown to benefit bighorn sheep populations. Demands on most wildlife and their habitats within the planning unit are projected to increase. Future demands by other land uses are also expected to remain at current levels or increase, resulting in pressure upon existing wildlife habitat.

3.20.2.6 Rocky Mountain Bighorn Sheep

Rocky Mountain bighorn sheep can be found in small herds in northern and central Utah. Rocky Mountain bighorn sheep experienced significant declines in numbers in the early 1900s. Utah has

been involved in an aggressive program for the past 30 years to restore bighorn sheep to their native habitat. Most Rocky Mountain bighorn sheep have seasonal migrations.

Rocky Mountain bighorn sheep were reintroduced into the Uintah-Ouray Indian Reservation in the early 1970s. An additional 13 Rocky Mountain bighorn were obtained from Waterton Lakes National Park, Alberta, Canada in April 1973. A viable population has become established along the eastern portion of the Green River corridor. Rocky Mountain bighorn currently occupy the rugged Book Cliffs terrain, south from the Indian Reservation and eastward to Thompson Springs, Utah.

The MPA contains 593,867 acres of Rocky Mountain bighorn sheep habitat (Map 2-28, Rocky Mountain Bighorn Sheep Habitat). There is one herd area for Rocky Mountain bighorn sheep in the MPA located in the Book Cliffs. This is called the Book Cliffs Rattlesnake herd. The MPA directly manages 424,859 acres in this herd area.

3.20.2.7 MOUNTAIN LION (COUGAR)

The mountain lion, or cougar, likely inhabits most ecosystems in Utah. However, it is most common in the rough, broken terrain of foothills and canyons, often in association with montane forests, shrublands, and pinyon-juniper woodlands (Fitzgerald et al. 1994). Mule deer is the mountain lion's preferred prey species. Consequently, mountain lion seasonal use ranges are likely to closely parallel those of mule deer.

3.20.3 UPLAND GAME

Upland game in the MPA includes populations of blue grouse (*Dendragapus obscurus*), chukar partridge (*Alectoris chukar*), Rio Grande turkey (*Meleagris gallopavo*), ring-necked pheasant (*Phasianus colchicus*) and sage-grouse (*Centrocercus urophasianus*). Annual fluctuations for most upland game bird and small mammal populations very closely correlate with annual climatic patterns. Mild winters and early spring precipitation during the months of March, April and May are associated with increases in upland game populations. Warm, dry weather, especially during June, is generally considered vital for the survival of newly born young of many upland game species. Ring-necked pheasant and greater sage-grouse are two upland game species that have experienced a long-term decline as a result of degradation and loss of crucial habitat (UDWR 2000a). Table 3.61 shows upland game habitat managed by the BLM.

A Strategic Management Plan for greater sage-grouse was issued by the UDWR in 2002 and is available on the UDWR website (UDWR 2002). Overall habitat conditions within the remaining sage-grouse habitat within Grand and San Juan Counties are consistent with a landscape dominated by agriculture. Undisturbed native sagebrush communities are rare as the area is highly fragmented by cleared fields, roads, power lines and pipelines. Livestock grazing is heavy, non-native noxious weeds have invaded or replaced native shrub and shrub-steppe communities

Table 3.61. BLM-managed Upland Game Habitat in the MPA

Upland Game Species	Total Habitat in MPA (acres)	Total Area Managed by BLM (acres)
Sage-grouse Winter Range	56,688	36,382
Sage-grouse Brooding Range	97,257	42,497
Rio Grande Turkey	189,320	13,8407
Blue Grouse	219,707	31,402
Chukar Partridge	1,738,282	1,328,451
Ring-necked Pheasant	37,225	10,513

on a large scale, and the overall level of human disturbance is relatively high. Furthermore, the ongoing severe drought of 1999–2003 has contributed substantially to habitat deterioration. Therefore, overall habitat conditions are relatively poor and unstable compared to optimal sage-grouse habitat elsewhere. Sage-grouse may be petitioned for Federal listing as either Threatened or Endangered species.

Sage-grouse are used as a representative guild species for sagebrush habitat in the district. Impacts to this species can be partly assessed through the impact to this habitat types.

3.20.4 Raptors

Special habitat needs for raptors include nest sites, foraging areas, and roosting or resting sites. Buffer zones are usually recommended around raptor nest sites during the early spring and summer when raptors are raising their young. The most utilized raptor nesting habitats in the MPA are generally found along riparian areas and cliff faces. Juniper-desert shrub transition areas are identified as being important for nesting ferruginous hawks (*Buteo regalis*). There is one known bald eagle (*Haliaeetus leucocephalus*) nest on BLM land within the MPA; bald eagles use the MPA extensively for winter foraging.

The northern goshawk (*Accipiter gentiles*) is a representative guild species for old growth conifer habitat in the district. The golden eagle (*Aquila chrysaetos*) and the prairie falcon (*Falco mexicanus*) are representative guild species for cliff rock habitat. The ferruginous hawk and burrowing owl (*Athene canicularia*) are representative guild species for grassland habitat. The ferruginous hawk is also a representative guild species for desert scrub habitat. Impacts to these species can be partly assessed through the impact to these habitat types.

3.20.5 Reptile, Amphibian, and Other Non-game Species

The MPA contains a high diversity of reptile, amphibian, and other non-game species, including small mammals, birds, and invertebrates, because of the variety of habitats found within the area. The area contains various riparian, talus slope, marsh, aspen-conifer, pinyon-juniper, and ridgetop habitats. (Special habitat needs for migratory birds include nest sites and foraging areas.) Very little is known about the status of most of these species, but an effort is being made to acquire basic information on those listed by state and Federal agencies as TES species.

3.20.6 RIPARIAN AND AQUATIC SPECIES

The riparian and aquatic habitat in the MPA is associated with the Green and Colorado Rivers and their tributaries. Riparian Species and Avian Riparian Species of Special Concern in the planning area include yellow-billed cuckoo (*Coccyzus americanus*) and southwestern willow flycatcher (*Empidonax traillii*) (SWFL). The Green River sustains the largest breeding population of yellow-billed cuckoo in the state of Utah, with an estimated 10 to 20 pairs. SWFL also potentially occurs within the planning area. It is currently believed that the range of this subspecies extends north to the Sand Wash area of the Green River (near the Uintah-Carbon county line). Many other TES species are highly dependent on riparian areas, and they are also crucial to neo-tropical migrant birds. A primary concern with the riparian areas is the effect of decreased regeneration of cottonwood and willow stands and the invasion of non-native plant species such as salt cedar (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*) on riparian and aquatic wildlife species.

Aquatic species in the planning area include several TES species such as bonytail (*Gila elegans)*, Colorado pikeminnow (*Ptychochelius lucius)*, humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus)*, roundtail chub (*Gila robusta)*, blueheaded sucker (*Catostomus discobolus)*, Colorado River cutthroat trout (*Onycorhinchus clarki pleuriticus*), and flannelmouth sucker (*Catostomus latipinnis)*. Table 3.62 gives the current UDWR inventories of fisheries within the MPA.

Table 3.62. UDWR Inventory of Fisheries within the MPA

Colorado River	Colorado pikeminnow, humpback chub, bonytail, razorback sucker, flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, Plains killifish, fathead minnow, red shiner, sand shiner, smallmouth bass, largemouth bass, carp, black bullhead, walleye
Green River	Colorado pikeminnow, humpback chub, bonytail, razorback sucker, flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, fathead minnow, red shiner, sand shiner, smallmouth bass, largemouth bass, carp, black bullhead, yellow bullhead, walleye, northern pike
Dolores River	flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, carp, fathead minnow, red shiner, sand shiner
Castle Creek	speckled dace, fathead minnow, red shiner, sand shiner, mountain sucker, bluehead sucker, flannelmouth sucker
Onion Creek	Speckled dace, fathead minnow, red shiner, sand shiner
Kane Creek	speckled dace, fathead minnow, red shiner, sand shiner, mosquitofish, plains killifish
La Sal Creek	Colorado River cutthroat, speckled dace, flannelmouth sucker, blueheaded sucker, mottled sculpin, speckled dace
Beaver Creek	Colorado River cutthroat, mottled sculpin
Negro Bill Canyon Creek	speckled dace, fathead minnow, red shiner, sand shiner, black bullhead, bluegill sunfish, common carp, flannelmouth sucker, green sunfish, largemouth bass, mountain sucker

Table 3.62. UDWR Inventory of Fisheries within the MPA

Mill Creek	Brown trout, black bullhead, bluehead sucker, flannelmouth sucker, sunfish, hybridized bluehead sucker/mountain sucker, largemouth bass, roundtail chub, mottled sculpin
Cottonwood Wash	Fathead minnow, red shiner, sand shiner
Pack Creek	Red shiner

Mallard ducks (*Anas platyrhynchos*) and macroinvertebrates are representative guild species for aquatic areas, marshes and lakes in the district. Yellow-billed cuckoo, southwestern willow flycatcher (SWFL), song sparrow (*Melospiza melodia*), spotted towhee (*Piplio maculatus*), Rocky Mountain elk and mule deer are representative guild species for riparian habitat in the district. Impacts to these species can be partly assessed through the impacts to these habitat types.

3.21 WOODLANDS

3.21.1 RESOURCE OVERVIEW

Woodland resources are generally defined as those tree species that are used as non-sawtimber products and are sold in units other than board feet. The woodland resources within the MPA consist primarily of pinyon pine and juniper; Two-needle pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) are the most common woodland species of their type and are widespread throughout the planning area. Most of the pinyon-juniper grows at lower elevations, where precipitation is insufficient for commercial timber species. Annual precipitation typically ranges between 10 and 15 inches in pinyon-juniper woodlands, and tree species in these communities have evolved both cold and drought resistance.

Typically, the pinyon-juniper plant community occupies an elevation zone from approximately 4,500 feet to 7,500 feet. Pinyon dominates at higher elevations within the zone and tends to form closed-canopy stands with a shrub component commonly including oaks (*Quercus* spp.), mountain mahogany (*Cercocarpus* spp.), and some grasses.

Juniper trees tend to grow and dominate at lower elevations, in more arid areas, as its scaled foliage allows it to conserve water more effectively than pinyon pine. Juniper-dominated woodlands tend to include open savannas of scattered trees without accompanying shrub communities, except in areas where sagebrush has become dominant as a consequence of overgrazing. A large transition zone (an ecotone) exists between the juniper and pinyon elevation extremes in which the two species are co-dominant.

Woodland resources are used for firewood, fence posts, and Christmas trees, and also have value for watershed, wildlife habitat, recreation, and visual resources. There is some commercial harvesting (approximately 5% or less) of this resource.

Cottonwood (*Populus deltoides*) is an additional component of woodland resources that grows in riparian areas. Cottonwood is critical to the proper functioning of riparian systems in that it provides shade and wildlife habitat.

Timber resources (tree species that are used as sawtimber products) within the planning area consist of small stands of forest species comprising primarily of ponderosa pine (*Pinus ponderosa*), mountain fir, aspen (*Populus tremuloides*), and an aspen/conifer mix. These stands typically grow at higher elevations of approximately 8,000 to 10,000 feet, where annual precipitation is between 25 and 30 inches. In the planning area, these stands are in the Book Cliffs, in the northernmost portion of the planning area. The quantities of timber in the planning area are both inaccessible and too limited for either private or commercial harvesting.

In general, the woodland and forest resources in the planning area are in a stressed and unhealthy condition. Over the past 100–125 years, grazing and fire suppression have altered the structure and species composition of these woodlands, allowing the development of closed canopies with little understory vegetation, decreasing biodiversity, and often resulting in increased soil erosion. Juniper-pinyon stands have increased in density in some areas, increasing the risk of large-scale crown fires (BLM 2002e). These same land-use management scenarios in the upper Book Cliffs have resulted in the build up of thick fuel ladders and dense ground litter that support large-scale, catastrophic, stand-replacing wildland fires, which indirectly produce devastating floods and losses of topsoil. Anecdotal evidence suggests that pinyon and juniper stand densities have increased, and have expanded upslope into ponderosa pine forests and down-slope into grass and shrub communities.

With the onset of extreme drought conditions throughout much of the southwestern U.S. over the past eight years, drought-related stress has made the woodlands more susceptible to epidemic level disease and insect infestations. The current level of insect infestation of pinyon pine stands by bark beetles throughout many areas of the Southwest is rapidly becoming a concern in the MPA. Presently, it is unknown how rapidly the infestation is spreading or its extent. Based on similar infestations in other resource management areas, the infestation could cause a significant loss of woodland resources in the planning area in a relatively short time. In addition to the loss of individual pinyon-pine, insect infestation has resulted in increased fuel loading in the form of standing dead timber and deadfall. This has further increased the risk of large, potentially catastrophic wildfire.

Cottonwood stands are diminishing within the planning area at an unnaturally rapid rate. The causes for the reduction of this resource are: 1) the spread of tamarisk (*Tamarix* spp.), which indirectly prevents the transplantation of cottonwood seedlings by entrenching river and stream systems; and 2) the preferential use of cottonwood groves by recreationists (who camp near streams and shade) for dispersed camping. In many of these high-use recreation areas, campers have inadvertently started fires, and have sometimes stripped live cottonwood trees (BLM 2002e, personal communication between Lynn Jackson, BLM – MFO and David Harris, SWCA, Salt Lake City, Utah, 11 March 2003).

3.21.2 CURRENT MANAGEMENT

The original management objective for woodland resources under the current RMP allowed the sale of noncommercial woodland harvesting permits to the public "consistent with the availability of woodland products and the protection of sensitive resource values" (BLM 1985a). However, since the approval of the current RMP, woodland management objectives have changed for the MFO: 1) a greater emphasis is now being placed on pinyon-juniper management for long-term sustainability of the resource; 2) the Fire Program is assessing woodland conditions for potential re-treatments in past treatment areas and as part of the hazardous fuels reduction program; 3) infestations of the woodland resource by the Ips engraver beetle (resulting from sustained drought conditions) are being examined; and 4) there is an increase in active management of the resource (Jackson 2003).

The MFO currently manages woodland products by controlling harvests and sales, and sells woodland products in informally designated areas for fuelwood, fence posts, Christmas trees, live pinyon transplants, and landscaping. Fuelwood harvests are limited to dead and down pinyon and juniper, and on-site harvests of woodland resources by recreationists are allowed only in some designated areas.

The MFO has conducted a number of pinyon-juniper treatment projects, primarily completed in the 1960s and 1970s, in which a total of 28,117 acres were treated in 18 separate projects. The projects were conducted to remove pinyon-juniper, and convert woodlands to grasslands for livestock and wildlife forage. Many of these project areas are now in need of re-treatment because of subsequent re-growth of pinyon-juniper, which will be primarily managed through the MFO Fire Program.

The Hazardous Fuels Reduction Program (Program 2823), as part of the MFO Fire Program, is projected to indirectly increase woodland health by approximately 2,500 acres each year for the next five years. This improvement would be in the form of reductions in canopy cover and stand density through thinning, and increases in native vegetation through reseeding (BLM 2002e).

In response to the concerns regarding the loss of woodland resources adjacent to high-use recreation areas, the MFO has initiated wood gathering closures in these areas to allow the vegetation to restore itself. The MFO is also in the process of prohibiting wood gathering from riparian areas, and considering closing these areas to camping, in an attempt to preserve the existing cottonwoods in these areas.

Monitoring of woodland resources is infrequent and limited. Fire personnel occasionally measure fuel loads, but information on the condition of woodland resources in the planning area is extremely limited, as is woodland inventory information.

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4.0 ENVIRONMENTAL CONSEQUENCES OF PROPOSED PLAN AND DRAFT ALTERNATIVES

4.1 INTRODUCTION

This chapter presents the environmental consequences of the management actions for the Proposed Plan and the draft alternatives described in Chapter 2. These management actions were developed to look at a full range of reasonable options in the management of the public lands within the current Moab planning area (MPA), including management and allocation of public land resources, their uses, and protection. BLM decisions about resource use and management in the MPA will be based on this analysis.

A Proposed Plan and 3 draft alternatives are analyzed. The analysis of the 3 alternatives that were considered in the DRMP/EIS is provided only for the purpose of comparison with the Proposed Plan. Alternative A (No Action) would be a continuation of existing management practices defined in the Grand Resource Management Plan (BLM 1985a) as amended. Alternative B would offer more protection for wildlife and other natural resources, and favor natural systems over commodities development. The Proposed Plan would protect important environmental values and sensitive resources while allowing commodities development. Alternative D would emphasize commodities development over the protection of natural resources.

This PRMP/FEIS provides a landscape scale, "big picture" level of analysis, and in most cases the exact locations of projected development and other changes are not known at this time. The analysis in this chapter is an impact analysis of the alternative management actions and prescriptions as they impact the affected environment. Impacts are defined as modifications to the existing environment brought about by implementing an alternative. Impacts can be beneficial or adverse, result from the action directly or indirectly, and can be long-term, short-term, temporary, or cumulative in nature.

For the analysis, BLM staff used existing data, science, current methodologies, professional judgments, and projected actions and levels of use. The analysis takes into account the stipulations described in Chapter 2.

4.1.1 ORGANIZATION OF CHAPTER

Chapter 4 details the environmental consequences of program decisions on each listed resource or resource use. Resources and resource uses are presented in alphabetical order. The environmental consequences of the decisions imposed by other programs on that resource are delineated for each of the four alternatives. For the majority of resources, the organization of the section lists the impacts of each of the other programs' decisions on the resource, and then lists impacts for each of the four alternatives. For example, the impacts of recreation decisions on riparian resources are listed by the decisions imposed by recreation under each of the four alternatives:

Riparian Resources

Impacts of Recreation Decisions on Riparian Resources

Alternative A
Alternative B
Proposed Plan
Alternative D

Resources organized in this format include Fire Management, Minerals, Non-WSA Lands with Wilderness Characteristics, Paleontology, Recreation, Riparian, Socioeconomics, Soils/Watershed, Special Designations, Special Status Species, Travel Management, Vegetation, Wildlife and Fisheries, and Woodlands.

For six of the resources (those un-impacted by a large number of program decisions), the impacts are presented by each of the four alternatives. It was determined that the environmental consequences on these resources were more understandable using this format. For example, the impacts on Lands and Realty of decisions made under Alternative A are presented as a whole:

Lands and Realty

Impacts of Alternative A
Impacts of Alternative B
Impacts of Proposed Plan
Impacts of Alternative D

Resources organized in this format include Air Quality, Cultural, Health and Safety, Lands and Realty, Livestock Grazing, and Visual Resources.

Sections entitled "Management Common to All" address impacts from actions to be carried out for that resource under all alternatives (that is, the action is common to the Proposed Plan and Alternatives A, B, and D, and thus the impacts associated with that action would apply under all alternatives). Sections entitled "Management Common to All Action Alternatives" address impacts from actions to be carried out for that resource under the Proposed Plan and draft Alternatives B and D. That is, these decisions would be common to all except draft Alternative A, which is the No Action Alternative.

The reader is invited to utilize the Table of Contents as an outline while reading Chapter 4.

4.1.2 Analytical Assumptions

The following are the general assumptions used for assessment under all alternatives. Assumptions associated with a single issue (e.g., wildlife habitat) are included within the alternative discussion for that issue.

- All resource actions recognize valid existing rights.
- The entire MPA is assigned one of the following leasing categories for oil and gas development:
  - Open Subject to Standard Lease Terms and Conditions
  - Open Subject to Timing Limitation and/or Controlled Surface Use Stipulations
  - Open with a No Surface Occupancy Stipulation
  - Closed

- BLM would have the funding and work force to implement the selected alternative.
- All lands identified for disposal meet FLPMA disposal criteria and can be considered for land tenure adjustments. Site-specific analysis is required for all parcels to determine that disposal is appropriate.
- Demand for recreational activities (both dispersed and concentrated), energy production, vegetative resources, and wildlife use (non-consumptive and consumptive) would increase.
- Short-term impacts are those that would last for fewer than 5 years.
- Long-term impacts are those that would last for 5 years or more.
- State highways and Class B roads through the MPA will remain open.
- All decisions, projects, activities, and mitigation for the alternatives would be completed as described in Chapter 2 and Appendix C (Surface Stipulations Applicable to all Surface-disturbing Activities).
- Acreages were calculated using GIS technology; there may be slight variations in total acres between disciplines. These variations are negligible and will not affect analysis.
- All acreages and percentages presented in this chapter pertain to BLM lands only within the MPA, unless otherwise specified.
- Non-BLM lands would be minimally directly impacted by RMP decisions since BLM does not make land decisions on non-BLM lands. Non-BLM lands, including SITLA lands, could be indirectly or cumulatively impacted by BLM decisions.
- Reasonable access to State lands, across BLM lands, would be provided under all alternatives.

4.1.3 Assumptions and Methodology for Minerals Development Impacts

A mineral potential report (MPR) was written in cooperation with the Utah Geological Survey for the Moab Field Office (MFO) in July 2005. The report outlined the potential for occurrence and development and included a reasonably foreseeable development (RFD) scenario of all mineral resources within the MPA In addition, a detailed RFD scenario report for oil and gas was prepared for the MFO in August 2005 with a revision added in September 2006.

An RFD is a long-term projection of exploration, development, production, and reclamation activity for the next 15 years. A projection of 15 years was utilized because a longer projection (up to 20 years) becomes too speculative. For example, after the RFD for oil and gas was completed in 2005, the price of oil and gas increased significantly which manifested in a corresponding escalation in development that was not anticipated. This resulted in the need to revise the RFD in September 2006. Consequently, if the projections used in this impact analysis are significantly exceeded at some time in the future due to a continual increase in oil and gas prices, then the analysis will have to be updated again.

4.1.3.1 Oil and Gas

The MPA was divided into seven Reasonably Foreseeable Development (RFD) areas based on the geology, the potential for mineral occurrence, and the potential for mineral development (see Map 3-16). The potential for future oil and gas development and the associated surface disturbance is presented by RFD area in Table 4.1. This activity includes potential mineral

development on State, Private, USFS, Tribal, BLM, NPS, and USFS-administered lands within the MPA and is the baseline for impacts analysis by alternative.

Table 4.1. Predicted Oil and Gas Development and Associated Surface Disturbance for Each RFD Area within the MPA (All Lands)

RFD Area	Number of Wells Projected to be Drilled	Estimated Future Surface Disturbance from Drilling Wells (acres)
Book Cliffs (per year)	3–15	45–225
Greater Cisco (per year)	3–30	45–450
Roan Cliffs (per year)	0–1	0–15
Salt Wash (per year)	0–2	0–30
Big Flat-Hatch Point (per year)	3–5	45–75
Lisbon Valley (per year)	2–8	30–120
Eastern Paradox (per year)	1–7	15–105
Totals per year for next 15 years	12–68	180–1,020
Average per year for next 15 years	40	600
Total for next 15 years	**600**	**9,000**

Source: BLM 2005f.

Predicted surface disturbance for oil and gas development by alternative on BLM lands only (versus all lands) was calculated by multiplying the percent of BLM lands open for development under each of the alternatives by the total number of wells predicted for all lands within the RFD area. For oil and gas, the resultant number of wells was multiplied by surface disturbance assumptions per well (assumed to be 15 acres of disturbance per well) to arrive at total disturbance (Table 4.2). Geophysical disturbances were calculated in the same manner except for the omission of well numbers and are presented in Table 4.3. It should be noted that the total number of wells cited in the RFD report does not represent upper limits on the number of wells that could be drilled in the MPA during the life of the plan. The RFD well totals were developed for the purpose of assessing impacts for decision-making. The total number of wells permitted will be determined through site-specific NEPA analysis of field development projects.

Table 4.2. Summary of Predicted Surface Disturbance for Oil and Gas Activity on BLM Lands Only

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Book Cliffs				
Avg. Number of Wells over 15 years	104	64	104	105
Avg. Surface Disturbance/yr.	104	64	104	105
Avg. Surface Disturbance/LOP	1563	960	1556	1575
Greater Cisco				
Number of Wells over 15 years	196	85	197	197
Avg. Surface Disturbance/yr.	196	85	197	197

Table 4.2. Summary of Predicted Surface Disturbance for Oil and Gas Activity on BLM Lands Only

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Avg. Surface Disturbance over 15 years	2941	1275	2962	2962
Roan Cliffs				
Number of Wells over 15 years	2	1	2	2
Avg. Surface Disturbance/yr.	2	1	2	2
Avg. Surface Disturbance over 15 years	30	11	27	29
Salt Wash				
Avg. Number of Wells over 15 years	13	11	11	12
Avg. Surface Disturbance/yr.	13	11	11	12
Avg. Surface Disturbance over 15 years	189	159	171	186
Big Flat-Hatch Point				
Number of Wells over 15 years	46	19	34	44
Avg. Surface Disturbance/yr.	46	19	34	44
Avg. Surface Disturbance over 15 years	697	292	508	665
Lisbon Valley				
Number of Wells over 15 years	56	54	56	56
Avg. Surface Disturbance/yr.	56	54	56	56
Avg. Surface Disturbance over 15 years	840	813	836	836
Eastern Paradox				
Number of Wells over 15 years	34	21	28	32
Avg. Surface Disturbance/yr.	34	21	28	32
Avg. Surface Disturbance over 15 years	512	320	423	486
Total Number of Wells over 15 years	**451**	**255**	**432**	**448**

These numbers are based on several calculations that have been pro-rated and subsequently rounded so there may be slight discrepancies in the summary numbers. For example under Alternative A and the Proposed Plan, 104 wells are predicted in the Book Cliffs over the life of the plan but the resulting surface disturbance numbers are slightly different. This is a result of the base well numbers being rounded. It could be assumed under Alternative A that the well number was closer to 104.2 whereas under the Proposed Plan the well number was closer to 103.7. Detailed information on the calculations can be obtained from the MFO.

The assumptions for reclamation for oil and gas are that 50% of the wells drilled would be productive and 50% would be abandoned and reclaimed and revegetation would be successful within a scope of ten years. Therefore 100 wells (1,500 acres) would be reclaimed during the life of the plan. Only wells drilled during the first 5 years would be successfully reclaimed over the next 15 years (40 wells per year × 5 × 50% of wells abandoned and reclaimed = 100) (BLM 2005f).

4.1.3.2 Coal-bed Methane

Coal-bed methane development is expected to occur in the far northeastern corner of the MPA where there is high development potential. Future coal-bed methane exploration over the next 15 years is expected to entail testing at three 5-spot well clusters, or 15 new wells with a cumulative surface disturbance of about 225 acres.

4.1.3.3 Potash and Salt

Potash development in the Ten Mile area during the next 15 years is expected to entail the drilling of up to 10 new exploration wells on existing leases involving a total surface disturbance of about 50 acres.

4.1.3.4 Uranium-Vanadium

New surface disturbance for uranium activity is estimated at about 20 acres per year for a total of 300 acres of disturbance over the next 15 years. Most of this development is expected to occur within the historic mining areas rated with high development potential (Lisbon Valley and La Sal).

4.1.3.5 Copper

Copper mining at the Lisbon Valley copper mine site will continue under the approved plan for about 10 years (2016). The total surface disturbance area will amount to about 1103 acres. Exploration activities would be conducted outside the mine area involving 25 to 50 holes per year for the next 10 years involving about 2.5 acres to 5 acres. This would amount to a total of from about 25 acres to 50 acres of disturbance over the next 10 years.

Copper drilling and some small scale mining could occur along the Salt Valley anticline area involving about 20 acres of surface disturbance sometime during the next 15 years.

4.1.3.6 Sand and Gravel

Sand and gravel development is expected to occur in the vicinity of the areas where historical production has occurred. This development would amount to about 24 acres of new surface disturbance per year and about 360 acres of over the next 15 years.

4.1.3.7 Building Stone

One large-scale building stone operation is anticipated over the next 15 years in the vicinity of existing sites. This operation would result in 5 to 10 acres of surface disturbance.

4.1.3.8 Travertine

Over the next 15 years new surface disturbance at the two existing travertine sites is expected to entail about 6 acres.

4.1.3.9 Clay

Clay production is anticipated in the vicinity of 2 existing sites over the next 15 years. New surface disturbance is estimated to range from 1 to 5 acres and would total about seven acres for both of the two sites.

4.1.3.10 HUMATE

There has been interest in developing the humate deposit at Harley Dome and the deposit is likely to see some limited development during the next 15 years. Total surface disturbance is expected to involve about 2 acres for exploration and up to 15 acres for production.

The total predicted surface disturbance associated with all mineral development in the MPA is broken out by alternative in Table 4.3. The development projected for the minerals other than oil and gas involves small acreages of disturbance which in many cases would occur on existing leases or within the vicinity of existing mine areas and sites. Therefore, the projected development for these minerals is carried across all alternatives.

Table 4.3. Summary of Total Predicted Surface Disturbance for Mineral Development Activities (acres)

Mineral Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Geophysical	2397	1404	2072	2329
Oil and Gas	6772	3830	6483	6739
Other Leasable Minerals	275	275	275	275
Locatable	350	350	350	350
Salable	390	390	390	390
Total	10,184	6,249	9,570	10,083

For geophysical exploration the assumptions are that reclamation of disturbance would be successful within a scope of ten years depending on reclamation times related to soils, vegetation, and rainfall (BLM 2005f).

Surface disturbances from locatable, salable, and other mineral development would also be reclaimed but the timeframe is unknown.

4.1.3.11 EXISTING OIL AND GAS LEASES

About 820,000 acres of public lands in the MPA are currently under lease for oil and gas. These leases were issued with stipulations that were in place under the 1985 Grand RMP. Only a small percentage of these leases are currently under development or are expected to be developed. Oil and gas leases, unless held by production, are issued for a period of ten years. Undeveloped leases expire at the end of ten years. Thus, during the life of the plan, many of the existing leases will expire and will not be reissued. Any and all new leases will be subject to the management decisions in the Moab RMP. Due to these existing leases, it is possible that wells could be drilled in areas that are proposed in this plan to be managed as closed or NSO for oil and gas leasing.

4.1.3.12 MINING CLAIMS FOR LOCATABLE MINERALS

Unless withdrawn from location, all public lands within the MPA are open to mining claim location under all alternatives. It is possible that mining claims could be located in areas where non-locatable minerals (oil and gas) would be severely restricted to protect important resource values. Therefore, claimants could conduct operations that would adversely impact the resources

of concern. However, development in these restricted areas (NSO and closed) is not anticipated, and therefore, for this analysis, it is assumed that adverse impacts to these areas from locatable mineral development would not occur. Locatable minerals are subject to controlled surface use and timing limitation stipulations (see Appendix C) which are consistent with the rights granted under the mining laws.

4.1.4 Types of Impacts to be Addressed

Direct impacts are attributable to implementation of an alternative that affects a specific resource and generally occur at the same time and place. Indirect impacts can result from one resource affecting another (e.g., soil erosion and sedimentation affecting water quality) or can be later in time or removed in location, but are still reasonable foreseeable. Long-term impacts are those that would substantially remain for many years or for the life of the project. Temporary impacts are short-term or ephemeral changes to the environment that return to the original condition once the activity is stopped, such as air pollutant emissions caused by earthmoving equipment during construction. Short-term impacts result in changes to the environment that are stabilized or mitigated rapidly and without long-term impacts. Cumulative impacts could also occur as the result of past, present, and reasonably foreseeable future actions by Federal, state, and local governments, private individuals and entities in or near the MPA. Cumulative impacts could result from individually minor but collectively significant actions that take place over time.

4.2 Impacts to Critical Elements

The BLM's NEPA Handbook (H-1790-1) requires that all EISs address certain topics, which the BLM refers to as Critical Elements of the Human Environment. The list of elements contained in the BLM handbook has been expanded by BLM Instruction Memoranda and Executive Orders. These elements are presented in Table 4.4, followed by corresponding Relevant Authorities and the status of how the critical element is addressed in this document.

This analysis was conducted using the best-available information. This includes but is not limited to landscape level data such as GAP-level vegetation data, SSURGO soils data, and MPA information on wildlife habitat boundaries. Additional site-specific data (including cultural resource surveys, TES surveys, etc.) will be required to complete site-specific NEPA analysis necessary prior to implementation of resource management activities.

Table 4.4. Critical Elements

Critical Element	Relevant Authority	Status
Air Quality	The Clean Air Act, as amended (42 U.S.C. 7401 et seq.)	Addressed in its own section of the EIS
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1701 et seq.)	Addressed in the Special Designations section
Cultural Resources	National Historic Preservation Act, as amended (16 U.S.C. 470)	Addressed in its own section of the EIS
Environmental Justice[1]	EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	Addressed in the Socioeconomic section

Table 4.4. Critical Elements

Critical Element	Relevant Authority	Status
Farm Lands (prime or unique)	Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.)	There is no identified prime farmland within the MPA.
Floodplains	EO 11988, Floodplain Management	Addressed in the Soil and Water section
Invasive, Non-native Species[1]	Federal Noxious Weed Act of 1974, as amended Endangered Species Act of 1973, as amended; EO 13112, Invasive Species	Addressed in the Vegetation section
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) EO 13007, Indian Sacred Sites	Addressed in the Socioeconomic and Cultural Resource sections
Threatened or Endangered Species	Endangered Species Act of 1973 as amended (16 U.S.C. 1531)	Addressed in the Special Status Species section
Wastes (Hazardous or Solid)	Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 et seq.) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended (42 U.S.C. 9615)	Addressed in the Health and Safety and Socioeconomic sections
Water Quality (Drinking/Ground)[1]	Safe Drinking Water Act, as amended (42 U.S.C. 300f et seq.) Clean Water Act of 1977 (33 U.S.C. 1251 et seq.)	Addressed in the Soil and Water section
Wetlands/Riparian Zones	EO 11990, Protection of Wetlands	Addressed in the Riparian and Soil and Water sections
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271)	Addressed in the Special Designations section
Wilderness	FLPMA and Wilderness Act of 1964 (16 U.S.C. 1131 et seq.)	Addressed in the Special Designations section

[1]Critical element added by IM-1999-178 [Interim Guidance - Changes to the List of Critical Elements of the Human Environment in BLM's National Environmental Policy Act (NEPA) Handbook]

Certain resources and resource uses would not be impacted by any of the resource decisions presented in Chapter 2 and therefore they are not discussed in the subsequent analysis. Table 4.5 summarizes the resources and resource uses that would not be impacted, by program.

4.3 Environmental Consequences of Alternatives

Section 4.3 presents the impacts to each resource from management actions proposed by other resource programs, by alternative.

4.3.1 AIR QUALITY AND CLIMATE

This section presents an emission inventory of air pollutants associated with the Proposed Plan. The projected emissions are compared to base year emissions (2005) for Grand and San Juan County to provide context for the emission estimates. No assessment of air quality concentrations are included in this analysis. Existing conditions concerning air quality are described in Chapter 3.

The MPA is located in a region designated as unclassifiable for PM10 and unclassifiable/ attainment for all other airborne pollutants [see 40 CFR Part 81] (UDAQ and EPA 2006). The alternatives discussed below have been evaluated to estimate emissions associated with each alternative and the Proposed Plan.

4.3.1.1 GLOBAL CLIMATE CHANGE

The assessment of climate changing pollutant emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impact to climate. However, the Intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations."

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. Currently BLM does not have an established mechanism to accurately predict the effect of resource management-level decisions from this planning effort on global climate change. However, potential impacts to air quality due to climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased wind blown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Less snow at lower elevations would be likely to impact the timing and quantity of snowmelt, which, in turn, could impact aquatic species. In the future, as tools for predicting climate changes in a management area improve and/or changes in climate affect resources and necessitate changes in how resources are managed, BLM may be able to re-evaluate decisions made as part of this planning process and adjust management accordingly.

4.3.1.2 IMPACTS COMMON TO ALL ALTERNATIVES

Certain management decisions for air quality resources apply to all alternatives. Management common to all alternatives for air quality resources relate to the application of standard State and Federal policy and regulations. These policies and regulations call for appropriate management of air quality resources within the MPA. This includes application of the best air quality control technology (BACT), provided by the Utah Division of Air Quality (UDAQ), as needed to meet air quality standards. Compliance with Utah Air Conservation (UAC) Regulation R307-205 requires appropriate dust abatement measures for construction, demolition, clearing or excavation of land areas greater than one-quarter acre in size (UAC R307-205, 01 August 2006);

Management of emissions must also prevent deterioration to air quality in Class I Areas (UAC R307-405, 01 August 2006).

Table 4.5. Resources Not Impacted by Program Decisions in Chapter 2 (X = No Impact)

Resource Title	Air Quality and Climate	Cultural Resources	Fire Management	Health and Safety	Lands and Realty	Livestock Grazing	Minerals	Non-WSA Lands with WCs	Paleontological Resources	Recreation	Riparian Resources	Soil and Water	Special Designations	Special Status Species	Travel Management	Vegetation	Visual Resources	Wildlife and Fisheries	Woodlands
Air Quality and Climate		X							X					X			X		
Cultural Resources	X			X								X		X				X	
Fire Management		X		X		X			X			X				X	X		
Health and Safety	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
Lands and Realty	X		X	X		X			X										X
Livestock Grazing	X			X				X	X				X				X		X
Minerals	X	X	X	X		X									X				X
Non-WSA Lands with WCs	X			X															
Paleontological Resources	X	X		X								X		X		X	X	X	
Recreation																			X
Riparian Resources	X	X		X					X								X		
Socioeconomics	X																		
Soil and Water	X								X					X		X	X	X	X
Special Designations	X																		
Special Status Species	X	X							X										
Travel Management			X	X	X	X			X	X	X	X		X			X	X	X
Vegetation	X	X		X					X								X		
Visual Resources																			
Wildlife and Fisheries	X	X							X										
Woodlands	X	X		X	X	X	X		X			X		X	X	X	X	X	

Projected emissions common to all alternatives include particulate matter (PM10 and PM2.5), CO, SO_2, NOx,, Volatile Organic Compounds (VOCs), and hazardous air pollutants (e.g. benzene, toluene, formaldehyde, ethylbenzene, and xylenes). Actual pollutant loads produced are dependant on the number and type of pollutant sources, source location, duration of loading, local topographical and meteorological conditions and other site-specific factors.

Under all alternatives of the MPA Draft RMP, 5,000 to 10,000 acres would be treated with prescribed fire and non-fire treatments annually across the MPA depending on budgetary and time constraints.

There are several criteria pollutants of concern specific to prescribed burning, chiefly particulate matter and carbon dioxide (CO2). Particulate matter produced in prescribed burns is predominantly PM2.5 (70% of the smoke produced in burns falls into this category). The generation of increased particulates is especially noticeable in high-intensity, catastrophic wildland fire. Fire also produces carbon dioxide (CO2). Biomass burning contributes to the release of greenhouse gases (such as CO2), and eliminates a carbon sink. The detrimental air quality impacts from wildfire would likely be greater than those from prescribed fire and exert a larger adverse effect on air quality in the MPA.

Direct impacts of prescribed fire fall into two general categories: short-term and long-term. Short-term air quality impacts projected from prescribed burns include a general increase in particulates (primarily PM2.5), CO2 and ozone precursor emissions (NOx and VOCs) in burn areas and those locations immediately downwind. The magnitude of increase is directly dependent on the size, extent and controlled level of the burn. The type and amount of air pollutants released from burning wildland vegetation varies with type of fuel, moisture content, temperature of the fire, and the amount of smoldering occurring after the fire. Since prescribed burning occurs irregularly, it is generally possible to restrict burning in potential non-attainment areas on "bad air quality days" to avoid violating air quality standards. Long-term, direct air-quality impacts projected from prescribed burns include a general increase in airborne particulates from the burn site as a result of ash dispersion and transport. BLM obtains a burn permit from UDAQ prior to initiating a prescribed burn. This increase would occur only until revegetation is complete and growth matures.

Indirect impacts on air quality from prescribed burns (short-term and long-term) include an increase in airborne particulates from the burn site as a result of wind-based erosion of de-vegetated areas. This effect is expected to be small as vegetation management is an active part of fire management techniques. Fuel reduction treatments, authorized by the LUP Amendment could potentially decrease the number and intensity of wildland fires with a concurrent "decrease" in the amount of particulates. A greater long-term effect of prescribed burning is a reduction in particulate, CO2 and ozone precursor emissions specific to wildfire in unmanaged areas. Ozone (a product of biomass combustion formed through the interaction of ozone precursors, volatile organic carbon compounds (VOCs), and nitrogen oxides) is a precursor to greenhouse gases, and a major constituent of photochemical smog. Although generally ozone produced by prescribed fire is quickly diluted and dispersed into the air, it may act as a contributor to the greenhouse effect. As a criteria pollutant, ozone production may be regulated by a State Implementation Plan (SIP), or burns may be banned under ozone alerts.

BLM fire management policy is consistent with UDEQ permitting process and, as such, would be timed in conjunction with meteorological conditions so as to minimize smoke impacts.

Specific policy, rules and procedures are implemented by BLM to minimize the air quality impacts and impacts to regional haze for fire events. Under these requirements, BLM would comply with the current Smoke Management Plan (SMP) and Memorandum of Agreement (MOU) between BLM, USFS, and UDAQ. The MOU, in accordance with UAC regulation R307-204, which requires reporting size, date of burn, fuel type, and estimated air emissions from each prescribed burn. All prescribed burns, mechanical, and chemical treatments and impacts would be analyzed under a project-specific NEPA compliant document.

Additional restrictions would also apply for prescribed burns and Wildland Fire Use (WFU) treatments during certain conditions or near Visual Resource Management, Class I areas. All of these restrictions could impact the size and/or timing of fire management activities such as Wildland Fire Use and or prescribed burns. However, these limitations would not substantially reduce the effectiveness of long-term fire management or increase fire risk in the MPA.

The application of fire management policy is projected to result in a reduction in available fuels and an associated reduction in wildfire severity across the treated areas, particularly in piñon-juniper woodland and wildland/urban interfaces.

Abandoned mine sites, one aspect of health and safety management decisions general to all alternatives have the potential for direct, short-term, adverse impacts on air quality. Potential impacts are specific to the remediation of abandoned mine sites determined to pose a risk to human health and safety. Remediation techniques applied generally include collapsing or sealing of open shafts and adits or capping or removing tailings or other hazardous materials. Land-disturbance associated with these practices and operation of heavy equipment during remediation could result in incremental increases in short-term emissions of particulate matter (PM10 and PM2.5), SO2, NOx, hydrocarbons, radio-nuclides, and combustion by-products. Actual pollutant loads produced are dependant on the number and type of emission sources on-site, relative area of disturbed earth, source location, duration of work, local topographical and meteorological conditions and other site-specific factors.

Specific actions for limiting activities during severe, extreme and exceptional drought conditions (as defined in Appendix M) are prescribed in the Adaptive Drought Management Plan (Chapter 2, Alternatives Matrix). Actions implemented under this plan are anticipated to help preserve and enhance existing air quality through limitations on surface-disturbing activities, changes in grazing management, restrictions on OHV use and off-road events, prescribed burns and vegetative treatments, and other activity limitations that would minimize airborne particulate and preserve existing vegetative cover.

4.3.1.3 ALTERNATIVES IMPACTS

The impacts of cultural resource management decisions to inventory, protect, preserve the resource, and to comply with Section 106 of the National Historic Preservation Act; paleontological decisions to protect, evaluate, support scientific research, and allow recreational collection of fossils; special status animal species management decisions to protect listed species; and visual resource management decisions to protect scenic quality would have negligible impacts on air quality because these management activities would not produce quantifiable air pollutants. Therefore, the management of these resources will not be discussed further in this section.

Potential impacts of livestock grazing, non-WSA lands with wilderness characteristics, riparian, soil and water, special designations, travel management, vegetation and special status vegetation, wildlife, and woodlands management decisions that limit or reduce surface and vegetation disturbance, grazing intensity, management for greater vegetation retention and generation; and improve/upgrade existing roadway surfaces are generally projected to result in negligible impacts on short-term air quality and negligible to incrementally beneficial impacts on long-term air quality. BLM assumes that emissions from these resources are very low. Proposed management decisions, including travel management, generally include lower overall surface/soil disturbance. Potentially beneficial outcomes from these management decisions include reduced PM10 and other windborne particulate from erosion of exposed soils. Short-term benefits to air quality would most likely not be measurable in the overall project area. Long-term benefits would include incremental site-specific reductions in windborne particulate from reduced erosion of exposed soils as vegetation/soil cohesion improves over time. Wildlife management decisions would be based on seasonal restrictions, which would have negligible short-term impact on air quality in areas of specific wildlife habitat. Long-term impacts are generally projected to result in negligible to incrementally beneficial impacts on long-term air quality, primarily the result of limiting vehicular travel during critical wildlife periods. As the impacts of these management decisions are generally projected to be incrementally positive and not measurable on a site-specific basis, the management of these resources will not be discussed further in this section.

Impacts of land and realty management decisions, outside of those specific to compressor stations discussed below, are projected to have no significant effect on air quality except as they impact other management decisions. It should be noted that while some compressor stations are authorized by rights-of-way, most are associated with oil and gas leases. The impacts from compressor stations and other associated activities are therefore assessed collectively in Section 4.3.7 (Mineral Resources).

Impacts of recreation and mineral development management decisions are projected to have the greatest potential for impacts on air quality of the resources assessed. The projected impacts of management decisions of these resources specific to the proposed alternatives will be discussed in greater detail in the following sections of this chapter.

4.3.1.3.1 Analysis Assumptions

Mineral development potential was assessed in the Mineral Potential Report prepared for the MPA. A moderate to high development potential was identified for uranium/vanadium, and a high development potential for limestone, building stone and clay. The development potential for sand and gravel was rated as moderate to high depending on the relative distance from an established roadway.

As mineral development is a permitted process, and a variety of multi-level regulatory processes (discussed in the introduction of this section) exist to ensure that pollutant levels do not increase above identified thresholds and/or air quality criteria, it is assumed that mineral development operations would be carried out in compliance with existing policies and regulations at both the state and Federal level. It is further assumed that roads, pipelines, excavations, and other mineral development-related disturbances in areas with soils susceptible to wind erosion would be appropriately surfaced (covering of piles where appropriate, graveling or surfactants applied to roads, etc.) to reduce fugitive dust generated by traffic and related activities. Such treatments

would also be applied as appropriate on local and resource roads that represent a dust problem. Lower speed limits, enforced by the appropriate authority, would also act to limit dust in project and adjacent areas.

In the absence of quantitative data specific to localized development processes, and due to the fact that state and Federal pre-construction/excavation permitting processes are required to consider cumulative impacts of proposed and surrounding future sources to ensure that proposed sources within the project area would not contribute to exceedances of the ambient air quality standards, management decisions specific to the development of these mineral resources are not projected to generate emissions sufficient to result in noncompliance with air quality criteria. Therefore, the management of these resources will not be discussed further in this section. Development potential for all locatable, salable and leasable mineral resources in the MPA is discussed in greater detail in Section 4.3.7 (Mineral Resources) of this document.

The Reasonably Foreseeable Development (RFD) scenario prepared for the RMP identified high development potential areas for oil and gas (leasable mineral resources) within the MPA. Approximately 2,027 oil and gas wells have been drilled in the MPA between 1891 and 2004 (UDOGM 2004), averaging approximately 18 wells per year.

High development areas identified within the MPA include the Book Cliffs, Greater Cisco Area, Roan Cliffs, Salt Wash, Big Flat – Hatch Point, Lisbon Valley, and Eastern Paradox (BLM 2005e; BLM 2005f) (Section 4.3.7 Mineral Resources).

Primary emission sources for oil and gas development were identified as gas-fired compressors (estimated at 0.063 per producing well or a minimum of 2 per RFD area), glycol dehydrators (estimated at 1 per producing well), flaring (assumed to occur in 60% of the producing wells, with flared gas assumed to be 'sweet'), fugitive dust (from roadways and pads, with construction assumed to represent the critical period). Primary emission components were identified as CO, NOx, SO2, PM10, and PM2.5, CO2, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs).

To assess the potential for air quality effects from oil and gas development, it was assumed that the average surface disturbance per existing well was representative of future well sites. In the RFD (BLM 2005f) and Mineral Potential Report (MPR; BLM 2005e), past development was used to predict future development. The total number of existing oil and gas wells (577 capable of producing oil and gas) and their associated roads and pipelines, covering a total area of 8,655 acres, were used to calculate the projected, approximate surface disturbance per well: 15 acres (BLM 2005f). In the following analysis, 15 acres is assumed to be the projected disturbance per well under each alternative. This acreage is divided into 10 acres of road developed per well and 5 acres of well pad disturbance.

For the purposes of this analysis, it was assumed that the number of wells likely to be drilled under each alternative would be proportional to the acreage of land open for mineral resource development under that alternative, as described in Section 4.3.7 Mineral Resources. For example, if an alternative had 90% of BLM lands in the MPA open for development, it would be assumed that 90% of the RFD on BLM lands would be drilled under that alternative. In addition, it was assumed that 50% of the wells drilled would be dry. The assumed maximum well pads constructed per year were also derived from the analysis of oil and gas development described in Section 4.3.7. Future oil and gas development over the next 15 years is projected to be between

18 and 52 wells per year. This assumption projects a total number (over 15 years) of total 264 - 451 wells and approximately 3,960 – 6,665 additional acres of disturbance (BLM 2005f). While special stipulations (timing limitations and controlled surface use) may impose minor restrictions, surface-disturbing activities could still occur and therefore, these special stipulations would not result in a reduction in the number of wells.

Predicted number of wells and associated acreages on BLM lands within the RFD areas (Book Cliffs, Greater Cisco Area, Roan Cliffs, Salt Wash, Big Flat – Hatch Point, Lisbon Valley and Eastern Paradox), were used as the basis of analysis for air quality impacts specific to future oil and gas development within the MPA. Impacts on air quality were assessed as annual estimated emissions at peak oil and gas production during the lifetime of the RMP (15 years).

Dispersion modeling was not conducted for this analysis, because the locations of oil and gas wells can not be determined at the programmatic planning level. AP-42, Fifth Edition methodology was employed to calculate total emissions from the following sources: compressors, glycol dehydrators, flaring, fugitive dust associated with well pad construction and vehicle travel to and from wells (EPA 2005).

For each development scenario, the number of expected compressors was based on expected number of total producing wells and the expected gas production potential of each well. The number of compressors necessary for each alternative was calculated from an assessment of the average number of compressors (0.063 per producing well) required for projected oil and gas development in the Vernal FO, located to the north of the MPA (Trinity and Nicholls 2006). To accommodate the expansive distances potential between wells and the separate RFD areas, a minimum of two compressors per RFD area was assumed. The analysis assumed there would be one glycol dehydrator per gas well, with a well spacing of 40 acres.

Generalized projected emissions from compressors include CO, NOx, CO2, SO2, PM10, and PM2.5, VOCs, Total Organic Compounds (TOC), and a variety of hazardous air pollutants (HAPs). Emission rates were calculated using AP-42, Fifth Edition factors for 4-stroke lean-burn engines (EPA 2003f, EPA 2006). Conversion between AP-42 factors (lb/MMBtu fuel input) and emission rates used in the analysis (grams/second) were based on the following assumptions derived from the Vernal FO Air Quality Model Report (Trinity and Nicholls 2006). Required compression was calculated based on the assumption that 1,100 hp of compression is required to move 10 million ft3/day of gas from a field pressure of 250 psi to a sales line pressure of 800 psi. The compressors are assumed to have a turbine efficient of 34%. NOx emissions rates for compressors were calculated based on a best available control technology (BACT) limit of 0.7 grams per horsepower hour (g/hp-hr). Emission rates calculated for each pollutant are assumed to be emitted evenly throughout the year and are displayed in Table 4.6. In future sections and tables, "other hazardous air pollutants" will be grouped for analysis and discussion as these represent a small fraction of the total hazardous air pollutants emitted from compressors.

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
Criteria Pollutants and Greenhouse Gases	
CO	5.78E-01
NOx	1.94E-01

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
CO2	1.14E+02
PM10	1.04E-02
PM2.5	1.04E-02
SO2	6.10E-04
VOC	1.22E-01
TOC	1.52E+00
Hazardous Air Pollutants	
Acetaldehyde	8.67E-03
Acrolein	5.33E-03
Benzene	4.56E-04
Ethylbenzene	4.12E-05
Formaldehyde	5.48E-02
H2S	0.00E+00
Naphthalene	7.72E-05
Toluene	4.23E-04
Xylenes	1.91E-04
Acenaphthylene	5.73E-06
Benzo(b)fluoranthene	1.72E-07
Benzo(e)pyrene	4.30E-07
Benzo(g,h,i)perylene	4.29E-07
Biphenyl	2.20E-04
Carbon Tetrachloride	3.81E-05
Chlorobenzene	3.15E-05
Chloroform	2.96E-05
Chrysene	7.19E-07
Ethylene Dibromide	4.59E-05
Fluroanthene	1.15E-06
Fluorene	5.88E-06
Methanol	2.59E-03
Methylene Chloride	2.07E-05
n-Hexane	1.15E-03
Phenanthrene	1.08E-05
Phenol	2.49E-05
Pyrene	1.41E-06
Styrene	2.45E-05
Tetrachloroethane	2.57E-06

Table 4.6. Emission Rates for Compressors

Pollutant	Emission Rate (g/sec)
Toluene	4.23E-04
Vinyl Chloride	1.55E-05
Xylene	1.91E-04

An average emission rate of 1.45x10-7 g/sec hydrogen sulfide (H2S) was assumed for all glycol dehydrators (Trinity and Nicholls 2006). All H2S was assumed to convert to SO2 (ATSDR 1999) for the purposes of this assessment. Other emission estimates for glycol dehydrators are summarized in Table 4.7 and were derived from assumptions relating to glycol dehydrators in the Vernal FO (Trinity and Nicholls 2006).

Table 4.7. Emission Rates for Glycol Dehydrators

Pollutant	Emission Rate (g/sec)
SO2	5.32E-02
Benzene	3.68E-02
Ethylbenzene	6.70E-03
H2S	1.45E-07
Toluene	5.78E-02
Xylenes	1.09E-01

Flaring was assumed to be required in 60% or less of the producing wells. Flared gas was assumed to be "sweet" and contain no sulfur. Flaring emissions applicable to this analysis were assumed to be primarily NOx and CO. Flaring emissions and relative percentage of wells flared were calculated using the generalized flaring emissions identified for the Vernal FO RMP (Trinity and Nicholls 2006) and are summarized in Table 4.8.

Table 4.8. Emission Rates for Flaring

Pollutant	Emission Rate (g/sec)
CO	5.32E-02
NO_x	9.80E-03
PM_{10}	8.90E-04
$PM_{2.5}$	8.90E-04

Fugitive dust emissions were estimated using AP-42, Fifth Edition Section 13.2.2 for construction traffic on roads and Section 13.2.3 for heavy construction operations of well pads and new roads. Section 13.2.3 estimates total suspended particulates which are converted to PM10 by applying a conversion factor of 0.26 (Trinity and Nicholls 2006). Conversion from PM10 to PM2.5 is similarly achieved through a conversion factor of 0.15.

Construction activity was assumed to occur for 14 days for each well pad developed, both producing and dry. It was assumed that the control efficiency (PM10 and PM2.5) for watering was 25% on construction sites including the well pad and on new resource roads. It was assumed that watering of all exposed disturbance areas at the well pad site itself would occur as appropriate during the construction period. It was assumed that 10% of the roads would be watered. The control efficient for graveling roads was assumed to be 75%; 40% of new roads were assumed to be graveled. It was therefore assumed that 50% of new roads would receive no treatment to reduce fugitive dust. All of these assumptions were taken from the Vernal FO Air Quality Model Report and fugitive dust calculations (Trinity and Nicholls 2006). A total of 12 construction vehicles operating on-site at any one time were assumed with a total of 346 round trips (the majority of which are pick-up trucks for site visits). The average round trip distance was assumed to be 10 miles. Vehicle weights range from 8,000 lbs for a diesel pick-up truck to 85,000 lbs for diesel low-boy equipment haulers, cementer trucks, and completion rigs. It was assumed that all mobile vehicles would be working at any one time on-site. This scenario is assumed to be representative of periods of intense activity and, therefore, serves as a conservative estimate of critical conditions.

Soils in the MPA have been characterized as having low to moderate wind-erodibility. Soil moisture content of 5% and soil silt content of 5% were assumed.

In addition to construction-specific actions, some additional post-construction particulate (dust) emissions are projected to occur on a short-term basis due to loss of vegetation within the construction and staging areas. Given appropriate soil stabilization and revegetation measures, these emissions are projected to be minimal to negligible.

The contribution to the degradation of air quality from other [non-oil and gas] mineral development was considered nominal and oil and gas related activities were assumed to be the largest component of mineral related activity within the MPA. Therefore, only oil and gas related emissions were directly considered in assessing emissions.

4.3.1.3.2 ALTERNATIVE A

4.3.1.3.2.1 Impacts of Recreation and Travel Management Decisions on Air Quality

Recreation management decisions under Alternative A would maintain existing levels of motorized vehicle use without additional constraints. Projected effects on air quality would be primarily associated with combustion byproducts from automobiles, OHVs, and other hydrocarbon-combustion based transport, and surface disturbance related to off-trail and off-road activities. Projected air quality constituents of concern specific to recreational use include particulate matter (PM10 and PM2.5), hydrocarbons and combustion by-products.

As the locations of all existing and future recreation sites within the MPA are not presently known, precise quantification of air quality impacts is not possible. As the MPA is not currently experiencing non-attainment, continued recreational use at the existing level is not projected to result in long-term, project-wide exceedances of ambient air quality standards. However, if heavy recreational use occurs in a relatively small area, local conditions may exist that contribute to short-term exceedance of air quality standards.

Impacts of recreation management decisions that limit or reduce surface and vegetation disturbance, OHV and other off-trail access and improve existing roadway and trail surfaces are

generally projected to result in negligible impacts on short-term air quality and negligible to incrementally beneficial impacts on long-term air quality. Short-term benefits to air quality would most likely not be measurable in the overall project area. Long-term benefits would include incremental site-specific reductions in windborne particulate from reduced erosion of exposed soils as vegetation/soil cohesion improves over time.

Alternative A is the least restrictive of cross country driving of all the alternatives, and therefore has the lowest associated potential benefit to air quality but is not expected to result in a substantial decrease in air quality.

4.3.1.3.2.2 Impacts of Mineral Development Decisions on Air Quality

Impacts of mineral development management decisions under Alternative A would maintain existing levels of use without additional constraints. Four primary BLM leasing categories for oil and gas have been identified within this assessment as outlined in Table 4.48:

- Standard Lease Terms (Standard)
- Special Conditions, or Timing Limitations and/or Controlled Surface Use (Limited)
- No Surface Occupancy (NSO)
- Closed (Lands designated as closed are not available for oil and gas development activities and therefore were not included in this analysis)

Based on the proportion of BLM lands open for leasing and the RFD (BLM 2005f), it is estimated that 451 oil and gas wells would be drilled over the life of the RMP (Table 4.9) under Alternative A, and that 226 of these would produce oil or gas. Of the producing wells, 139 are estimated to require flaring (60%). The maximum number of well pads constructed per year is assumed to be 52 (See Section 4.3.7). Alternative A would require an estimated 21 compressors and 226 glycol dehydrators. Surface disturbance associated with these wells is estimated to involve approximately 6,765 acres over the life of the RMP. Oil and gas development is anticipated to occur in all RFD areas but is projected to be least likely to occur in the Roan Cliffs RFD area, while the Book Cliffs and Greater Cisco RFD areas are projected to experience the greatest amount of development. The greatest density of new wells is projected to occur in the Greater Cisco RFD area. Additional information on disturbance specific to salable resources, other leasable resources, and geophysical exploration is available in Section 4.3.7.3.2 Impacts of Mineral Resource Development Decisions on Mineral Resource Development. Calculated numbers of wells for each RFD area in Alternative A are also listed in Table 4.9.

Table 4.9. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative A over 15 years

RFD Area	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
Book Cliffs	104	52	32	4	52
Greater Cisco Area	196	98	59	7	98
Roan Cliffs	2	1	1	2	1
Salt Wash	13	7	5	2	7
Big Flat – Hatch Point	46	23	14	2	23
Lisbon Valley	56	28	17	2	28
Eastern Paradox	34	17	11	2	17
Total	**451**	**226**	**139**	**21**	**226**

Note: Calculations based on BLM lands only, and are specific to the life of the RMP (15 years).

[1] The number of oil and natural gas wells was calculated as a cumulative total, not independently. For the purpose of analyzing impacts of minerals decisions on the total number of oil and natural gas wells, BLM lands designated as No Surface Occupancy (NSO) were not considered open for development.

[2] Necessary compressors were calculated at 0.063 per producing well (minimum of 2 per RFD area). Necessary glycol dehydrators were calculated at 1 per producing well (Trinity and Nicholls 2006).

Total emissions (tons/year) of criteria pollutants and greenhouse gases from compressors, glycol dehydrators, flaring, and fugitive dust associated with construction activities for Alternative A are summarized in Table 4.10. The base-year emission inventory for Grand and San Juan Counties are also displayed for comparison purposes. Particulate emissions increases are expected to be 10% and 9% for PM10 and PM2.5 over base-year data respectively. A 2% increase in CO, a 7% increase in NOx, and a 5% increase in Volatile Organic Compounds (VOCs) over base-year emissions is also expected. VOCs and NOx are precursors to ozone formation. No base-year TOC data are available for comparison.

Table 4.10. Summary of Predicted Emissions and Comparison to Regional Base-year Emissions for the Moab FO Related to Expected Oil and Gas Development under Alternative A

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent change from Regional Base-year
CO	679	18,107	9,042	27,149	2%
NO_x	189	1,611	1,152	2,764	7%

Table 4.10. Summary of Predicted Emissions and Comparison to Regional Base-year Emissions for the Moab FO Related to Expected Oil and Gas Development under Alternative A

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent change from Regional Base-year
CO_2	83,271	No data	No data	No data	No data
PM_{10}	245	851	1,529	2,380	10%
$PM_{2.5}$	46	200	332	532	9%
SO_x	0.4	27	67	94	0%
VOC	1,744	36,803	1,533	38,337	5%
TOC	2,767	No data	No data	No data	No data

[1] 2005 Emission inventory obtained from Utah Division of Air Quality. URL: http://www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05_State_List.htm

[2] Regional base-year assumed to be total emissions in Grand and San Juan County.

Emissions of hazardous air pollutants (HAPs) are summarized in Table 4.11 for Alternative A. Base-year HAPs data from the State of Utah Division of Air Quality for Grand and San Juan Counties do not include emissions from existing oil and gas development and therefore were found not be appropriate for comparison. The largest projected emissions of HAPs are for benzene (290 t/year), toluene (455 t/year), and xylenes (858 t/year). All of the HAPs listed below with the exception of H2S and naphthalene are also considered VOCs and are included as such in the criteria pollutant discussion above.

Table 4.11. Predicted Emissions of Hazardous Air Pollutants (HAPs) for the Moab FO Related to Expected Oil and Gas Development Under Alternative A

Pollutant	Emissions from Compressors (t/year)	Emissions from Glycol Dehydrators (t/year)	Total Emissions (t/year)
Benzene	0.30	289	289.4
Ethylbenzene	0.03	52.7	52.7
Formaldehyde	40.0	0.0	40.0
H_2S	0.00	<0.001	0.0
Toluene	0.30	454.4	454.7
Xylenes	0.10	858.2	858.4
Other HAPs	13.80	-	13.8

4.3.1.3.3 ALTERNATIVE B

4.3.1.3.3.1 Impacts of Recreation and Travel Management Decisions on Air Quality

Under Alternative B, recreation management decisions would result in additional constraints to motorized vehicle use as compared to Alternative A.

Impacts of recreation management decisions under Alternative B are expected to be similar in nature, but more widespread than those described for Alternative A

In general, Alternative B allows no cross country driving, and is the most restrictive concerning surface-disturbing activities, and therefore has the highest potential for associated incremental benefit to air quality of all the proposed alternatives because cross country travel would be eliminated.

4.3.1.3.3.2 Impacts of Mineral Development Decisions on Air Quality

Based on the proportion of BLM lands open for leasing and the RFD (BLM 2005f), it is estimated that 264 oil and gas wells would be drilled over the life of the RMP (Table 4.12) under Alternative B, a decrease of approximately 41% from Alternative A. It is assumed that 134 wells would produce oil or gas. Of the producing wells, 83 are estimated to require flaring (60%). The maximum number of well pads constructed per year is assumed to be 29 (See Section 4.3.7). Alternative B would require an estimated 16 compressors and 134 glycol dehydrators. Surface disturbance associated with these wells is estimated to involve approximately 3,960 acres over the life of the RMP. Oil and gas development is anticipated to occur in all RFD areas but is projected to be least likely to occur in the Roan Cliffs RFD Area, while the Book Cliffs and Greater Cisco RFD Areas are projected to experience the greatest amount of development, similar to Alternative A. Additional information on disturbance specific to salable resources, other leasable resources, and geophysical exploration is available in Section 4.3.7.3.2 Impacts of Mineral Resource Development Decisions on Mineral Resource Development. Calculated numbers of wells for each RFD area in Alternative B are also listed in Table 4.12.

Table 4.12. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative B over 15 years

RFD Area	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
Book Cliffs	66	33	20	3	33
Greater Cisco Area	92	46	28	3	46
Roan Cliffs	1	1	1	2	1
Salt Wash	11	6	4	2	6
Big Flat – Hatch Point	19	10	6	2	10

Table 4.12. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative B over 15 years

RFD Area	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
Lisbon Valley	54	27	17	2	27
Eastern Paradox	21	11	7	2	11
Total	**264**	**134**	**83**	**16**	**134**

Note: Calculations based on BLM lands only, and are specific to the life of the RMP (15 years).

[1] The number of oil and natural gas wells was calculated as a cumulative total, not independently. For the purpose of analyzing impacts of minerals decisions on the total number of oil and natural gas wells, BLM lands designated as No Surface Occupancy (NSO) were not considered open for development.

[2] Necessary compressors were calculated at 0.063 per producing well (minimum of 2 per RFD area). Necessary glycol dehydrators were calculated at 1 per producing well (Trinity and Nicholls 2006).

Total emissions (tons/year) of criteria pollutants and greenhouse gases from compressors, glycol dehydrators, flaring, and fugitive dust associated with construction activities for Alternative B are summarized in Table 4.13. Baseline base-year emission inventory for Grand and San Juan Counties are also displayed for comparison purposes. Particulate emissions increases are expected to be 6% and 5% for PM10 and PM2.5 over base-year data respectively. A 2% increase in CO, a 5% increase in NOx, and a 4% increase in Volatile Organic Compounds (VOCs) over base-year emissions are also expected. VOCs and NOx are precursors to ozone formation. No base-year TOC data is available for comparison.

Table 4.13. Summary of Predicted Emissions and Comparison to Regional Base-year for the Moab FO Related to Expected Oil and Gas Development Under Alternative B

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent Change from Regional Base-year
CO	475	18,107	9,042	27,149	2%
NOx	136	1,611	1,152	2,764	5%
CO2	63,444	No data	No data	No data	No data
PM10	138	851	1,529	2,380	6%
PM2.5	27	200	332	532	5%
SOx	0.3	27	67	94	0%
VOC	1,049	36,803	1,533	38,337	4%
TOC	1,829	No data	No data	No data	No data

[1] 2005 Emission inventory obtained from Utah Division of Air Quality. URL: http://www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05_State_List.htm

[2] Regional base-year assumed to be total emissions in Grand and San Juan County.

Emissions of hazardous air pollutants (HAPs) are summarized in Table 4.14 for Alternative B. Base-year HAPs data from the State of Utah Division of Air Quality for Grand and San Juan Counties do not include emissions from existing oil and gas development and therefore were found not be appropriate for comparison. The largest projected emissions of HAPs are for benzene (172 t/year), toluene (270 t/year), and xylenes (509 t/year). All of the HAPs listed below with the exception of H2S and naphthalene are also considered VOCs and are included as such in the criteria pollutant discussion above.

Table 4.14. Predicted Emissions of Hazardous Air Pollutants (HAPs) for the Moab FO Related to Expected Oil and Gas Development under Alternative B

Pollutant	Emissions from Compressors (t/year)	Emissions from Glycol Dehydrators (t/year)	Total Emissions (t/year)
Benzene	0.3	171.4	172
Ethylbenzene	0.02	31.2	31.2
Formaldehyde	30.5	0	30.5
H_2S	0	<0.001	<0.001
Toluene	0.2	269.4	270
Xylenes	0.1	508.9	509
Other HAPs	10.5	0	10.5

4.3.1.3.4 Proposed Plan

4.3.1.3.4.1 Impacts of Recreation and Travel Management Decisions on Air Quality

Under the Proposed Plan, recreation management decisions would result in minor additional constraints to motorized vehicle use as compared to Alternative A.

Impacts of recreation management decisions under the Proposed Plan are expected to be similar in nature but more widespread than those described for Alternative A, and less widespread than those described for Alternative B

In general the Proposed Plan is less restrictive of surface-disturbing activities, including cross country driving, than Alternative B, and more restrictive than Alternatives D or A, with the potential for a moderate associated incremental benefit to air quality, because cross country travel would be allowed only on 1,866 acres.

4.3.1.3.4.2 Impacts of Mineral Development Decisions on Air Quality

Based on the proportion of BLM lands open for leasing and the RFD (BLM 2005f), it is estimated that 432 oil and gas wells would be drilled over the life of the RMP under the Proposed Plan (Table 4.15), a decrease of approximately 4% from Alternative A. It is assumed that 217 wells would produce oil or gas. Of the producing wells, 134 are estimated to require flaring (60%). The maximum number of well pads constructed per year is assumed to be 50 (See Section 4.3.7). The Proposed Plan would require an estimated 21 compressors and 217 glycol dehydrators. Surface disturbance associated with these wells is estimated to involve

approximately 6,480 acres over the life of the RMP (a decrease of approximately 4% from Alternative A). Oil and gas development is anticipated to occur in all RFD areas but is projected to be least likely to occur in the Roan Cliffs RFD Area, while the Book Cliffs and Greater Cisco RFD Areas are projected to experience the greatest amount of development, similar to Alternative A. Additional information on disturbance specific to salable resources, other leasable resources, and geophysical exploration is available in Section 4.3.7.3.2, Impacts of Mineral Resource Development Decisions on Mineral Resource Development. Calculated numbers of wells for each RFD area under the Proposed Plan are also listed in Table 4.15.

Table 4.15. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under the Proposed Plan over 15 years

RFD Area	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
Book Cliffs	104	52	32	4	52
Greater Cisco Area	197	99	60	7	99
Roan Cliffs	2	1	1	2	1
Salt Wash	11	6	4	2	6
Big Flat – Hatch Point	34	17	11	2	17
Lisbon Valley	56	28	17	2	28
Eastern Paradox	28	14	9	2	14
Total	**432**	**217**	**134**	**21**	**217**

Note: Calculations based on BLM lands only, and are specific to the life of the RMP (15 years).

[1] The number of oil and natural gas wells was calculated as a cumulative total, not independently. For the purpose of analyzing impacts of minerals decisions on the total number of oil and natural gas wells, BLM lands designated as No Surface Occupancy (NSO) were not considered open for development.

[2] Necessary compressors were calculated at 0.063 per producing well (minimum of 2 per RFD area). Necessary glycol dehydrators were calculated at 1 per producing well (Trinity and Nicholls 2006).

Total emissions (tons/year) of criteria pollutants and greenhouse gases from compressors, glycol dehydrators, flaring, and fugitive dust associated with construction activities for the Proposed Plan are summarized in Table 4.16. The base-year emission inventory for Grand and San Juan Counties are also displayed for comparison purposes. Particulate emissions increases are expected to be 10% and 8% for PM10 and PM2.5 over base-year data respectively. A 2% increase in CO, a 7% increase in NOx, and a 4% increase in volatile organic compounds (VOCs)

over base-year emissions are also expected. VOCs and NOx are precursors to ozone formation. No base-year TOC data is available for comparison.

Table 4.16. Summary of Predicted Emissions and Comparison to Regional Base-year for the Moab FO Related to Expected Oil and Gas Development Under the Proposed Plan

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent change from Regional Base-year
CO	669	18,107	9,042	27,149	2%
NO_x	187	1,611	1,152	2,764	7%
CO_2	83,271	No data	No data	No data	No data
PM_{10}	236	851	1,529	2,380	10%
$PM_{2.5}$	45	200	332	532	8%
SO_x	0.4	27	67	94	0%
VOC	1,678	36,803	1,533	38,337	4%
TOC	2,701	No data	No data	No data	No data

[1] 2005 Emission inventory obtained from Utah Division of Air Quality. URL: http://www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05_State_List.htm

Emissions of hazardous air pollutants (HAPs) are summarized in Table 4.17 for the Proposed Plan. Base-year HAPs data from the State of Utah Division of Air Quality for Grand and San Juan Counties do not include emissions from existing oil and gas development and therefore were found not be appropriate for comparison. The largest projected emissions of HAPs are for benzene (278 t/year), toluene (437 t/year), and xylenes (824 t/year). All of the HAPs listed below with the exception of H2S and naphthalene are also considered VOCs and are included as such in the criteria pollutant discussion above.

Table 4.17. Predicted Emissions of Hazardous Air Pollutants (HAPs) for the Moab FO Related to Expected Oil and Gas Development under the Proposed Plan

Pollutant	Emissions from Compressors (t/year)	Emissions from Glycol Dehydrators (t/year)	Total Emissions (t/year)
Benzene	0.3	277.54	278.0
Ethylbenzene	0.0	50.57	50.6
Formaldehyde	40.0	0.00	40.0
H_2S	0.0	<0.01	<0.01
Toluene	0.3	436.27	437.0
Xylenes	0.1	824.06	824.0
Other HAPs	13.8	0.00	13.8

4.3.1.3.5 ALTERNATIVE D

4.3.1.3.5.1 Impacts of Recreation and Travel Management Decisions on Air Quality

Under Alternative D, recreation management decisions would result in minor additional constraints to motorized vehicle use as compared to Alternative A.

Impacts of recreation management decisions under Alternative D are expected to be similar in nature and area of influence to those described for the Proposed Plan.

In general Alternative D is less restrictive of surface-disturbing activities, including cross country driving, than Alternatives B or C, and more restrictive than Alternative A, with the potential for a moderate associated incremental benefit to air quality.

4.3.1.3.5.2 Impacts of Mineral Development Decisions on Air Quality

Based on the proportion of BLM lands open for leasing and the RFD (BLM 2005f), it is estimated that 448 oil and gas wells would be drilled over the life of the RMP (Table 4.18), a decrease of approximately 0.7% from Alternative A. It is assumed that 225 wells would produce oil or gas. Of the producing wells, 138 are estimated to require flaring (60%). The maximum number of well pads constructed per year is assumed to be 52 (See Section 4.3.7). Alternative D would require an estimated 21 compressors and 225 glycol dehydrators. Surface disturbance associated with these wells is estimated to involve approximately 6,720 acres over the life of the RMP (a decrease of approximately 0.5% from Alternative A). Oil and gas development is anticipated to occur in all RFD areas but is projected to be least likely to occur in the Roan Cliffs RFD Area, while the Book Cliffs and Greater Cisco RFD Areas are projected to experience the greatest amount of development, similar to Alternative A. Additional information on disturbance specific to salable resources, other leasable resources, and geophysical exploration is available in Section 4.3.7.3.2, Impacts of Mineral Resource Development Decisions on Mineral Resource Development. Calculated numbers of wells for each RFD area in Alternative D are also listed in Table 4.18.

Table 4.18. Average Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative D over 15 years

RFD Area	Predicted Oil and Gas Wells[1]	Predicted Producing Oil and Gas Wells	Producing Oil and Gas Wells Estimated to Require Flaring	Estimated Compressors Necessary[2]	Estimated Glycol Dehydrators Necessary[2]
Book Cliffs	105	53	32	4	53
Greater Cisco Area	197	99	60	7	99
Roan Cliffs	2	1	1	2	1
Salt Wash	12	6	4	2	6
Big Flat – Hatch Point	44	22	14	2	22
Lisbon Valley	56	28	17	2	28
Eastern Paradox	32	16	10	2	16
Total	**448**	**225**	**138**	**21**	**225**

Note: Calculations based on BLM lands only, and are specific to the life of the RMP (15 years).

[1] The number of oil and natural gas wells was calculated as a cumulative total, not independently. For the purpose of analyzing impacts of minerals decisions on the total number of oil and natural gas wells, BLM lands designated as No Surface Occupancy (NSO) were not considered open for development.

[2] Necessary compressors were calculated at 0.063 per producing well (minimum of 2 per RFD area). Necessary glycol dehydrators were calculated at 1 per producing well (Trinity and Nicholls 2006).

Total emissions (tons/year) of criteria pollutants and greenhouse gases from compressors, glycol dehydrators, flaring, and fugitive dust associated with construction activities for Alternative D are summarized in Table 4.19. The base-year emission inventory for Grand and San Juan Counties are also displayed for comparison purposes. Particulate emissions increases are expected to be 10% and 9% for PM10 and PM2.5 over base-year data respectively. A 2% increase in CO, a 7% increase in NOx, and a 5% increase in volatile organic compounds (VOCs) over base-year emissions are also expected. VOCs and NOx are precursors to ozone formation. No base-year TOC data is available for comparison.

Table 4.19. Summary of Predicted Emissions and Comparison to Regional Base-year for the Moab FO Related to Expected Oil and Gas Development Under Alternative D

Pollutant	Estimated Emissions under Alternative A (t/year)	Grand County Base-year[1] (t/year)	San Juan County Base-year[1] (t/year)	Regional Base-year[2] (t/year)	Percent change from Regional Base-year
CO	677	18,107	9,042	27,149	2%
NO_x	189	1,611	1,152	2,764	7%
CO_2	83,271	No data	No data	No data	No data
PM_{10}	245	851	1,529	2,380	10%
$PM_{2.5}$	46	200	332	532	9%
SO_x	0.4	27	67	94	0%
VOC	1,736	36,803	1,533	38,337	5%
TOC	2,760	No data	No data	No data	No data

[1] 2005 Emission inventory obtained from Utah Division of Air Quality. URL: http://www.airquality.utah.gov/Planning/Emission-Inventory/2005_State/05_State_List.htm

[2] Regional base-year assumed to be total emissions in Grand and San Juan County.

Emissions of hazardous air pollutants (HAPs) are summarized in Table 4.20 for Alternative D. Base-year HAPs data from the State of Utah Division of Air Quality for Grand and San Juan Counties do not include emissions from existing oil and gas development and therefore were found not be appropriate for comparison. The largest projected emissions of HAPs are for benzene (288 t/year), toluene (453 t/year), and xylenes (855 t/year). All of the HAPs listed below with the exception of H2S and naphthalene are also considered volatile organic compounds and are included as such in the criteria pollutant discussion above.

Table 4.20. Predicted Emissions of Hazardous Air Pollutants (HAPs) for the Moab FO Related to Expected Oil and Gas Development Under Alternative D

Pollutant	Emissions from Compressors (t/year)	Emissions from Glycol Dehydrators (t/year)	Total Emissions (t/year)
Benzene	0.3	287.8	288
Ethylbenzene	0.03	52.4	52.5
Formaldehyde	40	0	40
H_2S	0	<0.01	<0.01
Toluene	0.3	452.4	453
Xylenes	0.1	854.4	855
Other HAPs	13.8	0	13.8

4.3.1.4 SUMMARY OF IMPACTS

Recreation and mineral management (oil and gas development) decisions would emit pollutants during operation (i.e., vehicle emissions, well operations, compressor engines, etc.), along with fugitive dust from public vehicle use, OHVs, construction and mineral development activities. Impacts to air quality from prescribed fire management decisions would generally be related to particulate matter (primarily PM2.5) and carbon dioxide (CO2). Impacts would generally be short term and would result in long-term benefits for other resources.

With respect to oil and gas development alternatives, all of the alternatives would lead to additional emissions and impacts to air quality. These impacts were not assessed quantitatively in terms of concentrations of criteria air pollutants as the methodology employed in this analysis, an emissions inventory, precludes such analyses. However, the analysis provides for comparison to base-year emissions and a relative comparison among alternatives. The Proposed Plan would result in a 10% and 8% increase of PM10 and PM2.5 emissions over base-year data respectively. Increases in NOx and VOCs over base-year, the precursors for ozone formation, would be 7% and 4% respectively. This slight increase in emissions could affect ozone concentrations in Canyonlands National Park which are already close to the new 8-hr standard of 0.072 ppm (see Chapter 3, Section 3.2.1.1). Of all of the alternatives analyzed, Alternative B is the most protective of air quality with total emissions ranging from 24 to 44% less than Alternative A for individual pollutants. The differences in air emissions between Alternative A and the Proposed Plan are very small (Table 4.21).

Table 4.21. Comparison Among Alternatives of Emitted Pollutants Associated with Oil and Gas Development

	Alt. A	Alt B		Proposed Plan		Alt. D	
	Total Emissions (t/year)	Total Emissions (t/year)	Compare to Alt A	Total Emissions (t/year)	Compare to Alt A	Total Emissions (t/year)	Compare to Alt A
Criteria pollutants and greenhouse gases							
CO	679	474.8	-30%	669	-1%	677	-0.30%
NO_x	189	136.2	-28%	187	-1%	189	-0.20%
CO_2	83,271	63,444.5	-24%	83,271	0%	83,271	0.00%
PM_{10}	245	138	-44%	236	-4%	245	0.00%
$PM_{2.5}$	46	27	-41%	45	-3%	46	-0.00001
SO_x	0.4	0.3	-24%	0.4	0%	0.4	0.00%
VOC	1,744	1,049	-40%	1,678	-4%	1,736	-0.40%
TOC	2,767	1,829	-34%	2,701	-2%	2,760	-0.30%
Hazardous Air Pollutants							
Benzene	289	172	-41%	278	-4%	288	-0.40%
Ethylbenzene	53	31	-41%	51	-4%	52	-0.40%
Formaldehyde	40	30	-24%	40	0%	40	0.00%

Table 4.21. Comparison Among Alternatives of Emitted Pollutants Associated with Oil and Gas Development

	Alt. A	Alt B		Proposed Plan		Alt. D	
	Total Emissions (t/year)	Total Emissions (t/year)	Compare to Alt A	Total Emissions (t/year)	Compare to Alt A	Total Emissions (t/year)	Compare to Alt A
H2S	0	0	-41%	0	-4%	0	-0.40%
Toluene	454	269	-41%	436	-4%	452	-0.40%
Xylenes	856	508	-41%	822	-4%	853	-0.40%
Other HAPS	13.8	10.5	-24%	13.8	0%	13.8	0.00%
Total Hazardous Air Pollutants	**1,707**	**1,021.2**	**-40%**	**1,641**	**-4%**	**1,699**	**-0.40%**

4.3.2 Cultural Resources

This section presents the impacts to cultural resources from management actions discussed in Chapter 2. Existing conditions concerning cultural resources are described in Chapter 3.

The required consultations for Section 106 of the National Historic Preservation Act are in progress and will be completed prior to signature of the ROD. The BLM has forwarded to the Utah State Historic Preservation Office a determination that, although in some cases, management actions in this plan may have a potential to affect historic properties, there would be no adverse affect to these historic properties.

Impacts to the cultural resources of the MPA could primarily result from activities associated with surface and subsurface disturbance such as development projects, recreational use/OHV travel, and fire management. However, impacts may also result from specific cultural resource management decisions and from non-surface-disturbing activities that create visual and/or auditory effects. These latter impacts would apply primarily to sites or locations deemed sacred or traditionally important by Native American tribes and used by these groups in such a manner that visual obstructions and/or noise levels impinge upon that use. Impacts to cultural resources may be indirect, negligible, or non-existent from decisions related to some resource programs. In particular, management decisions for air quality, health and safety, soil and water, wildlife, and special status species are expected to have little or no direct or indirect effect on cultural resources within the MPA. Those actions, determined by the BLM IDT through best professional judgment as having little or no potential for impacts on cultural resources, will not be considered further in this analysis. All other management decisions with the potential to impact cultural resources either beneficial or adverse are discussed in subsequent sections of this chapter. Impacts to cultural resources from program decisions are considered to be long-term for the purpose of this analysis.

Because the majority of cultural resources that have been identified in the MPA consist of archaeological sites, the primary concern for impacts relates to disturbance of the artifacts, features, and architecture of sites in ways that reduce their integrity, alter their association with

traditional values, and reduce the potential to recover data. Archaeological data consist of both "objects"(in the broad sense of artifacts, architecture, features, etc.), and the horizontal and vertical relationships between these objects. Our ability to interpret and understand the past is based on recovering not only the material culture of the past in the form of artifacts, buildings, and the built environment, but the spatial relationships between different aspects of material culture. Consequently, surface and subsurface disturbances have the greatest potential for adverse impacts on cultural resources. Impacts can include elimination or reduction of the setting and physical integrity of a sacred or other site, including National Register-eligible sites, landscapes, and cultural theme areas. Other impacts may include disruption or reduction of the religious values of sites and areas, reduction in the data potential of a site, and damage to traditional collection areas or resource sites. In general, impacts on cultural resources from surface disturbance are long-term and permanent; once an archaeological site has been impacted, the effect typically cannot be reversed. However, as stated previously, short-term effects from visual or auditory impacts may occur, and can often be mitigated or accommodated.

Potential impacts to specific cultural resources from the various proposed management alternatives are difficult to quantify precisely. The management alternatives neither stipulate precise areas for surface-disturbing activities, nor are the precise locations of all cultural resources in the area known. However, it is possible to estimate impacts based on the proposed general locations of activities and the relationships of these planning areas to zones of high or low probability of containing cultural resources.

4.3.2.1 Analysis Considerations

A model of cultural resource site density was developed as a means of estimating the general densities of sites at a landscape level. This model was developed by a professional BLM archaeologist using environmental variables that are known to coincide with land-use actions. The following variables were used to predict the occurrence of cultural sites in the MFO:

- Lands within 0.5 mile of a spring
- Lands within 1 mile of a river or major drainage
- Lands within 0.5 mile of intermittent streams
- Lands within 300 meters of a riparian area
- Lands classified as Piñon-Juniper from Southwest Regional Gap Analysis Project (SWREGAP) data
- Lands classified as sand dunes using SWREGAP data
- Lands within the following geologic types: Summerville Formation, Entrada sandstone, Morrison Formation, Navajo Sandstone, Alluvial and Aeolian deposits, Cedar Mountain Formation, and Wingate sandstone

If only one of the above variables was present within a given area of the MPA, the area was classified as low probability for archeological sites. If two variables were present, the area was classified as medium probability for archeological sites. If an area had three or more variables, it was classified as high probability for archeological sites. To test the model, the MFO took all known (4,259) sites in the field office area and intersected them with the probability coverage. The assumption was made that if a point intersected with a medium or high probability polygon, it was a correct classification; if the point intersected a low polygon, it was an incorrect

classification. Using a 15-meter buffer, the model correctly classified sites to 73% accuracy. That is, 3,103 of the 4,259 sites fell within the high or medium probability polygons.

While the site density prediction model used in this analysis is by no means a perfect predictor of site density, it is sufficiently accurate (73% success rate) to be utilized as a tool for analyzing potential relative involvement of cultural resource sites in management decisions. It is therefore used in analyses in the RMP as a means of gauging whether a particular alternative would involve more acres of high or medium site density land than another. The model is not used to predict numbers of sites involved in decisions, nor should it be considered a replacement for full inventory for sites prior to surface disturbance or as a substitute for the Section 106 process of the National Historic Preservation Act.

Impacts of many of the proposed management actions are assessed in the following sections with regard to how much of the action is likely to result in surface-disturbing activities within the high or medium density zones. For the purpose of analysis, it is assumed that the potential for disturbance in high and medium site density areas is proportional to the total acres of land in each site density category within the area where the disturbance would take place. For example, assume that a particular area contains 100 acres, 20 acres (20%) of which are classified by the site density model as having high site density and 80 acres (80%) of which are classified as having low site density. Assume also that a particular management decision is expected to result in a total of 50 acres of disturbance within the 100-acre area. For the purpose of the analysis of impacts to cultural resources described in this document, it would be assumed that 10 acres (20%) of that disturbance would be located in the high site density area, and 40 acres (80%) of the disturbance would be located in the low site density area. Again, while not precise, this method enables a quantifiable assessment of probable relative effect(s) of planning action alternatives.

4.3.2.2 Impacts Common to All Alternatives, Including the Proposed Plan

Certain management decisions for cultural resources would apply to all alternatives and would impact such resources equally regardless of the alternative. Table 4.22 summarizes the anticipated impacts to cultural resources that may be anticipated under all alternatives.

Table 4.22. Impacts Common to All Alternatives

Resource Program	Impact on Cultural Resources
Cultural Resources	Compliance with all existing statutes, regulations, formal agreements, Executive Orders, and policies applicable to cultural resources, including the NHPA, NAGPRA, and existing treaties and trust agreements, would reduce opportunities for short- and long-term, adverse impacts to cultural resources. Application of avoidance measures as part of compliance with Federal laws such as the NHPA would provide for long-term beneficial impacts to cultural resource sites.

Table 4.22. Impacts Common to All Alternatives

Resource Program	Impact on Cultural Resources
Fire Management	Protection of cultural resources was a key factor in determining fuels treatment and fire response actions included in the Moab Fire Management Plan (Moab FMP). As such, fire management in the MPA already includes measures to limit overall impacts on cultural resources. A total of 15,500 acres would be treated through prescribed fire every 10 years. Approximately 5,860 acres of those treatments would occur in high cultural resource site density areas, and 6,217 acres would occur in the medium site density areas. An additional 7,450 acres would be treated through non-fire treatments, with approximately 1,347 acres of those treatments occurring in high site density areas and 3,063 acres occurring in medium site density areas. Reducing fuel loads reduce the risks of catastrophic fires that can damage cultural resources. BLM fire management policy is to conduct cultural resource identification surveys prior to treatment for fuels reduction through non-fire treatments or prescribed fire. As such, the actual risk to cultural resources within the MPA from fire management decisions is considered low. Up to 40,000 acres every 10 years would be treated through use of wildland fire. Of this area, approximately 6,360 acres would be in high site density areas and 20,700 acres would be in medium site density areas.
Lands and Realty	WSAs and WAs would be exclusion zones for rights-of-way, which would afford a certain level of long-term benefit to cultural resources from reductions in ground disturbance and less human activity in the vicinity of sites. Continuation of mineral withdrawals for 78,333 acres of land would eliminate one source of potential ground disturbance and related secondary impacts to cultural resources over the short and long terms.
Livestock Grazing	Grazing would not be authorized on approximately 48,220 acres on several allotments in the MPA. Cultural resource sites within these allotments, regardless of site density, would experience long-term beneficial impacts as a result of reduced opportunities for trampling by livestock.

Table 4.22. Impacts Common to All Alternatives

Resource Program	Impact on Cultural Resources
Minerals	Approximately 353,510 acres within WSAs and Wilderness Areas would be closed to mineral leasing and development. Cultural resources within these closed areas would experience long-term beneficial impacts from reduced opportunities for both direct and indirect impacts resulting from surface disturbance and increased human presence that accompany mineral development. Outside of closed areas, application of BLM's standard policies and adherence with Federal cultural resource legislation as part of authorizing or permitting use of minerals resources includes measures for identifying cultural resources prior to development and avoidance, minimization, and/or mitigation measures to reduce potential adverse impacts to cultural resources. However, areas open to mineral development do pose some indirect, yet unquantifiable risk to cultural resources. An estimated 173 acres of high site density lands and 345 acres of medium site density lands within the MPA would be subject to potential surface disturbance over the life of the RMP for development of non-oil and gas leasable minerals, and locatable minerals. BLM would implement the Section 106 process for all mineral development, thereby providing opportunity to avoid, minimize, or mitigate potential direct adverse impacts to cultural resources. Indirect adverse impacts to cultural resources would likely still occur from increased human activity associated with minerals development on MPA lands, which often leads to inadvertent impacts, vandalism, and looting. Mineral withdrawals would apply to 41,488 acres of high site density lands and 26,298 acres of medium site density lands.
Non-WSA Lands with Wilderness Characteristics	There are no actions common to all alternatives for wilderness characteristics.
Paleontological Resources	Paleontological program decisions have the potential for minimal, indirect impacts, both adverse and beneficial, on cultural resources. Cultural resources could indirectly benefit from pre-development paleontological surveys in that such resources could be identified as a result of fossil surveys and avoided during development. Cultural resources could experience adverse impacts as an indirect result of existing permissions to collect certain types of fossil materials from BLM lands within the MPA. Casual collectors may not distinguish between paleontological materials and cultural resources or may not recognize that permissions to collect fossil materials do not also extend to cultural artifacts.
Recreation	Management of recreation stresses maintenance of rangeland health, which provides limited short- and long-term benefits to cultural resources through measures reducing ground disturbance and natural resource degradation. However, without additional measures focused on cultural resources, long-term adverse impacts may occur.

Table 4.22. Impacts Common to All Alternatives

Resource Program	Impact on Cultural Resources
Special Designations	A total of 71,460 acres in WSAs are located on lands classified as having high cultural resource site density. Another 172,334 acres are located on lands classified as having medium cultural resource site density. The same acres would be included in WSAs for all alternatives. Management of WSAs under the IMP includes restrictions on surface disturbance. These restrictions limit surface disturbance for new actions (valid existing rights and other pre-existing authorizations are recognized) to a level of disturbance that does not impair the wilderness suitability of the WSA in question. Because of these restrictions on surface-disturbing activities, cultural resources within these areas of special designation would experience long-term indirect beneficial impacts through reduced opportunities for inadvertent disturbance. There are no actions Common to All Alternatives concerning ACECs or WSRs.
Visual Resources	Designation of WSAs and designated wilderness as VRM Class I would reduce opportunities for direct and indirect adverse impacts to cultural resources within those areas because surface-disturbing activities are excluded, thereby resulting in potential long-term, beneficial impacts to these resources.
Woodlands	Woodland harvest would result in long-term beneficial impacts on traditional cultural practices of Native Americans, and potential long-term beneficial impacts to cultural resources from reductions in fuels loading and a resulting reduction in the probability of catastrophic wildfire, which can severely damage certain types of cultural resources. Woodland harvest could have potential inadvertent indirect impacts to cultural resources from the cross country driving and surface disturbance associated with woodcutting activities.

* high and medium site density land figures were derived from RFD impact tables with the assumption that the distribution of potential impact over the high and medium site density areas would be comparable to the ratio of high to medium density area within the combined WSAs and Was

4.3.2.3 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Certain management decisions within this EIS are common to only the action alternatives (Alternatives B, D, and the Proposed Plan) and not to Alternative A. These decisions have the potential to result in impacts to cultural resources within the MPA. Table 4.23 summarizes the potential impacts to cultural resources that could occur from these common actions under Alternatives B, D, and the Proposed Plan. Fire management decisions apply to all alternatives, including Alternative A, and are discussed in Section 4.3.2.2.

Table 4.23. Impacts Common to All Action Alternatives

Resource Program	Impact on Cultural Resources
Cultural Resources	Cultural resources would experience long-term, beneficial impacts from reduced opportunities for direct and indirect disturbance associated with recreational activities, improper livestock grazing, and OHV use. Specific provisions would be implemented to minimize or mitigate ongoing conflicts between cultural resources and other authorized land uses. A focus on proactive site inventory would expand the BLM's knowledge of the cultural resources under its jurisdiction and help the agency to refine management strategies. The identification of cultural resource sensitive areas would reduce opportunities for adverse impacts to cultural resources in those areas. The development of CRMPs for seven culturally sensitive areas would better integrate the management of cultural resources in these areas with management of other resources and land uses, which should benefit cultural resources.
Livestock Grazing	Identification and implementation of appropriate utilization levels would help reduce grazing intensity and the attendant erosion, which can directly and indirectly adversely impact cultural resources.
Minerals	The application of NSO stipulations for the protection of natural resource values and recreational opportunities in the Three Rivers and Westwater Mineral Withdrawal areas would indirectly benefit cultural resources in these areas by reducing potential sources of ground disturbance and human activity. Applications of NSO stipulations in the Moab and Spanish Valleys, Castle Valley (including Mayberry Orchard), Thompson Springs, Moab Landfill, Moab Airport and Dead Horse Point State Park would provide long-term indirect benefits to cultural resources for the same reason.
Paleontological Resources	Impacts would be effectively the same as described for all alternatives (Table 2.1).
Recreation	Management of recreational activity to sustain other resource values, including cultural resources, would provide long-term benefit to cultural resources by curtailing activities that have direct and indirect adverse impacts on these resources. Allowance of dispersed camping throughout much of the MPA places cultural resources in those areas at risk for long-term adverse impacts from direct disturbance, vandalism, and looting. More concerted development and promotion of recreational trails provides opportunities to educate the public about cultural resource preservation, thereby benefiting these resources. Development of SRMAs would have similar potential for beneficial impacts as described for recreational trails.
Travel Management	OHV use would be restricted to designated routes, resulting in variable beneficial impacts to cultural resources.
Woodlands	Restrictions on fuelwood gathering in riparian areas would reduce opportunities for adverse impacts to cultural resources. Closure of areas to wood gathering and wood harvest when unacceptable impacts to sensitive resources are identified would help minimize adverse impacts to cultural resources, though mitigation of adverse impacts for previously impacted cultural sites may be necessary.

4.3.2.4 ALTERNATIVES IMPACTS

Proposed management decisions for many resource programs within the MPA vary by alternative. The potential impacts of these varying decisions are discussed in the following sections by alternative.

4.3.2.4.1 ALTERNATIVE A

Impacts to cultural resources under Alternative B incorporate all of the impacts discussed in Section 4.3.2.2, Impacts Common to All Alternatives. Additional impacts to cultural resources under Alternative B, excluding special designations, are described in Table 4.25. Because special designations incorporate an array of individualized management actions, the impact of their associated decisions on cultural resources is discussed separately, following Table 4.24. There are no alternative-specific management actions for fire or paleontological resources.

Table 4.24. Impacts to Cultural Resources Under Alternative A

Resource Program	Impact on Cultural Resources
Cultural Resources	Current levels of beneficial and adverse impacts to cultural resources from authorized land uses would continue. All sites would be allocated to scientific use.
Lands and Realty	Designated utility corridors would encompass 3,776 acres of high site density lands and 7,930 acres of medium site density lands. This represents approximately 1.2% each of all high and medium site density lands in the MPA.
Livestock Grazing	Grazing would not be available on 126,907 acres of land (which is less than Alternative B, but more than Alternatives C or D). Grazing would not be available on 8% (24,329 acres) of high site density lands and 9% (55,395 acres) of medium site density lands within the MPA. Grazing would be allowed on 278,247 acres (92%) of high site density lands and 569,771 acres (92%) of medium site density lands. Cultural resources in areas available for grazing could experience minimal long-term adverse impacts from trampling and rubbing (e.g., on rock art panels) by livestock. All eligible sites would be mitigated. Cultural resources in areas not available for grazing would experience long-term benefits from reduced opportunities for direct and indirect impacts.
Minerals—oil and gas—Book Cliffs RFD	Approximately 79 acres of ground disturbance involving soil movement in high site density areas and 645 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.4% of all high site density lands and 0.6% of all medium site density lands in the RFD area. Standard BLM policy and the Section 106 process would be applied to all applications for disturbance, thereby reducing opportunities for direct adverse impacts related to this disturbance. Inadvertent impacts and impacts from vandalism and looting that may accompany increased human activity in developed areas may occur.
Minerals—oil and gas—Greater Cisco RFD	Approximately 110 acres of disturbance in high site density areas and 490 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.8% of all high site density lands and 1% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.

Table 4.24. Impacts to Cultural Resources Under Alternative A

Resource Program	Impact on Cultural Resources
Minerals—oil and gas—Roan Cliffs RFD	Approximately 3 acres of disturbance in high site density areas and 14 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.01% of all high site density lands and 0.03% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Salt Wash RFD	Approximately 17 acres of disturbance in high site density areas and 52 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.3% of all high site density lands and 0.3% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Big Flat-Hatch Point RFD	Approximately 151 acres of disturbance in high site density areas and 203 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.2% of all high site density lands and 0.2% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Lisbon Valley RFD	Approximately 174 acres of disturbance in high site density areas and 361 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.7% of all high site density lands and 0.7% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Eastern Paradox RFD	Approximately 84 acres of disturbance in high site density areas and 163 acres in medium site density areas would occur over the life of the RMP. This represents approximately 0.07% of all high site density lands and 0.07% of all medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—geophysical	An estimated 407 acres (0.1%) of land in high site density areas within the MPA and 815 acres (0.1%) of medium site density lands would be subject to disturbance for geophysical work over the life of the RMP. Cultural resources in these areas would be available for long-term adverse impacts. Adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts occurring as a result of geophysical activities.
Minerals—salable (mineral materials)	A total of 1,467,768 acres is available for the disposal of salable minerals. Although adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts, the greater the area available for salable minerals disposal, the greater potential for adverse impacts because of possible inadvertent impacts.
Non-WSA Lands with Wilderness Characteristics	There are no specific management actions related to non-WSA lands with wilderness characteristics under Alternative A.

Table 4.24. Impacts to Cultural Resources Under Alternative A

Resource Program	Impact on Cultural Resources
Recreation	Approximately 49,543 acres of high site density lands and 37,418 acres of medium site density land would be managed within SRMAs. This represents approximately 16% of all high site density lands and 6% of all medium site density lands in the MPA. The management and education of recreationists would generally have long-term beneficial impacts on cultural resources as direct and indirect disturbance of sites would be less likely occur either intentionally (e.g., vandalism and looting) or inadvertently. Careful monitoring by the BLM of site condition in these areas would help identify unacceptable impacts early on and allow for implementation of minimization and/or mitigation measures to address these impacts.
Special Designations	Although none of the eligible WSRs would be determined and managed as suitable for congressional wild and scenic designation in this alternative, they would all remain eligible and would continue to be managed to protect their outstandingly remarkable values, tentative classifications, and free-flowing nature on a case-by-case basis. This would provide a temporary benefit to cultural resources by reducing potential for direct and indirect impacts to site."
Travel Management	Approximately 1,049 acres (0.3%) of high site density lands and 1,844 acres (0.3%) of medium site density lands would be closed to OHV use. Approximately 208,757 acres (69%) of high site density lands and 386,579 acres (62%) of medium site density lands would be in areas where OHV use is limited to designated routes, and 92,628 acres (31%) of high site density lands and 236,593 acres (38%) of medium site density lands open to cross country OHV use. Cultural resources in areas closed to OHV use would experience long-term reductions in risks of direct and indirect adverse impacts. Cultural resources located in areas limited to OHV use on designated routes would experience variable beneficial and adverse impacts in that cultural resources in areas located off of designated routes would experience lower levels of disturbance, but cultural resources located adjacent to designated routes would likely experience more concentrated disturbance. Cultural resources located in areas open to cross country OHV use would experience current, or potentially increased, levels of adverse impacts from direct and indirect disturbances. Alternative A would have more high and medium site density lands open to cross country OHV use and less closed to OHV use than any other alternative. Existing travel routes would remain open and available for use under current conditions. Existing levels of direct and indirect impacts, primarily adverse, to cultural resources would continue to result from inadvertent and induced impacts associated with human activity in areas containing sites. There are 148.2 miles of route identified as having possible cultural conflicts.
Visual Resources	Designation of 72,609 acres (24%) of high site density lands and 174,085 acres (28%) of medium site density lands as VRM Class I conditions would benefit cultural resources in those areas by limiting surface-disturbing activities and the associated human activity.

Table 4.24. Impacts to Cultural Resources Under Alternative A

Resource Program	Impact on Cultural Resources
Woodlands	Woodland products use would be prohibited on 144,146 acres (47%) of high site density lands and 252,959 acres (40%) of medium site density lands within the MPA. Use of woodland products would be allowed on 158,768 acres (53%) of high site density lands and 372,944 acres (60%) of medium site density lands. Cultural resources in areas open to woodland products use could experience long-term adverse impacts from direct disturbance (e.g., being driven over or subject to other surface disturbance such as mixing of soils containing artifacts in work areas and loading sites) or indirect disturbance (e.g., vandalism and looting). It is important to note that not all areas open to woodland products use contain actual woodlands that would be targeted for use; therefore, the actual acres of high / medium site density lands on where wood gathering or harvest would occur is expected to be much less than the sum total of lands open for such activities.

Special designations management decisions under Alternative A would have both direct and indirect long-term impacts on cultural resources within the MPA. Special designations include WSAs, ACECs, and WSRs. The impact to cultural resources of management actions under WSAs were discussed under Impacts Common to All Alternatives.

The Negro Bill ONA is largely within a WSA and the restrictions associated with WSA were discussed in Impacts Common to All Alternatives. No WSRs would be established under this alternative. Portions of the ONA that would be managed under WSA special designations under Alternative A include approximately 243 acres of lands with high cultural resource site density. This area would be managed with restrictions on surface disturbance to protect non-motorized recreational (i.e., hiking) opportunities and outstanding natural resources. These restrictions would provide long-term benefit to cultural resources by reducing opportunities for direct and indirect impacts to sites.

Other areas of the MPA to be designated ACECs under the action alternatives to protect relevant and important cultural values would not be designated under Alternative A. These areas would generally be managed to be consistent with the surrounding land management strategy and would, in most cases, allow for surface disturbance that could adversely impact cultural resources.

4.3.2.4.2 ALTERNATIVE B

Impacts to cultural resources under Alternative B incorporate all of the impacts discussed in Section 4.3.2.2, Impacts Common to All Alternatives. Additional impacts to cultural resources under Alternative B, excluding special designations, are described in Table 4.25. Because special designations incorporate an array of individualized management actions, the impact of these designations on cultural resources is discussed separately, following Table 4.25. There are no alternative-specific management actions for fire or paleontological resources.

Table 4.25. Impacts to Cultural Resources Under Alternative B

Resource Program	Impact on Cultural Resources
Cultural Resources	Priority for new inventory and assessment would encompass 50,000 acres, resulting in refined knowledge of cultural resources within the MPA and a better ability to manage these resources effectively. More sites would be targeted for restoration and nomination to the NRHP under this alternative than under any other alternative, and fewer sites would be allocated or developed for public use. Restoration of damaged sites would result in long-term benefits to the targeted sites. Public interpretation of sites has both short-term and long-term beneficial and adverse impacts to cultural resources through raising awareness of the presence of such resources in the area and educating the public about protection of cultural sites. While education may encourage visitors to be more careful around cultural sites and avoid collecting or moving artifacts, raising the awareness of sites in a given area may lead some visitors to seek out unprotected sites for the purpose of looting.
Lands and Realty	Designation of ACECs as avoidance areas for rights-of-way would provide long-term benefits to cultural resources in these areas by removing one potential source of ground disturbance and related indirect adverse impacts. Designated utility corridors would encompass 6,309 acres (2%) of high site density lands and 17,056 acres (3%) of medium site density lands. Cultural resources within these utility corridors would be vulnerable to adverse impacts from development of the utilities. Application of BLM standard procedures and the Section 106 process would reduce opportunities for such impacts and allow for avoidance, minimization, or mitigation of potential adverse impacts to a large degree.
Livestock Grazing	Grazing would be removed from or restricted in certain known high (sensitive) site density areas and would provide beneficial impacts to cultural resources from reduced opportunities for trampling, rubbing, and erosion from loss of vegetation. More such areas would exist under Alternative B (153,797 acres) than under any other alternative. Grazing would be prohibited on 29,758 acres (10%) of high site density lands and 63,524 acres (10.0%) of medium site density lands within the MPA. Grazing would be allowed on 272,818 acres (90%) of high site density lands and 561,641 acres (90%) of medium site density lands. Cultural resources in areas available for grazing could experience minimal long-term adverse impacts from trampling and rubbing (e.g., on rock art panels) by livestock. All eligible sites would be mitigated. Cultural resources in areas not available for grazing would experience long-term benefits from reduced risk for direct and indirect impacts.
Minerals—oil and gas—Book Cliffs RFD	Approximately 41 acres of disturbance in high site density areas and 438 acres in medium site density areas would occur over the life of the RMP. This represents 0.2% of high site density lands and 0.4% of medium site density lands in the RFD area. Standard BLM policy and the Section 106 process would be applied to all applications for disturbance, thereby reducing opportunities for direct adverse impacts related to this disturbance. Inadvertent impacts and impacts from vandalism and looting that may accompany increased human activity in developed areas may occur.

Table 4.25. Impacts to Cultural Resources Under Alternative B

Resource Program	Impact on Cultural Resources
Minerals—oil and gas—Greater Cisco RFD	Approximately 70 acres of disturbance in high site density areas and 253 acres in medium site density areas would occur over the life of the RMP. This represents 0.5% of high site density lands and 0.6% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Roan Cliffs RFD	Approximately 6 acres of disturbance in medium site density areas would occur over the life of the RMP. This represents 0.01% of medium site density lands in the RFD area. No high site density lands would likely be impacted. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Salt Wash RFD	Approximately 23 acres of disturbance in high site density areas and 41 acres in medium site density areas would occur over the life of the RMP. This represents 0.4% of high site density lands and 0.3% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Big Flat-Hatch Point RFD	Approximately 55 acres of disturbance in high site density areas and 76 acres in medium site density areas would occur over the life of the RMP. This represents 0.08% of high site density lands and 0.08% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Lisbon Valley RFD	Approximately 162 acres of disturbance in high site density areas and 349 acres in medium site density areas would occur over the life of the RMP. This represents 0.7% of high site density lands and 1.5% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Eastern Paradox RFD	Approximately 44 acres of disturbance in high site density areas and 100 acres in medium site density areas would occur over the life of the RMP. This represents 0.04% of high site density lands and 0.04% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—geophysical	An estimated 239 acres (0.08%) of land in high site density areas within the MPA and 477 acres (0.08%) of medium site density lands would be subject to disturbance for geophysical work over the life of the RMP. Cultural resources in these areas could be subject to long-term adverse impacts. However, adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts occurring as a result of geophysical activities.
Minerals—salable (mineral materials)	A total of 836,137 acres is available for the disposal of salable minerals. Although adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts, the greater the area available for salable minerals disposal, the greater the potential for adverse impacts because inadvertent damage could occur.

Table 4.25. Impacts to Cultural Resources Under Alternative B

Resource Program	Impact on Cultural Resources
Non-WSA Lands with Wilderness Characteristics	Management of 47,784 acres (16%) of high site density lands and 83,191 acres (13%) of medium site density lands for protection of wilderness characteristics would benefit cultural resources in those areas by limiting surface-disturbing activities and the associated human activity.
Recreation—SRMAs	Approximately 217,994 acres of high site density lands and 391,125 acres of medium site density land would be managed within SRMAs. This represents 72% of high site density lands and 63% of medium site density lands in the MPA. By managing and educating recreationists in these areas, long-term adverse impacts on cultural resources would be reduced. Careful monitoring by the BLM of site condition in these areas would help identify unacceptable impacts early on and allow for implementation of minimization and/or mitigation measures to address these impacts. Given that Alternative B would encompass less recreational development and slightly greater restriction on camping locations and group sizes, impacts to cultural resources under this alternative would be expected to be less than under any other alternative.
Travel Management	Approximately 72,415 acres (24%) of high site density lands and 173,703 acres (28%) of medium site density lands would be closed to OHV use. Approximately 230,160 acres (76%) of high site density lands and 451,446 acres (72%) of medium site density lands would be where OHV use is limited to designated routes. No areas would be open to cross country OHV. Cultural resources in areas closed to OHV use would experience long-term reductions in opportunities for direct and indirect adverse impacts. Cultural resources located in areas where OHV use is limited to designated routes would experience variable beneficial and adverse impacts Approximately 327 linear miles of existing travel routes in high site density areas and 646 miles in medium site density areas would be closed to travel. Cultural resources in these areas would experience moderate, long-term beneficial impacts from reduced opportunities for inadvertent impacts, looting, and vandalism. Existing levels of direct disturbance of cultural sites from foot and motorized traffic along travel routes would continue at current levels. Additionally, indirect impacts such as increased risk of looting and vandalism from users of travel routes would also continue to occur at levels similar to Alternative A. There are 148.2 miles of designated routes with possible cultural conflicts. In Alternative B, 46.5 miles of these routes are not identified for travel.
Visual Resources	Designation of 106,105 acres (35%) of high site density lands and 212,017 acres (34%) of medium site density lands for VRM Class I would benefit cultural resources in those areas by limiting surface-disturbing activities with associated reductions in human activity, reducing both direct disturbance impacts and indirect risks of vandalism and looting.

Table 4.25. Impacts to Cultural Resources Under Alternative B

Resource Program	Impact on Cultural Resources
Woodlands	Woodland products use would be prohibited on 183,677 acres (61%) of high site density lands and 337,089 acres (54%) of medium site density lands within the MPA. Use of woodland products would be allowed on 119,237 acres (39%) of high site density lands and 288,814 acres (46%) of medium site density lands. As described under Alternative A, cultural resources in areas open to woodland products use could experience long-term adverse impacts from direct disturbance (e.g., being driven over or subject to other surface disturbance) or indirect disturbance (e.g., vandalism and looting). Not all areas open to woodland products use contain actual woodlands that would be targeted for use. As such, the actual acres of high and medium site density lands on which wood gathering or harvest would occur is expected to be less than the sum total of lands open for such activities.

Within ACECs and WSRs, an array of management actions would be implemented that vary widely in terms of the level of surface disturbance allowed or prohibited. Since high cultural resource site density areas constitute the areas of greatest concern for potential adverse impacts to cultural resources, only those areas will be discussed relative to ACECs and WSRs.

Areas that would be managed as ACECs under Alternative B include approximately 109,809 acres of lands with high cultural resource site density in proposed ACECs and 45,113 acres of high site density lands in proposed WSRs. Within these areas, management actions include a range of measures that would benefit cultural resources by affording them direct and indirect protection from adverse impacts. These management actions include such measures as implementing NSO stipulations for leasable minerals and applying non–surface-disturbing requirements to salable minerals on approximately 45,806 acres of high site density lands (see Appendix C for a full explanation of stipulations applicable to oil and gas leasing and other surface-disturbing activities). Closing areas for leasable and salable minerals on 49,789 acres of high site density lands (where the ACEC overlaps a WSA), managing for VRM Class I (with attendant limitations on surface disturbance) on approximately 73,814 acres of high site density lands, eliminating OHV use on approximately 8,854 acres of high site density lands, restricting livestock grazing on 11,398 acres of high site density lands, and prioritizing cultural resource identification work on 67,126 acres of high site density lands would produce beneficial impacts for cultural resources. Table 4.26 lists the proposed special designations to which these stipulations apply and the acreages of high site density contained therein. If a proposed special designation area is not listed in the table, either the stipulations do not apply to the area or there are no estimated acres of high site density within the area. The stipulations noted above reduce the risk of cultural resource sites being inadvertently impacted by surface-disturbing activities.

Table 4.26. Acres of High Site Density Lands in ACECs with Stipulations Affecting Cultural Resources, Alternative B

Special Designation (All ACECs)	NSO for Leasable/ Salable Minerals	Closed to Leasable/ Salable Minerals	Designated as VRM Class I	Closed to OHV Use	Unavailable / Limited Grazing	Prioritize Cultural Survey
Behind the Rocks	2,288	0	5,559	5,559	271	7,848
Bookcliffs	2,353	40,033	40,033	0	6117	40,033
Canyon Rims	3,510	0	0	0	0	0
Cisco WTPD Complex	4,699	0	0	0	0	0
Colorado River Corridor	9,592	0	9,592	0	4,233	0
Cottonwood-Diamond	383	6,461	0	0	7,368	6,461
Highway 279/ Shafer Basin/Long Canyon	3,915	0	3,915	0	645	0
Labyrinth Canyon	5,202	0	5,202	0	0	0
Mill Creek Canyon	3,325	0	4,590	0	4,265	4,590
Ten Mile Wash	3,237	0	0	0	0	3,237
Upper Courthouse	4,957	0	0	0	0	4,957
Westwater Canyon	0	3,295	3,295	3,295	0	0
White Wash	717	0	0	0	5	0
Wilson Arch	1,628	0	1,628	0	5	0
Totals	**45,806**	**49,789**	**73,814**	**8,854**	**22,904**	**67,126**
Percent (%) of all high density lands	15%	16%	24%	3%	8%	22%

Alternative B provides for substantially greater acres of NSO stipulations in high site density areas of special designations than any other alternative. Alternative B would also provide for more acres closed to leasable and salable minerals in ACECs than any other alternative. Alternative B would designate approximately 23 times higher site density lands in ACECs as VRM Class I than the next closest alternative (Proposed Plan) and would close slightly more land in high site density areas in ACECs to OHV travel than would the Proposed Plan. Alternative B would place slightly greater restrictions on livestock grazing in certain ACECs than the Proposed Plan, thereby providing slightly greater long-term benefit to cultural resources in these areas. Alternative B would also provide for the prioritization of cultural resources identification efforts on more acres than any other alternative. Therefore, ACECs proposed in Alternative B would provide for greater protection of cultural resources than in any other alternative.

4.3.2.4.3 PROPOSED PLAN

Impacts to cultural resource under the Proposed Plan incorporate all of the impacts discussed in Section 4.3.2.2, Impacts Common to All Alternatives. Additional impacts to cultural resources under the Proposed Plan, excluding special designations, are described in Table 4.27. Because

special designations incorporate an array of individualized management actions, the impact of these designations on cultural resources is discussed separately, following Table 4.27. There are no alternative-specific management actions for fire or paleontological resources.

Table 4.27. Impacts to Cultural Resources Under the Proposed Plan

Resource Program	Impact on Cultural Resources
Cultural Resources	Priority for new inventory and assessment would encompass 30,000 acres, resulting in refined knowledge of cultural resources within the MPA and a better ability to manage these resources effectively. More sites would be targeted for restoration and nomination to the NRHP under this alternative than under Alternatives A and D but fewer would be nominated than under Alternative B. Slightly more sites would be allocated or developed for public use under the Proposed Plan than under Alternative B, and fewer sites would be targeted for restoration. Restoration of damaged sites would result in long-term benefits to the targeted sites. Public interpretation of sites has both short-term and long-term beneficial and adverse impacts to cultural resources through raising awareness of the presence of such resources in the area and educating the public about protection of cultural sites.
Lands and Realty	Designation of ACECs as avoidance areas for rights-of-way would provide long-term benefits to cultural resources in these areas by removing one potential source of ground disturbance and related indirect adverse impacts. Designated utility corridors would encompass 28,400 acres (9%) of high site density lands and 46,899 acres (8%) of medium site density lands. Cultural resources within these utility corridors would be available for adverse impacts from development of the utilities. Application of BLM standard procedures and the Section 106 process would reduce opportunities for such impacts and allow for avoidance, minimization, or mitigation of potential adverse impacts to a large degree.
Livestock Grazing	Grazing would not be available on 114,235 acres. Grazing would be restricted in certain known high (sensitive) site density areas and this would provide long-term beneficial impacts to cultural resources from reduced opportunities for trampling, rubbing, and erosion from loss of vegetation. Fewer such areas would exist under Alternatives A and B but more would exist under the Proposed Plan than under Alternative D. Grazing would be prohibited on 25,177 acres (8%) of high site density lands and 45,200 acres (7%) of medium site density lands within the MPA. Grazing would be allowed on 277,399 acres (92%) of high site density lands and 579,965 acres (93 %) of medium site density lands. Cultural resources in areas available for grazing could experience minimal long-term adverse impacts from trampling and rubbing (e.g., on rock art panels) by livestock. All eligible sites would be mitigated. Cultural resources in areas not available for grazing would experience long-term benefits from reduced opportunities for direct and indirect impacts.

Table 4.27. Impacts to Cultural Resources Under the Proposed Plan

Resource Program	Impact on Cultural Resources
Minerals—oil and gas—Book Cliffs RFD	Approximately 74 acres of disturbance in high site density areas and 641 acres in medium site density areas would occur over the life of the RMP. This represents 0.3% of high site density lands and 0.6% of medium site density lands in the RFD area. Standard BLM policy and the Section 106 process would be applied to all applications for disturbance, thereby reducing opportunities for direct adverse impacts related to this disturbance. Inadvertent impacts and impacts from vandalism and looting that may accompany increased human activity in developed areas may occur.
Minerals—oil and gas—Greater Cisco RFD	Approximately 114 acres of disturbance in high site density areas and 497 acres in medium site density areas would occur over the life of the RMP. This represents 0.9% of high site density lands and 1.1% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Roan Cliffs RFD	Approximately 3 acres of disturbance in high site density areas and 12 acres in medium site density areas would occur over the life of the RMP. This represents 0.01% of high site density lands and 0.03% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Salt Wash RFD	Approximately 11 acres of disturbance in high site density areas and 45 acres in medium site density areas would occur over the life of the RMP. This represents 0.2% of high site density lands and 0.3% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Big Flat-Hatch Point RFD	Approximately 94 acres of disturbance in high site density areas and 139 acres in medium site density areas would occur over the life of the RMP. This represents 0.1% of high site density lands and 0.1% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Lisbon Valley RFD	Approximately 171 acres of disturbance in high site density areas and 360 acres in medium site density areas would occur over the life of the RMP. This represents 0.7% of high site density lands and 0.7% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Eastern Paradox RFD	Approximately 60 acres of disturbance in high site density areas and 132 acres in medium site density areas would occur over the life of the RMP. This represents 0.05% of high site density lands and 0.05% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—geophysical	An estimated 352 acres (0.1%) of land in high site density areas within the MPA and 705 acres (0.1%) of medium site density lands would be subject to disturbance for geophysical work over the life of the RMP. Cultural resources in these areas could be subject to long-term adverse impacts. However, adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts occurring as a result of geophysical activities.

Table 4.27. Impacts to Cultural Resources Under the Proposed Plan

Resource Program	Impact on Cultural Resources
Minerals—salable (mineral materials)	A total of 1,234,717 acres is available for the disposal of salable minerals. Although adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts, the greater the area available for salable minerals disposal, the greater potential the or adverse impacts as inadvertent impacts could occur.
Non-WSA Lands with Wilderness Characteristics	Management of 12,773 acres (4%) of high site density lands and 20,309 acres (3%) of medium site density lands for protection of wilderness characteristics would benefit cultural resources in the Beaver Creek, Fisher Towers and Mary Jane Canyon areas by limiting surface-disturbing activities and the associated human activity.
Recreation—SRMAs	Approximately 160,885 acres (53%) of high site density lands and 205,578 acres (33%) of medium site density land would be managed within SRMAs. By managing and educating recreationists in these areas, long-term adverse impacts on cultural resources would be reduced. Careful monitoring by the BLM of site condition in these areas would help identify unacceptable impacts early on and allow for implementation of minimization and/or mitigation measures to address these impacts.
Travel Management	Approximately 69,215 acres (23%) of high site density lands and 170,608 acres (27%) of medium site density lands would be closed to OHV use. Approximately 232,875 acres (77%) of high site density lands and 453,658 acres (73%) of medium site density lands would limit OHV use to designated routes. Approximately 486 acres (0.2%) of high site density lands and 882 acres (0.1%) of medium site density lands would be open to cross country OHV use. Designated motorcycle routes would be established for approximately 19 miles on high site density lands and 26 miles on medium site density lands. Cultural resources in areas closed to OHV use would experience long-term reductions in opportunities for direct and indirect adverse impacts. As described for Alternative B, cultural resources located in areas where OHV or motorcycle use is limited to designated routes would experience variable beneficial and adverse impacts, and cultural resources located in areas open to cross country OHV use would experience current, or potentially increased, levels of adverse impacts from direct and indirect disturbances. The Proposed Plan would have more high and medium site density lands open to cross country OHV use than Alternative B but less than Alternatives A and D. Approximately 238 linear miles of existing travel routes in high site density areas and 537 miles in medium site density areas would be closed to travel. Cultural resources in these areas would experience moderate, long-term beneficial impacts from reduced opportunities for inadvertent impacts, looting, and vandalism. As described under Alternative B, existing levels of direct disturbance of cultural sites from foot and motorized traffic along travel routes would continue at current levels. Additionally, indirect impacts such as looting and vandalism from users of travel routes would also continue to occur at levels similar to Alternative A. There are 148.2 miles of designated routes with possible cultural

Table 4.27. Impacts to Cultural Resources Under the Proposed Plan

Resource Program	Impact on Cultural Resources
	conflicts. In the Proposed Plan, 16.6 miles of these routes are not identified for travel.
Visual Resources	Designation of 74,672 acres (25%) of high site density lands and 178,751 acres (29%) of medium site density lands as VRM Class I conditions would benefit cultural resources in those areas by limiting surface-disturbing activities and the associated human activity.
Woodlands	Woodland products use would be prohibited on 159,985 acres (53%) of high site density lands and 271,618 acres (43%) of medium site density lands within the MPA. Use of woodland products would be allowed on 143,250 acres (47%) of high site density lands and 354,439 acres (57%) of medium site density lands. As described under Alternative B, cultural resources in areas open to woodland products use could experience long-term adverse impacts from direct disturbance (e.g., being driven over or subject to other surface disturbance) or indirect disturbance (e.g., vandalism and looting). Not all areas open to woodland products use contain actual woodlands that would be targeted for use. As such, the actual acres of high and medium site density lands on which wood gathering or harvest would occur is expected to be less than the sum total of lands open for such activities.

Within ACECs and WSRs, an array of management actions would be implemented that vary widely in terms of the level of surface disturbance allowed or prohibited. Areas that would be managed as ACECs and WSRs under the Proposed Plan include approximately 19,029 acres of lands with high cultural resource site density for ACECs and 29,364 acres of high site density lands for WSRs. Within these areas, management actions include a range of measures that would benefit cultural resources by affording them direct and indirect protection from adverse impacts. These management actions include such measures as implementing NSO stipulations for leasable minerals and applying non–surface-disturbing requirements to salable minerals on approximately 11,467 acres of high site density lands (see Appendix C for a full explanation), closing areas for leasable and salable minerals on 7,141 acres of high site density lands (where the ACEC overlaps a WSA), designating as VRM Class I (with attendant limitations on surface disturbance) on approximately 3,200 acres of high site density lands, eliminating OHV use on approximately 7,141 acres of high site density lands, restricting livestock grazing on 10,761 acres of high site density lands, and prioritizing cultural resource identification work on 5,681 acres of high site density lands. Table 4.28 lists the special designations to which these stipulations apply and the acreages of high site density contained therein. If a particular special designation is not listed in the table, either the stipulations do not apply to the area or there are no estimated acres of high site density within the area. The stipulations noted above reduce the risk of cultural resource sites being inadvertently impacted by surface-disturbing activities.

In general, the Proposed Plan would provide substantially less benefit to cultural resources and less reduction of risk of long-term adverse impacts to these resources than would Alternative B. The Proposed Plan would, however, afford greater protection and reduced risk of long-term adverse impacts when compared to Alternative A, which designates only a single ACEC, and Alternative D, which designates no ACECs.

Table 4.28. Acres of High Site Density Lands in ACECs with Stipulations Affecting Cultural Resources, the Proposed Plan

Special Designation (All ACECs)	NSO for Leasable/ Salable Minerals	Closed to Leasable/ Salable Minerals	Designated as VRM I	Closed to OHV Use	Unavailable/ Limited Grazing	Prioritize Cultural Survey
Behind the Rocks	2,444	0	0	0	0	2,444
Cottonwood-Diamond	383	7,141	0	7,141	7,524	0
Highway 279/ Shafer Basin/Long Canyon	3,915	0	3,200	0	0	0
Mill Creek Canyon	1,488	0	0	0	0	0
Ten Mile Wash	3,237	0	0	0	3,237	3,237
Totals	**11,467**	**7,141**	**3,200**	**7,141**	**10,761**	**5,681**
% of all high site density lands	4%	2%	1%	2%	3.9%	1.9%

4.3.2.4.4 ALTERNATIVE D

Impacts to cultural resources under Alternative D incorporate all of the impacts discussed under Section 4.3.2.2, Impacts Common to All Alternatives. Additional impacts to cultural resources under Alternative D are described in Table 4.29. There are no alternative-specific management actions for fire or paleontological resources, and no special designations would be implemented under this alternative.

Table 4.29. Impacts to Cultural Resources Under Alternative D

Resource Program	Impact on Cultural Resources
Cultural Resources	Priority for new inventory and assessment would encompass 20,000 acres, resulting in refined knowledge of cultural resources within the MPA and a better ability to manage these resources effectively. Fewer sites would be targeted for restoration and nomination to the NRHP under this alternative than under any other action alternative. More sites would be allocated or developed for public use than under any other alternative, and fewer sites would be targeted for restoration. Restoration of damaged sites would result in long-term benefits to the targeted sites. Public interpretation of sites has both short-term and long-term beneficial and adverse impacts to cultural resources through raising awareness of the presence of such resources in the area and educating the public about protection of cultural sites.
Lands and Realty	Designated utility corridors would encompass 29,983 acres (10%) of high site density lands and 51,499 acres (8%) of medium site density lands. Cultural resources within these utility corridors could be subject to adverse impacts from development of the utilities. However, application of BLM standard procedures and the Section 106 process would reduce risk of such impacts and allow for avoidance, minimization, or mitigation of potential adverse impacts to a large degree.

Table 4.29. Impacts to Cultural Resources Under Alternative D

Resource Program	Impact on Cultural Resources
Livestock Grazing	Grazing would not be available on 52,214 acres. Grazing would be removed from certain known high (sensitive) site density areas and provide long-term beneficial impacts to cultural resources from reduced risk of trampling, rubbing, and erosion from loss of vegetation. Fewer such areas would exist under Alternative D than under any other alternative. Grazing would be prohibited on 12,386 acres (4%) of high site density lands and 17,860 acres (3%) of medium site density lands within the MPA. Grazing would be allowed on 290,190 acres (96%) of high site density lands and 607,305 acres (97%) of medium site density lands. Cultural resources in areas available for grazing could experience minimal long-term adverse impacts from trampling and rubbing (e.g., on rock art panels) by livestock. All eligible sites would be mitigated. Cultural resources in areas not available for grazing would experience long-term benefits from reduced risk of direct and indirect impacts.
Minerals—oil and gas—Book Cliffs RFD	Approximately 79 acres of disturbance in high site density areas and 725 acres in medium site density areas would occur over the life of the RMP. This represents 0.4% of high site density lands and 0.6% of medium site density lands in the RFD area. Standard BLM policy and the Section 106 process would be applied to all applications for disturbance, thereby reducing risk of direct adverse impacts related to this disturbance. Inadvertent impacts and impacts from vandalism and looting that may accompany increased human activity in developed areas may occur.
Minerals—oil and gas—Greater Cisco RFD	Approximately 115 acres of disturbance in high site density areas and 498 acres in medium site density areas would occur over the life of the RMP. This represents 0.9% of high site density lands and 1% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Roan Cliffs RFD	Approximately 3 acres of disturbance in high site density areas and 13 acres in medium site density areas would occur over the life of the RMP. This represents 0.01% of high site density lands and 0.03% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Salt Wash RFD	Approximately 13 acres of disturbance in high site density areas and 51 acres in medium site density areas would occur over the life of the RMP. This represents 0.3% of high site density lands and 0.3% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Big Flat-Hatch Point RFD	Approximately 136 acres of disturbance in high site density areas and 197 acres in medium site density areas would occur over the life of the RMP. This represents 0.2% of high site density lands and 0.2% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—oil and gas—Lisbon Valley RFD	Approximately 171 acres of disturbance in high site density areas and 360 acres in medium site density areas would occur over the life of the RMP. This represents 0.7% of high site density lands and 0.7% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.

Table 4.29. Impacts to Cultural Resources Under Alternative D

Resource Program	Impact on Cultural Resources
Minerals—oil and gas—Eastern Paradox RFD	Approximately 77 acres of disturbance in high site density areas and 152 acres in medium site density areas would occur over the life of the RMP. This represents 0.06% of high site density lands and 0.06% of medium site density lands in the RFD area. Impacts would be similar to those described for the Book Cliffs RFD area.
Minerals—geophysical	An estimated 396 acres (0.1%) of land in high site density areas within the MPA and 792 acres (0.1%) of medium site density lands would be subject to disturbance for geophysical work over the life of the RMP. As described for previous alternatives, cultural resources in these areas could be subject to long-term adverse impacts. Adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts occurring as a result of geophysical activities.
Minerals—salable (mineral materials)	A total of 1,387,473 acres is available for the disposal of salable minerals. Although adherence to standard BLM policy and the Section 106 process of the NHPA would reduce the likelihood of adverse impacts, the greater the area available for salable minerals disposal, the greater potential for adverse impacts because inadvertent impacts could result.
Non-WSA Lands with Wilderness Characteristics	No areas would be managed for wilderness characteristics under Alternative D, resulting in greater adverse impacts to cultural resources in those areas because surface-disturbing activities would not be precluded.
Recreation—SRMAs	Approximately 74,278 acres (25%) of high site density lands and 83,056 acres (13%) of medium site density lands would be managed within SRMAs. By managing and educating recreationists in these areas, long-term adverse impacts on cultural resources would be reduced. Impacts under this alternative would be similar to those described for the Proposed Plan except that fewer restrictions on group sizes would be implemented and more dispersed camping would be allowed. Total anticipated impacts to cultural resources under Alternative D would be greater than those in Alternative B or C because fewer recreationists would be managed and fewer restrictions would be placed upon them.
Special Designations	No areas would be managed as ACECs or WSRs under Alternative D.

Table 4.29. Impacts to Cultural Resources Under Alternative D

Resource Program	Impact on Cultural Resources
Travel Management	Approximately 17,981 acres (6%) of high site density lands and 21,079 acres (4%) of medium site density lands would be closed to OHV use. Approximately 283,951 acres (94%) of high site density lands and 602,749 acres (96%) of medium site density lands occur where OHV use would be limited to designated routes. Approximately 643 acres (0.2%) of high site density lands and 1,321 acres (0.2%) of medium site density lands would be open to cross country OHV use. Approximately 21 miles of motorcycle routes on high site density lands and 36 miles on medium site density lands would be designated. As described in more detail under Alternative B, cultural resources in areas closed to OHV use would experience long-term reductions in risk of direct and indirect adverse impacts. Cultural resources located in areas where OHV and motorcycle use is limited to designated routes would experience variable beneficial and adverse impacts, and cultural resources located in areas open to cross country OHV use would experience current, or potentially increased, levels of adverse impacts from direct and indirect disturbances. Alternative D would have more high and medium site density lands open to cross country OHV use than Alternatives B and C but less than Alternative A. Approximately 214 linear miles of existing travel routes in high site density areas and 494 miles in medium site density areas would be closed to travel. Cultural resources in these areas would experience moderate, long-term beneficial impacts from reduced risk of inadvertent impacts, looting, and vandalism. As described for previous alternatives, existing levels of direct disturbance of cultural sites from foot and motorized traffic along travel routes would continue at current levels. Additionally, indirect impacts such as looting and vandalism from users of travel routes would also continue to occur at levels similar to Alternative A. There are 148.2 miles of designated routes with possible cultural conflicts. In Alternative D, 3.6 miles of these routes are not identified for travel.
Visual Resources	Designation of 72,703 acres (24%) of high site density lands and 174,314 acres (28%) of medium site density lands as VRM Class I would benefit cultural resources in those areas by limiting surface-disturbing activities and the associated human activity.
Woodlands	Woodland products use would be prohibited on 144,146 acres (48%) of high site density lands and 252,959 acres (40%) of medium site density lands within the MPA. Use of woodland products would be allowed on 158,768 acres (52%) of high site density lands and 372,944 acres (60%) of medium site density lands. As described under Alternative A, cultural resources in areas open to woodland products use could experience long-term adverse impacts from direct disturbance (e.g., being driven over or subject to other surface disturbance) or indirect disturbance (e.g., vandalism and looting). Not all areas open to woodland products use contain actual woodlands that would be targeted for use. As such, the actual acres of high and medium site density lands on which wood gathering or harvest would occur is expected to be less than the sum total of lands open for such activities.

4.3.2.5 Summary of Impacts

In general, Alternative B provides for the most potential beneficial impact to cultural resources within the MPA of all the alternatives. This is because Alternative B would implement greater restrictions on surface-disturbing activities (and the damage these activities could advertently or inadvertently cause to cultural resources) such as mineral development, greater restrictions on recreational use and OHV travel, and more areas of special designation with their attendant management restrictions on land use such as VRM Class I, surface disturbance, and OHV travel than any other alternative. These management decisions reduce the risk of cultural resources being inadvertently impacted in an adverse way. Alternative B would also implement more management decisions focused on pro-active management of cultural resources through the development of integrated cultural-recreational management plans. Based upon these same key elements, the Proposed Plan would provide the next greatest benefit to cultural resources, followed by Alternative A. Alternative D would provide the least amount of benefit to cultural resources in the MPA of all alternatives.

4.3.3 Fire Management

This section presents the impacts to fire management from management actions for the resources and resource uses discussed in Chapter 2. Existing conditions concerning fire management are described in Chapter 3.

The most direct and long-term impacts to fire management within the MPA would result from the decisions of the fire management program itself. As noted in Chapter 3, fire management within the MPA is the responsibility of the Moab Fire District (MFD), which encompasses the Monticello, Moab, and Price Planning Areas. The proposed decisions expected to affect fire management are: air quality, lands and realty, minerals, recreation, riparian, special designations, special status species, travel, wildlife, and woodlands.

4.3.3.1 Impacts Common to All Alternatives

4.3.3.1.1 Impacts of Air Quality Decisions on Fire Management

Under all alternatives, prescribed burns would be consistent with the State of Utah Department of Environmental Quality's (UDEQ's) permitting process and timed in conjunction with meteorological conditions so as to minimize smoke impacts. In addition, the BLM would comply with the current Smoke Management MOU between BLM, USFS, and UDAQ. This may restrict the use of prescribed fire in terms of timing and size of treatments. However, these limitations would not substantially reduce the effectiveness of long-term fire management or increase fire risk in the MPA.

4.3.3.1.2 Impacts of Fire Management Decisions on Fire Management

The comprehensive Utah Land-use Plan Amendment for Fire and Fuels Management (LUP Amendment) of September 2005 (BLM 2005c) currently guides fire management in the MPA. Direction and guidance approved by the LUP Amendment is incorporated by reference into this RMP. The LUP Amendment provides fire management direction that is common to all alternatives being considered in this PRMP/EIS. Accordingly, the impacts of implementing the LUP Amendment within the MPA would also be identical for all alternatives. Readers should

note that the potential impacts of implementing the LUP Amendment across the entire MFD, including the MPA, were analyzed as part of the Environmental Assessment prepared for that document (BLM 2005c: 4-1 to 4-50).

Under all alternatives, the Moab Fire District Fire Management Plan (FMP) (BLM 2006b) will be updated and amended to meet the direction and objectives of this RMP. Under the revised FMP, fire management program decisions would focus on the goal of improving Fire Regime Condition Class (FRCC) and moving lands within the MPA toward the Desired Wildland Fire Condition (DWFC). These condition classes and desired conditions are discussed in greater detail in Chapter 3 of this Draft EIS and in the FMP (BLM 2006b: 3-27 to 3-32). The implementation goals of the FMP are to improve fire conditions, including achieving desired fuels loading, and controlling wildfire location, extent, and/or severity. Accordingly, this section quantitatively analyzes the impacts from fire management decisions based on the relative acreage of each vegetation cover type that would be treated to reduce fuels loading.

Under all alternatives, 5,000 to 10,000 acres would be treated annually across the MPA depending on budgetary and time constraints. Wildland-Urban Interface (WUI) areas, areas with fuel loading that could potentially result in the loss of ecosystem components following wildland fire, and areas that meet other management goals and objectives would be treated with prescribed fire and non-fire treatments (mechanical removal, chemical and biological treatments, manual removal, seeding). The overall impact of these treatments would be improvement in FRCC within the MPA and movement towards the DWFC for the treated areas. The majority of these treatments would likely be concentrated in the piñon-juniper vegetation type, including historical sagebrush/grassland that has been encroached upon by piñon-juniper (BLM 2005c: 2-4 to 2-6). The majority of this vegetation type is in FRCC 2 or 3, which indicates that it suffers moderate to high departure (>66% variation) from historical fire return interval and/or vegetation condition/fuel loading. The main reasons the majority of the piñon-juniper in the MPA falls within this FRCC are 1) loss of native understory of piñon-juniper stands; 2) cheatgrass invasion of disturbed piñon-juniper stands; and 3) fuel loading in uncharacteristically thick piñon-juniper stands (BLM 2006b: 3-30).

Proactive fuels loading (vegetation) treatments would be prioritized for different areas based upon the severity of possible impacts from unplanned wildland fire. The priority areas include WUI zones, areas where fuels loading could potentially result in loss of ecosystem components following wildland fire, and areas where other resource management program goals are incompatible with unplanned wildland fire. Focusing treatment on these areas would reduce fire risk in the more vulnerable or sensitive locations of the MPA.

If the MFD is able to successfully implement fuels treatments over a maximum number of desired acres in a given year, a general transition toward improved FRCC and DWFC in the MPA could eventually be realized. Landscape-level fuel treatments require a long-term commitment of resources to implement, monitor, and maintain; implementation can depend on a myriad of factors such as climate, threats or infestation from invasive species, and other variables; and, acreage goals can be altered or transformed by unexpected factors such as catastrophic wildland fire, drought, or changes in T&E habitat. In consideration of these various aspects, improved FRCC and DWFC as well as other management goals and objectives may take generations for actual accomplishments to be realized.

These treatment acreages identified in the LUP are only approximate long-term goals, but are the best available estimates for the purposes of analysis.

4.3.3.1.3 Impacts of Lands and Realty Decisions on Fire Management

Under all alternatives, minimum impact criteria for filming would prohibit the use of pyrotechnics and explosives, as well as limiting the numbers of people and vehicles in sensitive areas. This would provide a slight decrease in the risk of inadvertent fire starts from human causes.

4.3.3.1.4 Impacts of Riparian Decisions on Fire Management

Under all alternatives, integrated species management would continue to be used to accomplish riparian restoration through biological, chemical, mechanical, and manual methods (e.g., tamarisk control, willow plantings). These actions would substantially reduce the risk of wildfire in riparian areas, particularly in areas where native willow habitat has been restored.

4.3.3.2 Alternatives Impacts

4.3.3.2.1 Impacts of Minerals Decisions on Fire Management

Minerals decisions impacting fire management are largely associated with potential increased risk of human-caused fires because of mineral development. These impacts are best compared by showing relative differences in the acreage of lands open for surface-disturbing minerals development under each alternative (Table 4.30).

In general, Alternative B has the least amount of land available for surface-disturbing mineral extraction, followed by the Proposed Plan, then Alternatives D, and A respectively. Additionally, it should be noted that the actual amount of development predicted over the life of the plan is relatively low; therefore mineral development activities would likely have a relatively low impact on fire management and fire risk in comparison to other human activities such as recreational visitation.

Table 4.30. Acreage of MPA Lands Open to Surface-disturbing Mineral Development (% of Planning Area)

Development	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Leasable				
Open (Standard Stipulations or TL/CSU)	1,427,949 (78%)	1,054,111 (45%)	1,234,267 (68%)	1,387,473 (76%)
Predicted acreage of disturbance (from RFD)	6,765	3,975	6,480	6,720
Locatable				
Open	1,389,531 (76%)	1,389,531 (76%)	1,373,649 (75%)	1,389,531 (76%)

Table 4.30. Acreage of MPA Lands Open to Surface-disturbing Mineral Development (% of Planning Area)

Development	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Salable				
Open/Open Special Conditions	1,467,768 (81%)	836,137 (46%)	1,234,267 (68%)	1,387,473 (76%)

4.3.3.2.2 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Fire Management

4.3.3.2.2.1 Alternatives A and D

No lands would be managed for wilderness characteristics under Alternatives A and D; there would be no impacts to travel management from these decisions.

4.3.3.2.2.2 Alternative B

Under Alternative B, management of 266,485 acres (in 32 areas) of non-WSA lands with wilderness characteristics would limit the types of fuel treatments and fire management activities that could be utilized to restore natural fire regimes in fire-dependent and adapted ecosystems. This would preclude mechanical treatments or other surface-disturbing treatments that could affect wilderness characteristics. When fire must be suppressed in these areas, the ESR plan would be required to restore the area to its natural character.

4.3.3.2.2.3 Proposed Plan

Under the Proposed Plan, management of 47,761 acres (in Beaver Creek, Fisher Towers, and Mary Jane Canyon) of non-WSA lands with wilderness characteristics would limit the types of fuel treatments and fire management activities that could be utilized to restore natural fire regimes in fire-dependent and adapted ecosystems. This would preclude mechanical treatments or other surface-disturbing treatments that could affect wilderness characteristics. When fire must be suppressed in these areas, the ESR plan would be required to restore the area to its natural character.

4.3.3.2.3 Impacts of Recreation Decisions on Fire Management

Recreation decisions impacting fire management include restrictions on campfires and dispersed camping in Special Recreation Management Areas (SRMAs). Camping and campfire restrictions would decrease the risk of human-caused wildland fire starts. Table 4.31 lists the acreage of SRMAs by alternative.

Table 4.31. SRMA Acreage by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
SRMA Acreage	141,252	976,173	658,642	277,471

Alternative B requires an SRP when a group has 15 vehicles, meaning that there would be more opportunity to educate visitors on preventing wildfire. Alternative B would have less risk of human-caused wildland fire than the other alternatives, although the Proposed Plan would pose less risk than that posed by Alternative D.

4.3.3.2.4 Impacts of Special Designation Decisions on Fire Management

Special designations include ACECs, Wild and Scenic Rivers (WSRs), Designated Wilderness and WSAs. Proposed management prescriptions for WSRs have negligible impact on fire management, as they do not further restrict vegetation management or woodland harvest. Additionally, fewer than 100 acres of prescribed fire and non-fire fuels treatments (each) are planned within riparian vegetation types in the MPA under the Moab FMP; therefore, proposed WSRs are unlikely to affect or be affected by potential fire management actions. Accordingly, WSR impacts on fire management are not analyzed further.

Under all alternatives, a total of approximately 353,615 acres would be within WSAs. These acreages would be closed to woodland harvest and surface-disturbing vegetation treatments. Accordingly, this acreage (approximately 19% of the MPA) would have limited access for proactive fuel reduction or manipulation of vegetation types toward DWFC. However, over the long-term, some vegetation treatments may be allowed if they are non-impairing. These would include reseeding with native species after a fire and pruning. However, stand conversion activities such as mechanical removal of piñon-juniper encroachment or Douglas fir encroachment on aspen would not be permitted under H-8550-1 (Interim Management Policy For Lands Under Wilderness Review). Fire suppression would be permitted with the understanding that it would be conducted with a minimum amount of mechanical and/or motorized resources. Limitations on woodland harvest, surface-disturbing vegetation treatments, and fire suppression techniques in WSAs would increase the fire risk in these areas under all alternatives.

Overall, designation of ACECs and the subsequent restrictions on surface disturbance in these areas would have the greatest impact on fire management activities in the MPA. Restrictions on vegetation treatments in ACECs could increase long-term fire risk due to fuel loading. Table 4.32 below summarizes the restrictions on fire and fuels treatments in the MPA.

Table 4.32. Acreage of ACEC Restrictions on Fire Management and Fuels Treatment (acres)

Restriction	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
No Surface-disturbing Vegetation Treatments	0	79,848	5,201	0

Because Alternative B designates the greatest acres of ACECs among the four alternatives, it thereby restricts the greatest amount of acreage from vegetation treatments, followed by the Proposed Plan, then Alternatives D, and A, respectively. Accordingly, Alternatives A and D

would likely result in the least amount of long-term fire risk in these areas, followed by the Proposed Plan and Alternative B, respectively.

Restrictions on dispersed camping, which would lower the risk of human-caused fire ignitions, are imposed by ACEC management in Alternative B and the Proposed Plan. Alternative B restricts dispersed camping on 115,529 acres; the Proposed Plan restricts dispersed camping on 13,902 acres. There are no ACECs proposed in Alternatives A and D, and thus no restrictions on dispersed camping. Therefore, Alternative B provides the least risk of human-caused fire ignitions.

4.3.3.2.5 Impacts of Special Status Species Decisions on Fire Management

Special status species have limited distributions and suitable habitat, making relocation or re-establishment elsewhere difficult if their habitat is disturbed or altered. Thus, the protection of special status species' habitat from disturbance generally restricts options for fuels reduction and vegetative treatments where habitat is present in the MPA. Restrictions due to the presence of special status species or their habitat are often seasonal and limited to relatively small areas, such as those surrounding nests or (sage-grouse) leks. Because federally threatened and endangered species are protected under the Endangered Species Act, their management prescriptions and the resulting restrictions on fire management are generally common to all alternatives. Fire management options, including surface-disturbing vegetative treatments and the use of wildfire and prescribed burns as management tools, are generally limited in the presence or habitat of threatened and endangered species. Species present in the MPA whose recovery plans place (widely variable) limitations on such treatments include: Mexican spotted owl, southwestern willow flycatcher, bald eagle, Colorado River endangered fish (several), golden eagle, burrowing owl, ferruginous hawk, yellow-billed cuckoo, and Jones' cycladenia.

The acres of habitat with seasonal restrictions on surface-disturbing activities vary for four special status species that are not threatened or endangered: the greater sage-grouse, the Gunnison sage-grouse, the white-tailed prairie dog, and the Gunnison prairie dog. These restrictions are shown in Table 4.33, below.

Table 4.33. Acres of Seasonal Restrictions on Surface-disturbing Activities in Sensitive Species Habitat Areas (For Decisions Not Common To All Alternatives Only)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Greater sage-grouse	0	12,850	3,068	1,986
Gunnison sage-grouse	0	246,107	175,727	41,620
White-tailed prairie dog	0	284,529[*#]	117,481[+]	31,186[+]
Gunnison Prairie dog	0	10,700[*]	10,700[+]	0

[*]Restrictions apply within 1300 ft of active colonies in this area

[+]Restrictions apply within 660 ft of active colonies in this area

[#]199,505 of these acres are subject to year-round restrictions as part of an ACEC.

Thus, seasonal restrictions on surface-disturbing activities due to protection for special status species vary by alternative, with Alternative B being the most restrictive for fire management actions. Restrictions on fire management would increase the long-term risk of wildfire.

4.3.3.2.6 IMPACTS OF TRAVEL DECISIONS ON FIRE MANAGEMENT

Motorized use in the MPA creates a limited risk of human-caused fire. This risk includes heat and sparks from motors and exhaust systems. This risk is increased substantially if travel occurs off of designated routes. The cross-country motorized travel category poses the greatest risk of inadvertent wildland fire starts, followed by travel on designated routes. Cross country travel is much more likely to bring the heat and sparks from exhaust systems in direct contact with vegetation than travel on designated routes, which are typically devoid of vegetation. Closing areas to motorized travel largely eliminates the risk of inadvertent fire starts from motorized vehicles.

All of the action alternatives would lessen the impact of human-caused fires than Alternative A due to the reduction of motorized cross-country travel under those alternatives (Table 4.34). Alternative B has the greatest acreage closed to motorized travel, followed closely by the Proposed Plan. Alternatives A and D have less area closed to motorized travel than Alternatives B or the Proposed Plan. Alternative D has the most acreage where motorized travel would be limited to designated routes (and the least amount of acreage closed to motorized travel), followed closely by Alternatives B and the Proposed Plan which have similar acreages, then by Alternative A. Thus, Alternative B provides the least amount of travel-related risk to fire management, followed closely by the Proposed Plan. Alternative D would have some additional risk and Alternative A would have substantially more risk than Alternative B and the Proposed Plan.

Table 4.34. Travel Restrictions Impacting Fire Management and Risk (acres)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
OHV Use Categories				
Open to Cross-Country Travel	678,250	0	1,866	3,348
Limited to Existing/Designated Routes	1,113,470	1,463,248	1,468,852	1,788,372
Closed	29,654	358,126	349,843	29,654
Miles of Designated Roads and Trails				
Primitive (Level D) Road	5,033	2,162	2,527	2,689
Motorcycle Trail	129	122	221	255

4.3.3.2.7 IMPACTS OF WILDLIFE DECISIONS ON FIRE MANAGEMENT

Under all alternatives, surface-disturbing activities and vegetation alteration would be avoided during the nesting season for migratory birds (May 1 through July 30). In addition, surface-disturbing activities would be precluded in 105,636 acres of deer and/or elk summer range (within the Book Cliffs and La Sal Wildlife Management Units) between May 15 and June 30. These restrictions would limit fuels reduction treatments during these time periods.

Some management actions common to all alternatives would benefit fire management in the MPA. Dispersed camping in riparian areas would be restricted under all alternatives, which

would slightly reduce the likelihood of human-caused wildfire in these areas, as would the implementation of a limited fire suppression policy (and initiation of prescribed fires) where treatment by fire would increase vegetation productivity and increase forage for wildlife, which is also proposed under all alternatives. A prescription to increase elk forage on 4,000 acres through vegetation treatments including prescribed fire would also benefit fire management under all alternatives.

Seasonal restrictions on surface-disturbing activities specific to each alternative are shown in Table 4.35, below. These prohibitions would restrict fire management activities during specific time periods, and reduce the options available for fuels reduction, surface-disturbing vegetative treatments, and prescribed fire. In general, prohibitions on surface disturbance to protect wildlife would be most restrictive to fire management under Alternative B, followed by the Proposed Plan, then Alternatives D, and A, respectively. Alternatives that are the most restrictive to fire management carry the highest long-term risk of large or catastrophic wildfire due to increased fuel loading.

Table 4.35. Acres of Seasonal Restrictions on Surface-disturbing Activities in Wildlife Habitat Areas (For Decisions Not Common To All Alternatives)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Pronghorn	0	822,001*	293,741*	78,477*
Deer and/or Elk	0	635,774+	349,955#	349,955&

*Restrictions apply from May 1 to June 15
+ Restrictions apply from November 1 to May 15
# Restrictions apply from November 15 to April 15
&Restrictions apply from December 1 to April 15

4.3.3.2.8 Impacts of Woodland Decisions on Fire Management

Under all alternatives, one of the goals of woodland management decisions would be to encourage, where feasible, the harvest of forest products in areas of proposed or existing vegetation treatments to lessen the need for additional treatment or land disturbance. Where feasible, this practice would help improve FRCC and reduce the need for additional fuels treatments to reach DWFC. All alternatives would seek to use woodland harvest to assist in managing woodlands to accomplish goals outlined in the Fire Management Plan. Thus, woodland management decisions would generally be made to support fire management goals, and the impacts of woodlands management decisions would generally have beneficial impacts on fire management.

The primary means of assessing the impacts of woodland management decisions on fire management is the number of acres under each alternative that would allow or prevent woodland harvest and wood gathering, which are shown in Table 4.36, below. Alternatives that allow woodland harvest and wood gathering over larger acreages provide greater benefits to fire management goals by allowing woodland harvest to help reduce fuel loading. Alternatives A and D (equally) provide the greatest benefit to fire management, followed by the Proposed Plan and Alternative B.

Table 4.36. Woodland Resource Decisions Impacting Fire Management and Risk (acres)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Open to Woodland Harvest and Wood Gathering	1,243,734	1,071,335	1,212,886	1,243,734
Closed to Woodland Harvest and Wood Gathering	609,385	781,784	640,223	609,385

4.3.4 Health and Safety

This section discusses impacts to health and safety from management actions of other resources and resource uses.

Management actions associated with the following resources and resource uses would have negligible impacts on health and safety, regardless of the alternative chosen: air quality; cultural resources, paleontological resources; fire management; lands and realty; livestock grazing; recreation and travel management; vegetation, woodlands; riparian; soil and water; wilderness characteristics, wildlife; and special status species; special designations; visual resource management. The impacts would be negligible, and are dismissed from further analysis, because none of these resources have management prescriptions that would generate hazardous wastes, affect cleanup of toxic or hazardous waste spills, or increase or decrease the dangers of existing abandoned minelands (AML) sites and related AML water quality.

4.3.4.1 Hazardous Materials

The sources of hazardous materials are subject to the Federal and state laws described in Chapter 3. These laws and regulations are designed to safeguard human health and safety and to protect other environmental resources. Implementation of the laws and regulations would minimize the risks associated with the use, storage, and disposal of hazardous materials.

4.3.4.1.1 Impacts Common to All Alternatives

Under all of the alternatives, environmental conditions, as well as public health and safety, would be protected as a result of the BLM hazardous materials management practices. Authorized uses of hazardous materials would adhere to Federal and state requirements to reduce or eliminate impacts. The procedures in place within the BLM as well as state and local agencies would address accidental events and unauthorized use. These procedures would help to minimize public exposure and environmental impacts to the extent possible.

4.3.4.1.1.1 Minerals

According to the Moab RFD, the projected maximum number of wells within BLM managed lands over the next 15 years is 451 with future oil and gas drilling projected at about 30 wells per year. The surface disturbance for construction of a well pad, road, and associated pipelines is estimated at 15 acres. The total projected surface disturbance for oil and gas drilling is approximately 6,772 acres. Given the small number of wells projected over the next 15 years regardless of the alternative, the overall hazardous material risk would be negligible. However,

any mineral exploration and development would cause increases in hazardous material risks in the MPA. These impacts would be adverse and long-term. The following are oil and gas related developments that would pose hazardous materials risks across all alternatives.

4.3.4.1.1.2 Pipelines

The installation of pipelines and supporting services for pipelines (e.g., compressor stations) would be necessary for oil and gas development. Pipelines and their associated features have the potential to leak or spill oil, gas, natural gas condensate, or other hazardous materials. The companies installing and operating pipelines in the MPA are responsible for understanding and abiding by the applicable hazardous material laws and regulations. The MFO would be responsible for inspecting and monitoring these operations to ensure that these companies are in compliance with all applicable laws and regulations.

4.3.4.1.1.3 Transportation

Minerals development activities would increase the instances of hazardous materials transportation. Transportation (e.g., trucking) companies are responsible for understanding and abiding by all applicable hazardous materials transportation laws and regulations.

4.3.4.1.1.4 Gas Flowline Leakage or Ruptures

The potential exists for gas flowline leakage or ruptures during natural gas extraction and processing. The U.S. Department of Transportation data indicate that an average of one rupture annually should be expected for every 5,000 miles of pipeline (Office of Pipeline Safety 2005). More than 50% of pipeline ruptures occur as a result of heavy equipment striking the pipeline. Such ruptures would potentially cause a fire or explosion if a spark or open flame ignited the natural gas escaping from the pipeline.

Pipeline design, materials, maintenance, and abandonment procedures are required to meet the standards set forth in U.S. Department of Transportation (DOT) regulations (49 CFR Part 192, Transportation of Natural Gas by Pipelines).

4.3.4.1.1.5 Well Fires and Explosions

Well fires are rare but can occur under certain conditions, and a well fire could result from a blowout during drilling activities or from a gas leak during extraction operations. Conditions that would cause gas accumulation in a confined space, and ignition by a spark would likely produce a well fire.

4.3.4.1.1.6 Geologic Hazards

The potential risks associated with oil and gas development include geologic hazards. These hazards include natural gas seepage, hydrogen sulfide releases, abnormally high gas pressure, seismic activity, fires, and explosions.

4.3.4.1.2 Alternatives Impacts

Due to the small amount of oil and gas wells (451) predicted over the next 15 years within the MPA and the fact that the amount of wells drilled between each alternative would vary only slightly, impacts between alternatives would also vary only slightly. However, the more acres

open to oil and gas development, the more pipelines, power lines, transportation, etc. would be needed. Therefore, the alternative with the greatest amount of acreage open for development would have a slightly higher risk of hazardous materials impacts than the alternatives with less acreage open for development. For example, impacts would be slightly higher between Alternative D versus the Proposed Plan as more acres would be open to development and thus require more oil and gas infrastructure.

Mining and exploration operations associated with other minerals such as uranium, copper, sand and gravel, are currently a minor user and producer of hazardous materials within the MPA. The potentially hazardous materials used in these operations are similar to those used by oil and gas development. As with oil and gas, the differences in potential mineral development between the alternatives are minor, with the same number of acres of surface-disturbance projected across alternatives. Therefore, the potential impacts are similar under all alternatives.

4.3.4.1.2.1 Alternative A

Under Alternative A, approximately 1,427,949 acres of BLM administered lands would be open for oil and gas development with standard or controlled surface use/timing lease stipulations. About 451 wells are projected under this alternative. Oil and gas development under Alternative A would pose a hazardous materials risk that results from the use, generation, storage, transportation, and/or disposal of hazardous material on 451 wells.

4.3.4.1.2.2 Alternative B

Under Alternative B, approximately 808,096 acres of BLM administered lands would be open for oil and gas development with standard or controlled surface use/timing lease stipulations. About 255 wells are projected under this alternative. This represents a 43% decrease in the total amount of acres available for leasing and the number of wells projected compared to Alternative A. A 43% decrease in the total number of acres open to oil and gas development and the number of wells projected would decrease the use, generation, storage, transportation, and/or disposal of hazardous materials.

4.3.4.1.2.3 Proposed Plan

Under the Proposed Plan, approximately 1,234,267 acres of BLM administered lands would be open for oil and gas development with standard or controlled surface use/timing lease stipulations. About 432 wells are projected under this alternative. This also represents a 14% decrease in the total amount of acres available for leasing and the number of wells projected compared to Alternative A. A 14% decrease in the total number of acres open to oil and gas development and the number of wells projected would slightly decrease the use, generation, storage, transportation, and/or disposal of hazardous materials.

4.3.4.1.2.4 Alternative D

Under Alternative D, approximately 1,387,473 acres of BLM administered lands would be open for oil and gas development with standard or controlled surface use/timing lease stipulations. About 449 wells are projected under this alternative. This also represents a 3% decrease in the total amount of acres available for leasing and the number of wells projected compared to Alternative A. A 3% increase in the total number of acres open to oil and gas development and

the number of wells projected would minimally decrease the use, generation, storage, transportation, and/or disposal of hazardous materials.

4.3.4.2 ABANDONED MINE LANDS (AML)

The MFO recognizes the need to identify and address physical safety and environmental hazards at all AML sites on public lands. Under all alternatives, abandoned mine land sites would be prioritized for remediation and closure, based on physical safety, watershed protection, and funding by other agencies. Abandoned mine lands would be considered in future recreation management area designations, land-use planning, and all applicable use authorizations.

In conformance with BLM's long-term strategies and national policies regarding AML, this RMP recognizes the need to work with our partners toward identifying and addressing physical safety and environmental hazards at all AML sites on public lands. In order to accomplish this long-term goal, criteria under the national policies would be established under all alternatives to assist in determining priorities for site and area mitigation and reclamation. See the Alternatives Matrix in Chapter 2 (Table 2.1) for AML program priorities.

4.3.5 LANDS AND REALTY

This section discusses impacts to soils from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning lands and realty are described in Chapter 3.

Impacts to the lands and realty program stem from those resource decisions that limit or hinder permitting rights-of-way (ROWs) or other land-use authorizations, or affect the BLM's ability to acquire and dispose of land or make other land tenure adjustments (LTAs). Rights-of-way are issued for the placement of roads, power lines, pipelines, communications sites, wind and solar energy sites on public lands. Within the RMP, such decisions primarily result from and are affected by management actions from the minerals, special designations and wilderness characteristics, as well as lands and realty itself. In addition, the wildlife, vegetation, recreation, riparian, soils/watersheds, visual resources, special status species, and cultural resources programs collectively impact the lands and realty program through a variety of restrictions on surface-disturbing activities and availability of lands for disposal. As such, potential impacts from these program decisions will be analyzed in this chapter.

The specific program management decisions regarding the following resources and resource uses would have negligible impacts (short-term and/or long-term, as well as direct and/or indirect) on lands and realty regardless of the alternative chosen: air quality; fire management; health and safety; livestock grazing; paleontological resources; and woodlands. The impacts would be negligible because protecting air quality, reducing wildland fire risks and the health and safety risks of hazardous materials, identifying livestock utilization levels and complying with the standards and guidelines for livestock grazing, protecting fossils for scientific study and recreational collection, and permitting woodland harvesting would not alter the Moab FO's authority to designate ROWs, or to withdraw, acquire, and/or exchange lands under its administration.

4.3.5.1 Impacts Common to All Alternatives

Wind and solar energy development would be permissible within the MPA. Authorizations for wind and solar energy uses would incorporate the best management practices contained in the Final Wind Energy Programmatic EIS (BLM 2005d: 2-10 to 2-24) and would be provided via ROW grants. Implementation of these measures would provide for the use of MPA lands for alternative energy and communications uses while meeting the individual and overall resource management goals of the RMP.

A total of 354,015 acres (within WSAs and the Black Ridge Wilderness Area) are closed to surface-disturbing activities and thus exclude the granting of new ROWs with the exception of the obligation to grant reasonable access to in held State Trust lands. They are managed as ROW exclusion areas under all alternatives. The impacts of these exclusions include precluding the placement of ROWs and facilities, limiting future access, potentially delaying or increasing the cost of energy supplies, and creating communications dead zones or potentially delaying the availability of communications services. Exclusions on the placement of ROWs could also result in ROWs being located in less desirable or less economically feasible locations. It should be noted that this is a non-discretionary decision.

ROWs would continue to be granted in certain areas under all of the management alternatives, and LTAs would also be allowed under all alternatives except in exclusion areas. Granting of ROWs generally would accommodate the placement of facilities, enhance access to facilities and lands within the MPA, and promote energy supply/transmission and communications. Granting of ROWs would also help to minimize the cost of energy and communications developments, and promote trails and recreation. LTAs would help to facilitate access to the MPA and adjoining properties, improve the BLM's management ability, reduce conflicts with adjoining landowners and surrounding communities, protect sensitive resources when lands are acquired, and accommodate surrounding communities' needs.

Impacts common to all alternatives would also occur due to visual resource management decisions, cultural resource management decisions, and special status species management decisions. Utility corridors within areas designated as VRM Class II would be managed as VRM Class III for utility projects only. Downgrading the VRM class of utility corridors would result in fewer restrictions on utility projects and potentially reduce their cost. All ROW grants would comply with applicable rules and regulations regarding cultural resources and special status species, and the presence of protected resources could alter the route of proposed ROWs. Compliance measures and the presence of protected resources are unlikely to prevent the development of specific ROWs in available areas.

4.3.5.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Several lands and realty decisions would have impacts common to all of the action alternatives, or all alternatives other than Alternative A. The MFO would work cooperatively with the State of Utah and with private landowners to identify opportunities for LTAs using the criteria established for disposal and acquisition of lands. LTAs would facilitate BLM efforts to meet management goals and objectives, as set forth in this RMP. The application of minimum-impact filming criteria (Appendix B) would streamline the permit application process and encourage filming companies to use previously approved locations.

In addition, lands and realty decisions would place surface disturbance restrictions on several parcels affecting utilities and ROWs. A prohibition on surface disturbance within the Moab Canyon portion of the Hwy 191 utility corridor (for other than utility projects) would reduce surface use conflicts and maximize the efficiency of new utility projects. Allowing no surface-disturbing activities within the Three Rivers and Westwater withdrawals would restrict the granting of new rights-of-way in these areas. The impacts of these avoidance areas include restricting the placement of ROWs and facilities, limiting future access, delaying or increasing the cost of energy supplies, and creating communications dead zones or delaying the availability of communications services. Limitations on the placement of ROWs could also result in ROWs being located in less desirable or less economically feasible locations.

Finally, the existing utility corridor from Cisco to Highway 191 north of Arches National Park would be merged with the I-70 corridor under all action alternatives. Other corridors for utilities placement would be developed as part of individual action alternatives. These other utility corridors are discussed by alternative in subsequent sections of this chapter.

4.3.5.3 ALTERNATIVES IMPACTS

4.3.5.3.1 ALTERNATIVE A

Land and realty decisions include the disposal of BLM lands, acquisition of non-Federal lands, modification of utility corridors, and designation of ROW exclusion and avoidance areas. Under Alternative A, a total of 12,415 acres of land are identified for disposal. These lands meet the BLM requirements for disposal and their transfer out of BLM ownership would be consistent with the LTA policies of the agency. Additional lands are identified for further study to determine if they meet the criteria for disposal. The disposal of 12,415 acres would have a negligible impact on the net amount of land under BLM jurisdiction in the MPA. Fewer acres of land are identified for disposal under Alternative A than under any other alternative. Disposals would help accommodate resource management needs and the needs of adjacent communities.

In addition to the 354,015 acres (within WSAs and the Black Ridge Wilderness Area) which exclude the granting of new ROWs, an additional 38,912 acres on which no surface-disturbing activities are allowed would be avoidance areas for new ROWs. Exclusion and avoidance areas impact lands and realty by restricting the placement of ROWs and facilities, limiting future access, delaying or increasing the cost of energy supplies, and creating communications dead zones or delaying the availability of communications services. Limitations on the placement of ROWs could also result in ROWs being located in less desirable or less economically feasible locations. Alternative A has the smallest area of exclusion and avoidance areas, and thus the fewest limitations on the placement of future ROWs.

Under Alternative A, utility corridors would retain their current size and location. A total of 32,502 acres would be designated as utility corridors. Alternative A would have approximately 53% of the acreage of the utility corridor delineated in Alternative B, 20% of the acreage delineated in the Proposed Plan, and 16% of the acreage of the utility corridor delineated in Alternative D. With the exception of one corridor in Alternative A that has never been used, all alternatives contain the same corridors, but vary in width. In the future, decreased width could be a limiting factor in the ability to accommodate major utilities.

A wide variety of other resource management decisions can also affect or limit the placement of ROWs and facilities on BLM lands, due to timing or controlled surface use limitations on surface-disturbing activities. Resource actions affecting the size and duration of areas limiting surface-disturbing activities would occur from , riparian, soil and water, visual resources, special status species, and wildlife management decisions. Limitations on surface-disturbing activities would preclude or hinder the placement of new ROWs, including possibly increasing their cost, limiting access to some areas of the MPA, or delaying the completion of ROWs (in the case of seasonal limitations). Alternative A has 389,605 acres where restrictions would be imposed on the development and operation of ROWs. However, with 1,038,344 acres available for ROWs with no restrictions, Alternative A is the least restrictive of surface-disturbing activities, and thus has the least impact on the construction of future ROWs.

Minerals and energy development decisions would affect the processing ROW grants (primarily roads and pipelines). A total of 451 wells are projected to be developed under Alternative A. The ROW development associated with 451 wells is similar to that projected for the Proposed Plan and Alternative D, with 449 and 451 wells, respectively. However, the ROW development associated with the 451 wells in Alternative A is 70% greater than the development associated with the 255 wells in Alternative B.

4.3.5.3.2 ALTERNATIVE B

Under Alternative B, a total of 14,961 acres of land are identified for disposal. The disposal of 14,961 acres would have a negligible impact on the net amount of land under BLM jurisdiction in the MPA or on the MPA's management. Slightly more acres of land would be disposed of under Alternative B than under Alternative A, and the same number as under the Proposed Plan and Alternative D. Disposals would help accommodate resource management needs and the needs of adjacent communities. No lands were targeted for acquisition under any of the alternative. Acquisitions must meet the criteria outlined in Appendix A. In general, acquisitions would benefit the lands program by improving access and/or BLM management.

A total of 671,444 acres would be within ROW exclusion areas, and closed to surface-disturbing activities under Alternative B. A non-discretionary total of 353,510 acres designated as WSAs and Wilderness contribute to this total. In addition, 266,485 acres would be excluded from ROWs in non-WSA lands with wilderness characteristics (all 32 areas), and 52,224 acres would be closed to protect watersheds in Spanish Valley and Castle Valley. These exclusion areas would have the same impacts as described under the Common to All Action alternatives.

An additional 342,931 acres would be where surface-disturbing activities are limited or are avoidance areas for new ROWs. These avoidance areas result from ACEC designation, wildlife restrictions, protection of major river corridors, scenic driving corridors, high recreation use areas, developed recreation sites, and areas with surface-use conflicts. The general nature of impacts due to excluding and avoiding ROWs is the same as described under Alternative A. However, Alternative B has the greatest area of exclusion and avoidance areas, and thus the greatest limitations on the placement of future ROWs.

Utility corridor adjustments under Alternative B would bring the total corridor area to 65,865 acres. These adjustments include the designation of two new utility corridors (the [narrow width] I-70 Utility Corridor and the Moab Canyon Utility Corridor) and the splitting of the utility corridor south of Spanish Valley into two corridors identical to the existing corridors.

Implementation of these decisions would provide more avenues for placement of utilities across MPA lands than under Alternative A, but fewer opportunities than under the Proposed Plan and Alternative D.

Limitations on surface-disturbing activities (including ROWs), would have impacts of the same nature (though not magnitude) as described under Alternative A. Alternative B has 543,751 acres with timing and controlled surface use limitation stipulations. However, with 264,344 acres available for ROWs with no restrictions, Alternative B is the most restrictive of ROWs and other land-use authorizations, and thus has the most impact on the construction of future ROWs.

Minerals and energy development decisions would effect the processing of ROW grants. A total of 255 wells are projected to be developed in the MPA under Alternative B. This would require the fewest ROWs to be granted of any of the Alternatives. Alternative B would have approximately 43% less well development than Alternatives A, D, and the Proposed Plan.

4.3.5.3.3 PROPOSED PLAN

Land disposal and acquisitions under the Proposed Plan would be the same as under Alternatives B and D. Thus, slightly more acres of land would be disposed of under the Proposed Plan than under Alternative A, and the same number as under Alternatives B and D. Disposals would help accommodate resource management needs and the needs of adjacent communities. Acquisitions could result in improved access and BLM management.

A total of 370,250 acres would be within ROW exclusion areas under the Proposed Plan. A non-discretionary total of 353,520 acres designated as WSAs and Wilderness contribute to this total.

An additional 217,480 acres where surface-disturbing activities are limited are avoidance areas for new ROWs. These avoidance areas result from ACEC designation, management of non-WSA lands with wilderness characteristics (47,761 acres in Beaver Creek, Fisher Towers and Mary Jane Canyon), wildlife restrictions, protection of major river corridors, high recreation use areas, developed recreation sites, and areas with surface-use conflicts. The general nature of impacts due to excluding and avoiding ROWs is the same as described under Alternative A. However, the Proposed Plan has less ROW exclusion and avoidance area than Alternative B, but more area than Alternatives A or D; it would therefore have corresponding limitations on the placement of future ROWs.

Utility corridor adjustments under the Proposed Plan would bring the total corridor area to 173,099 acres. These adjustments include the designation of two new utility corridors (the [moderate width] I-70 Utility Corridor and the Moab Canyon Utility Corridor). The two utility corridors south of Spanish Valley would be combined into a single corridor with 2 to 3 miles separating the two segments. This alternative would have approximately five times the acreage of utility corridor as Alternative A, two and a half times the acreage as Alternative B, and approximately 85% of the acreage as Alternative D. Thus, implementation of these decisions would provide more avenues for placement of utilities across MPA lands than under Alternatives A and B, but fewer opportunities than under Alternative D.

Limitations on surface-disturbing activities (including ROWs) would have impacts of the same nature (though not magnitude) as described under Alternative A. The Proposed Plan has 806,994 acres where restrictions would be imposed on development and operation of ROWs. However, with 427,273 acres available for ROWs with no restrictions, the Proposed Plan is less restrictive

on ROWs or other land-use authorizations than Alternative B but more restrictive than Alternative A or Alternative D, and would have corresponding impacts on the construction of future ROWs.

The Proposed Plan is less restrictive of surface-disturbing activities than Alternative B, but more restrictive than Alternatives A or D. The processing of ROW grants in support of 432 wells under the Proposed Plan would be similar to Alternatives A and D, and greater than under Alternative B.

4.3.5.3.4 ALTERNATIVE D

Land disposal and acquisitions under Alternative D would be the same as under Alternative B and the Proposed Plan. Thus, slightly more acres of land would be disposed of under Alternative D than under Alternative A, and the same number as under Alternative B and the Proposed Plan. Disposals would help accommodate resource management needs and the needs of adjacent communities. Acquisitions could result in improved access and BLM management.

In addition to the non-discretionary 354,015 acres in WSAs and designated wilderness that are exclusion areas, an additional 84,772 acres where surface-disturbing activities are limited are avoidance areas for new ROWs. These avoidance areas result from protection of major river corridors, and areas with surface-use conflicts. The general nature of impacts due to excluding and avoiding ROWs is the same as described under Alternative A. However, Alternative D has less ROW exclusion and avoidance areas than Alternative B and the Proposed Plan, but more area than Alternative A; it would therefore have corresponding limitations on the placement of future ROWs.

Utility corridor adjustments under Alternative D would bring the total corridor area to 204,168 acres. These adjustments include the designation of two new utility corridors (the [wide width] I-70 Utility Corridor and the Moab Canyon Utility Corridor). The I-70 Utility Corridor under this alternative would differ from the same corridor under the Proposed Plan in that the corridor would be twice as wide as in the Proposed Plan. As with the Proposed Plan, the two utility corridors south of Spanish Valley would be combined into a single corridor with 2 to 3 miles separating the two segments under Alternative D. Implementation of these decisions would provide the most avenues for placement of utilities across MPA lands of any of the alternatives.

Limitations on surface-disturbing activities, including ROWs, would have impacts of the same nature (though not magnitude) as described under Alternative A. Alternative D has 590,442 acres where restrictions would be imposed on the development and operation of ROWs. However, with 797,031 acres available for ROWs with no restrictions, Alternative D is less restrictive on ROWs than Alternative B and the Proposed Plan, but more restrictive than Alternative A. It would therefore have corresponding impacts on the construction of future ROWs.

In general, Alternative D is less restrictive of surface-disturbing activities than Alternative B and the Proposed Plan, but more restrictive than Alternative A.

The processing of ROW grants in support of 448 wells under Alternative D would be similar to Alternative A and the Proposed Plan, and greater than under Alternative B.

4.3.6 LIVESTOCK GRAZING

This section discusses impacts to livestock grazing from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning livestock grazing are described in Chapter 3. Impacts on resources and resource uses resulting from implementation of the livestock grazing program are discussed in those particular resource sections of this chapter. Impacts on livestock grazing activities are generally the result of activities that affect forage levels. Conducting vegetation treatments would likely have the greatest effect on livestock grazing, as such treatments could increase vegetation production and forage available for livestock. Activities that result in surface disturbance (e.g., mineral development, ROW construction, and recreation) or management of resources that results in limiting surface disturbance (e.g., fish and wildlife, vegetation, water resources, soil resources, and visual resources) would also impact livestock grazing by affecting forage levels. Management of fire would affect livestock grazing by either preserving or increasing available forage for livestock over the long term.

The analysis is based on the following assumptions:

- Livestock grazing will be managed in accordance with the Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah.
- Livestock grazing will occur throughout the majority of the decision area.
- In the short term, actual forage use in the decision area may increase due to improving range condition and range recovery from recent drought. Over the long-term, forage demand may continue at historic levels.

Under all alternatives, there are no measurable impacts to livestock grazing from the following resources: air quality, human health and safety, paleontology, special designations (Areas of Critical Environmental Concern, National Historic Trail, Wild and Scenic Rivers, Wilderness), visual resources, and woodlands management. Therefore, the impacts of management actions applicable to these resources will not be further analyzed.

4.3.6.1 IMPACTS COMMON TO ALL ALTERNATIVES

Grazing practices would be modified if a grazing allotment fails to meet any of the BLM's Utah Standards for Rangeland Health (see Appendix Q), where it is determined that livestock grazing management practices are a significant factor in this failure. Modifications could include a change in stocking rate, kind of livestock, season of use, length of season, temporary closures, or any combination of these. These modifications could mean a temporary or permanent loss of acres or AUMs available to livestock for grazing in order to repair or rehabilitate an area, and to progress towards meeting the Standards for Rangeland Health.

Data collected from rangeland monitoring studies would assist the Field Manager in the decision of whether or not to restrict livestock access to an area. These kinds of closures, although they cause a temporary loss of accessible forage, are implemented with the goal of restoring the area so that it can continue to support grazing and other resource uses.

Under all alternatives, certain allotments could undergo season-of-use changes to facilitate grazing management while maintaining rangeland health standards. Changes in season of use do not affect forage, but they do impact the timing of its availability.

Livestock grazing would not be permitted in the following areas under all alternatives (see Table 4.37): Poison Spider (Arth's Pasture Allotment), Between the Creeks Allotment, Castle Valley allotment, along the Colorado River between Hittle and to the North of Dewey Bridge, along Highway 128 from 191 to Castle Valley Road, along U.S. 191 from Moab to Highway 313, along Highway 279, Kane Spring Canyon between the open valley and the Colorado River, North Sand Flats Allotment, and South Sand Flats Allotment. The reduction in acreage available to livestock associated with these actions will be compared below. It was determined that the rationale provided and the analyses conducted under the NEPA documents and Plan Amendment which rendered these areas not available for grazing were still valid.

Table 4.37. Acres and AUMs of Forage Not Available to Grazing under All Alternatives

Exclosure	Allotment(s)	Acreage	AUMs
Arth's Pasture portion	Arth's Pasture	7,634	425
Between the Creeks	Between the Creeks	3,960	221
North Sand Flats	North Sand Flats	18,246	798
South Sand Flats	South Sand Flats	10,209	592
Castle Valley	Castle Valley	6,074	190
Along the Colorado River between Hittle and to north of Dewey Bridge	Professor Valley	400	0
Along Highway 128 from 191 to Castle Valley Road; along U.S. 191 from Moab to Highway 313; along Hwy. 279	None	1,139	0
Kane Spring Canyon between the open valley and the Colorado River	Kane Creek Springs	558	0
Total		**48,220**	**2,226**

All actions would be the same as those defined in the 1985 RMP with the exceptions of laws, regulations, and policies enacted since 1985 that affect management of the resources under all alternatives. Actions common to all alternatives that would affect livestock grazing by directly decreasing or increasing acres and AUMs available to livestock are as follows:

- Wildfires would be allowed to burn according to the parameters of the Fire Management Plan unless they threaten Wildland-Urban Interface (WUI) areas, threatened, endangered, or special status species, high priority sub-basins or watersheds, cultural resources and/or cultural landscapes, or sensitive ecosystems. If an area does not have any of the above resources, it may be allowed to burn. If a wildfire occurs on rangeland, it may result in a temporary loss of acres available to livestock. BLM guidelines usually require a burned area to be closed to livestock for a minimum of one complete growing season after a fire or until adequate vegetation rehabilitation is complete (BLM 1997a).
- Any disposals, exchanges, or acquisitions of public rangelands could change acres available for livestock grazing.
- Construction of any new wind, solar or communication sites would result in a temporary loss of acres and AUMs during construction and a permanent loss where the structure is sited.

- Surface-disturbing activities due to minerals extraction could lead to temporary and long term losses of acres accessible for livestock grazing.
- Grazing would not be allowed on developed recreation sites. New recreation sites to be developed under this RMP would be excluded from grazing, in accordance with current management practices.
- Construction of new roads or cross country OHV travel could decrease acres and AUMs available for livestock.
- Since livestock grazing can have deteriorative impacts on riparian ecosystems (Armour et al. 1994), " … it may be necessary to temporarily restrict livestock use on riparian areas determined to be 'Functioning at Risk' and in a static or downward trend or 'Not Functioning'." In these cases, restrictions might be implemented to help the recovery of the site, meaning a temporary loss of acres available to livestock through seasonal restrictions, closures, and/or forage utilization limits.
- Any actions, including improper grazing, that compromise water or soil quality in sensitive areas would be avoided. Improper livestock grazing can adversely alter ecosystems by increasing soil compaction, disturbing soil, and increasing soil erosion (Belsky and Blumenthal 1997), and therefore all uses would be managed to minimize and mitigate damage to soils. Grazing would be managed to minimize impacts to saline soils and reduce salinity in the Colorado River drainage in the following allotments: Athena, Cisco, Cisco Mesa, Crescent Canyon, Highland, Monument Wash, and Thompson Canyon. This could lead to a decrease in acres available to livestock through seasonal restrictions or closures.
- Rangelands that have been reseeded and mechanically treated would be ungrazed for a minimum of two complete growing seasons following treatment. This could lead to a decrease in acres available to livestock through temporary closures of allotments following vegetation treatments.
- In general, when livestock grazing threatens to damage the habitats of special status species and species that are listed, or proposed for listing, or candidates for listing under the Endangered Species Act, changes would be made to grazing schedules or acreage available to livestock.
- Construction of any new range improvements to benefit wildlife, such as precipitation catchments or development of new springs, would reduce acres by the amount of rangeland surface area replaced. However, they could increase the long-term available forage for livestock.
- Any future proposal for a change in kind of livestock from cattle to sheep in Rocky Mountain or desert bighorn sheep habitat would be denied. This would have no impact in acres available to cattle.
- The noise, dust, and human presence associated with any type of construction activity could also temporarily decrease the acreages or AUMs, although the degree to which these disturbances would affect livestock would be difficult to gauge.
- If an allotment occurs in recognized Rocky Mountain or desert bighorn sheep habitat, a change in class of livestock from cattle to sheep would not be authorized. Sheep can transmit diseases such as pneumonia to native bighorn sheep, which is thought to have caused high numbers of bighorn fatalities (Foreyt and Jessup 1982; Jessup 1985). Forage and water

competition by livestock also creates stress to bighorn sheep, and all such interactions would be avoided (Desert Bighorn Council Technical Staff 1990).

4.3.6.2 ALTERNATIVE A

The 48,220 acres (and 2,226 AUMs) listed above under Actions Common to All Alternatives would remain not available for grazing under this alternative. Table 4.38 lists additional areas and allotments that would not be available for grazing under Alternative A.

78,612 additional acres would not be available for grazing, making a total of 126,832 acres and 4,168AUMs are not available for grazing under Alternative A (Please see Map 2-4-A-Areas Not Available for Livestock Grazing-Alternative A).

These exclusions lead to a total of 1,695,621 acres available for livestock grazing under this alternative (93.0% of total BLM lands in the MPA), and approximately 107,071 AUMs (96.2% of total current AUMs of forage available).

Table 4.38. Acres and AUMs of Forage Not Available to Grazing under Alternative A

Exclosure	Allotment(s)	Acreage	AUMs
Bogart	Bogart	14,744	209
Cottonwood	Cottonwood	27,193	900
Diamond	Diamond	18,620	588
Pear Park	Pear Park	14,201	200
Spring Creek	Spring Creek	1550	45
Beaver Creek upper drainage	Beaver Creek	2,304	0
Total		**78,612**	**1,942**

4.3.6.2.1 IMPACTS OF SOILS/WATERSHED MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Livestock grazing on portions of allotments with saline soils would be adjusted to reduce impacts on highly saline soils and reduce salinity in the Colorado River drainage. These changes could decrease the amount of acres available to livestock.

4.3.6.2.2 IMPACTS OF TRAVEL MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Areas open to cross country OHV travel would result in loss of vegetation available for livestock grazing. In this alternative, 620,212 acres are open to cross country travel, possibly resulting in the destruction of forage.

4.3.6.2.3 IMPACTS OF VEGETATION MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Land treatments on 11 allotments (see Alternatives Matrix) would be implemented to increase available forage by 8514 AUMs to allow for increased use by livestock and wildlife (split evenly where both are present). Prescribed fire and seeding would be implemented on approximately 14,149 acres for the same purpose increasing AUMs by approximately 1,700 for livestock and wildlife. These vegetation treatments would cause a temporary reduction in the number of acres available to livestock, as it is necessary to leave treated rangelands ungrazed for a minimum of

two complete growing seasons. However, these treatments could result in an increase in available forage for livestock and future increases in acres available to livestock.

4.3.6.2.4 Impacts of Wildlife Management Decisions on Livestock Grazing

To improve pronghorn habitat grazing could be excluded from May 15 through June 20 or during extreme snow conditions. Changes in season of use could be made on fawning grounds to reduce disturbance to the pronghorn.

Livestock grazing in pronghorn fawning areas would be excluded from May 1 till June 30 in the Hatch Point HMP. Changes in season of use, number of livestock (27% reduction), change in livestock class from sheep to cattle, fencing, seeding, and rest/rotation would be recommended to improve pronghorn habitat. Rest/rotation would be implemented on the three pastures of the Hatch Point Allotment. These changes to grazing management could reduce acres available to livestock.

Livestock adjustment techniques would be implemented on Horsethief Point, Spring Canyon Bottom, and Ten-Mile Point allotments to improve or maintain bighorn sheep habitat. This could mean a change in the number of acres available to livestock.

4.3.6.3 Alternative B

The 48,220 acres (and 2,226 AUMs) listed above under Impacts Common to All Alternatives would remain not available for grazing under this alternative. Table 4.39 lists additional areas and allotments that would be not available for grazing under Alternative B.

Table 4.39. Acres and AUMs of Forage Not Available to Grazing under Alternative B

Exclosure	Allotment(s)	Acreage	AUMs
Bogart	Bogart	14,744	209
Cottonwood	Cottonwood	27,193	900
Diamond	Diamond	18,620	588
Pear Park	Pear Park	14,201	200
Spring Creek	Spring Creek	1,550	45
Beaver Creek upper drainage	Beaver Creek	2,309	0
Professor Valley	Professor Valley	18,966	378
Ida Gulch	Ida Gulch	3,612	112
River	River	386	7
Mill Creek	Mill Creek	3,921	137
Total		**105,502**	**2576**

Thus, an additional 105,502 acres would be not be available for grazing in Alternative B, making a total of 153,722 acres and 4,802 AUMs not available for grazing (Map 2-4-B-Areas Not Available for Livestock Grazing-Alternative B). About 106,437 AUMs remain available for grazing under Alternative B.

For purposes of analysis, Table 4.40 shows the following areas could also be unavailable for grazing under this alternative.

These decisions (excluding the riparian acres and AUMs) lead to a total of 1,668,732 acres available for livestock grazing under this alternative (91.6% of the MPA), and 106,437 AUMs of forage (95.7% of current available forage), both measurements being similar to those under Alternative A.

Table 4.40. Riparian Acres Not Available for Grazing and AUMs of Forage under Alternative B[1]

Exclusion	Allotment(s)	Acreage	AUMs
Seven Mile Canyon*	Dalton Wells, Arth's Pasture, Big Flat/Ten Mile	459	2
Hatch Wash *	Hatch Point	476	10
East Coyote Wash *	Lisbon, East Coyote	391	56
Kane Springs	Kane Springs Canyon, Behind the Rocks	746	21
Hatch Wash	Hatch Point	476	10
Lower Gray Canyon*	Rattlesnake	1,628	84
Riparian areas in Mill Creek Canyon*	Mill Creek	42	1
Day Canyon*	Potash	22	1
Ten Mile Wash*	Ten Mile Point	434	18
Total		**4,422**	**203**

[1]Acreages are for BLM land only.

*Grazing permits have not been authorized previously in the Pear Park and Spring Creek allotments, and therefore, estimations for available forage in AUMs are not available.

4.3.6.3.1 Impacts of Minerals Management Decisions on Livestock Grazing

Under Alternative B, it is predicted that 426 acres of land would be disturbed annually due to minerals extraction. This is 253 fewer acres than Alternative A and, similar to Alternative A, represents a negligible decrease in the total forage available in the MPA.

4.3.6.3.2 Impacts of Non-WSA Lands with Wilderness Characteristics Management Decisions on Livestock Grazing

Under Alternative B, 266,485 acres in 32 areas would be managed to protect their wilderness characteristics values. Livestock developments required through Standards and Guides assessments would be required to meet VRM II objectives as well as the naturalness criteria for non-WSA lands with wilderness characteristics. This could preclude development of certain surface-disturbing rangeland projects, or require placement outside the wilderness characteristics areas.

4.3.6.3.3 IMPACTS OF RIPARIAN MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

The following portions of allotments could be not available for grazing (in order to further riparian management goals) under this alternative, in addition to those listed in Alternative A: Ten Mile from Dripping Springs to the Green River, Day Canyon, Mill Creek, Seven Mile Canyon, East Coyote, Cane Springs, Lower Gray Canyon, and Hatch Wash. Managed livestock grazing in all riparian areas would be allowed, although riparian areas would be managed to meet PFC.

This could reduce the numbers of acres available to livestock grazing under Alternative B by 4,422 acres and 203 AUMs as compared to Alternative A.

4.3.6.3.4 IMPACTS OF SOILS/WATERSHED MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Under Alternative B, some sites could undergo season-of-use changes in order to minimize impacts to saline soils.

Grazing systems and AMPs would be used to minimize impacts to saline soils and reduce salinity in the Colorado River drainage in the following allotments: Agate, Big Flat-Ten Mile, Cisco Mesa, Corral Wash, Crescent Canyon, Floy Creek, Harley Dome, Highlands, and San Arroyo. These new AMPs may reduce acreage available to livestock if site closures are determined to be necessary.

4.3.6.3.5 IMPACTS OF TRAVEL MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Areas open to cross country OHV travel would result in loss of vegetation available for livestock grazing. In this alternative, 0 acres are open to cross country travel. This action could result in potential increases in forage.

4.3.6.3.6 IMPACTS OF VEGETATION MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Approximately 46,307 acres of vegetation treatments would be maintained to increase available forage. This is 20,818 acres (31%) less than Alternative A and is the same as Alternatives C and D. Vegetation treatments under this alternative would be used primarily to benefit wildlife.

The areas set aside to be treated may be unavailable for grazing temporarily, but improvements to the rangeland may result in more acres available for grazing. This would be especially likely if an area is rehabilitated to the point of meeting the Standards for Rangeland Health where previously it was not available for grazing due to failing to meet the standards. However, these treated areas would not necessarily lead to an increase in acres available for livestock. Potential changes in forage available for livestock would be analyzed at the project implementation level with site-specific NEPA.

4.3.6.3.7 IMPACTS OF WILDLIFE MANAGEMENT DECISIONS ON LIVESTOCK GRAZING

Spring livestock use could be limited on 188,975 acres on allotments within crucial pronghorn habitat in the Cisco Desert to encourage forb production. For purposes of analysis, this could lead to a total loss of 633 days (out of 1,691 total), or roughly a 37% decrease in livestock season of use in this area in comparison to Alternative A.

Pronghorn fawning areas in the Hatch Point HMP area could not be grazed from May 1 until June 30.

For purposes of analysis, this could lead to a total loss of 86 days (out of 605 total), or roughly a 14.2% decrease in livestock season of use in this area in comparison to Alternative A.

Livestock utilization could be adjusted to protect desert bighorn sheep lambing areas, on North River and Taylor Allotments (Dry Mesa Pasture).

For purposes of analysis, this could lead to a total loss of 137 days (out of 712 total), or roughly a 19.2% decrease in livestock season of use in this area in comparison to Alternative A.

Management of rangeland in the 458,242 acres of Rocky Mountain bighorn sheep habitat from the Green River to the Colorado border would include improving or maintaining habitat and vegetative conditions to benefit the bighorn sheep while maintaining or improving the overall ecological condition of the area. Conversion of sheep to cattle on allotments that are in the 458,242 acres of managed Rocky Mountain bighorn sheep habitat would be supported. This action would not result in overall AUM reduction, but would be a loss of opportunity for ranchers who graze domestic sheep.

4.3.6.4 PROPOSED PLAN

The 48,220 acres (and 2,226 AUMs) listed above under Actions Common to All Alternatives would remain not available for grazing under this alternative (see Table 4.37). Table 4.41 lists additional areas and allotments that would not be available for grazing under the Proposed Plan.

Table 4.41. Additional Acres and AUMs of Forage Not Available to Grazing under the Proposed Plan

Exclosure	Allotment(s)	Acreage	AUMs
Bogart	Bogart	14,744	209
Cottonwood	Cottonwood	27,193	900
Diamond	Diamond	18,620	588
Portions of Professor Valley, River	Professor Valley, River	1,467	0
Mill Creek	Mill Creek	3,921	137
Ida Gulch	Ida Gulch	3,612	112
Pear Park	Pear Park	14,201	588
Total		**83,758**	**2,534**

Thus, an additional 83,758 acres would not be available for grazing, making a total of 132,047 acres and 4,760 AUMs not available for grazing under the Proposed Plan (Map 2-4-C-Areas not available for livestock grazing under the Proposed Plan).

Table 4.42 shows the riparian areas that could be unavailable for grazing under this alternative.

These decisions (excluding the riparian acres and AUMs) lead to a total of 1,690,481 acres available for livestock grazing under this alternative (92.8% of the total MPA), and 106,479

AUMs (95.7% of current estimated forage amounts), both numbers being similar to Alternative A totals.

Table 4.42. Acres Unavailable for Grazing and AUMs of Forage under the Proposed Plan

Exclusion	Allotment(s)	Acreage	AUMs
Seven Mile Canyon*	Dalton Wells, Arth's Pasture, Big Flat/ Ten Mile	459	2
East Coyote Wash*	East Coyote, Lisbon	391	56
Riparian areas in Mill Creek canyon*	Mill Creek	42	1
Day Canyon*	Potash	22	1
Ten Mile Wash, downstream from Dripping Springs*	Ten Mile Point	434	18
Total		**1,169**	**78**

*These areas are considered for restriction using Standards for Rangeland Health.

Management decisions would be the same as for Alternative A, with the exceptions outlined in the sections below.

4.3.6.4.1 Impacts of Minerals Management Decisions on Livestock Grazing

Under the Proposed Plan, it is predicted that 701 acres of land would be disturbed annually due to minerals extraction. This is 22 more acres than Alternative A (3.3% increase), but still less than 1% of the total lands in the MPA.

4.3.6.4.2 Impacts of Non-WSA Lands with Wilderness Characteristics Management Decisions on Livestock Grazing

Under the Proposed Plan, 47,761 acres in Beaver Creek, Fisher Towers and Mary Jane Canyon non-WSA lands with wilderness characteristics would be managed to protect their wilderness characteristics values. Livestock developments required through Standards and Guides assessments would be required to meet VRM II objectives as well as the naturalness criteria for non-WSA lands with wilderness characteristics. This could preclude development of certain surface-disturbing rangeland projects, or require placement outside the wilderness characteristics areas.

4.3.6.4.3 Impacts of Riparian Management Decisions on Livestock Grazing

The same riparian areas would be available for grazing as under Alternative B, except Lower Gray Canyon, Kane Springs and Hatch Wash, which would remain available. This is 1,169 more riparian acres (and 78 AUMs) potentially not available for grazing than under Alternative A.

4.3.6.4.4 Impacts of Soils/Watershed Management Decisions on Livestock Grazing

Grazing systems would be used and AMPs would be developed to minimize impacts to saline soils in the following allotments: Agate, Athena, Big Flat – Ten Mile, Cisco, Cisco Mesa, Coal Canyon, Corral Wash, Crescent Canyon, Floy Creek, Harley Dome, Highlands, Horse Canyon,

Little Grand, Lone Cone, Monument, San Arroyo. This could result in a temporary decrease in acres available to livestock.

4.3.6.4.5 Impacts of Travel Management Decisions on Livestock Grazing

Areas open to cross country OHV travel would result in loss of vegetation available for livestock grazing. In this alternative, 1,866 acres are open to cross country travel; forage could be affected on this acreage.

4.3.6.4.6 Impacts of Vegetation Management Decisions on Livestock Grazing

The same amount of vegetation treatments would be maintained as outlined under Alternatives B and D. The treatments would be used to benefit wildlife and livestock equally.

4.3.6.4.7 Impacts Wildlife Management Decisions on Livestock Grazing

Spring grazing would be adjusted on a case-by-case basis on 188,975 acres on allotments within crucial pronghorn habitat in the Cisco Desert to encourage forb production. These allotments include Athena, Cisco, Cisco Mesa, Harley Dome, San Arroyo, and Corral Wash.

Where applicable, a rest/rotation of pasture or other grazing management systems would be developed in allotments within crucial pronghorn habitat to encourage forb production prior to fawning. Change in livestock class from sheep to cattle, fencing, seeding and rest/rotation to improve habitat would be encouraged.

To protect desert bighorn sheep lambing areas, Standards for Rangeland Health would be employed on the North River and Taylor allotments (Dry Mesa Pasture) For purposes of analysis, this leads to a total loss of 92 days (out of 712 total), or roughly a 12.9% decrease in livestock season of use in this area in comparison to Alternative A.

Management of rangeland in 310,726 acres of Rocky Mountain bighorn sheep habitat from the Green River to the Colorado border would include improving or maintaining habitat and vegetative conditions to benefit the bighorn sheep while maintaining or improving the overall ecological condition of the area. Conversion of sheep to cattle on allotments in 310,726 acres of managed Rocky Mountain bighorn sheep habitat would be supported. Once conversion occurs, reconversion (from cattle to sheep) would not be allowed. This action would not result in overall AUM reduction, but would be a loss of opportunity for ranchers who graze domestic sheep.

4.3.6.5 Alternative D

The 48,220 acres (and 2,226 AUMs) listed above under Actions Common to All Alternatives would remain not available for grazing under this alternative. Table 4.43 lists additional areas and allotments that would not be available for grazing under Alternative D.

Table 4.43. Additional Acres and AUMs of Forage Not Available to Grazing under Alternative D

Exclosure	Allotment(s)	Acreage	AUMs
Mill Creek	Mill Creek	3,921	137
Total		**3,921**	**137**

Thus, an additional 3,921 acres would not be available for grazing, making a total of 52,141 acres and 2,363 AUMs not available for grazing under Alternative D (Map 2-4-D-Areas Not Available for Livestock Grazing - Alternative D).

These exclusions lead to a total of 1,770,314 acres available for livestock grazing under this alternative (97.1% of the MPA) and 108,876 AUMs of forage (97.9% of estimated totals in the MPA), which is the most amount acreage and AUMs of any alternative.

4.3.6.5.1 Impacts of Minerals Management Decisions on Livestock Grazing

It is predicted that 743 acres of land would be disturbed annually due to minerals extraction under Alternative D. This is less than 1% of the MPA and is virtually identical to the total percent of lands that would be impacted under Alternative A.

4.3.6.5.2 Impacts of Soils/Watershed Management Decisions on Livestock Grazing

Grazing systems would be managed to minimize impacts to saline soils and reduce salinity in the Colorado River drainage in the following allotments: Athena, Cisco, Cisco Mesa, Crescent Canyon, Highland Monument Wash, and Thompson Canyon. This may result in temporary decreases in acres available to livestock if site closures are determined necessary.

4.3.6.5.3 Impacts of Travel Management Decisions on Livestock Grazing

Areas open to cross country OHV travel would result in loss of vegetation available for livestock grazing. In this alternative, 3,064 acres are open to cross country travel and the forage on them would be subject to impacts.

4.3.6.5.4 Impacts of Vegetation Management Decisions on Livestock Grazing

The same amount of vegetation treatments would be maintained as outlined under Alternatives B and C. Vegetation treatments would be used primarily to benefit livestock under this alternative.

4.3.6.5.5 Impacts of Wildlife/Fisheries Management Decisions on Livestock Grazing

Seasons of use would be adjusted to protect desert bighorn sheep lambing areas in the same areas as outlined under the Proposed Plan.

Rangeland from the Green River to the Colorado border (194,560 acres) would be managed as Rocky Mountain bighorn sheep habitat. This management would include maintaining or improving habitat and vegetative conditions to benefit bighorn sheep while maintaining or improving the ecological condition of rangelands. Any future proposal for a change in kind of livestock from cattle to sheep in Rocky Mountain bighorn sheep habitat would be denied. This action would not result in overall AUM reduction, but would be a loss of opportunity for ranchers who graze domestic sheep.

4.3.6.6 SUMMARY OF IMPACTS

Alternative B would have the least number of AUMs available of all the alternatives followed by Alternative A, the Proposed Plan, and Alternative D respectively. Table 4.44 summarizes grazing exclusions by AUMs and the differences by alternatives.

Table 4.44. Total AUMs of Forage Available and Not Available to Livestock by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
AUMs Available	107,071	106,437	107,179	108,876
AUMs Not Available	4,168	4,802	4,060	2,363
Compared to A	--	+634	-108	-1805
Compared to B	-634	--	-742	-2,439
Compared to the Proposed Plan	+108	+742	--	-1,697
Compared to D	+1,805	+2,439	+1,697	--

Correspondingly Alternative B also has the fewest number of acres available for grazing followed by Alternative A, the Proposed Plan, and Alternative D, respectively. Table 4.45 summarizes grazing exclusions by acres.

Table 4.45. Total Acreage Available and Not Available to Livestock by Alternative[1]

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Acreage Available to Grazing	1,695,621	1,668,732	1,708,294	1,770,314
Acreage Not Available to Grazing	126,907	153,797	114,234	52,214

Average annual disturbance caused by minerals extraction would have the following impacts in terms of acres under each alternative (Table 4.46).

Table 4.46. Annual Average Acres of Disturbance Due to Minerals Extraction Activities Under All Alternatives, as well as Percent of Total Planning Area

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Annual acres of disturbance	679	417	638	672
Percent of total planning area	<1.0%	<1.0%	<1.0%	<1.0%

As shown, a very small percentage of the MPA would be affected by disturbance (i.e., loss of vegetation) each year. There is very little difference in yearly average acres of disturbance

[1] Numbers are approximate due to GIS calculation variances.

between alternatives, so there would thus be very little difference in potential impacts by alternative.

4.3.7 MINERALS

This section presents the environmental consequences of resource management decisions, proposed under each of the four alternatives described in Chapter 2, upon mineral resource development. Existing conditions concerning minerals are described in Chapter 3. In accordance with BLM policy and its recognition of the National Energy Policy and Conservation Act of 2000 (EPCA), as discussed in Chapters 2 and 3, mineral resource development would be allowed throughout the MPA subject to standard lease terms unless precluded by other program prescriptions, as specified in this PRMP/EIS.

Stipulations would be developed in the RMP, where necessary, to mitigate the impacts of oil and gas and other mineral activity (see Appendix C). The stipulations identified in Appendix C would apply to all surface-disturbing activities, aside from the exception, modification, and waiver situations as determined by an Authorized Officer. The area-specific restrictions on surface-disturbing activities listed in Table C.1 vary by alternative and detail limits on timing, surface use, and occupancy, as well as closures, throughout the MPA. Impacts to the mineral program from these stipulations are discussed throughout this section under the applicable impacting program.

4.3.7.1 RESOURCE DECISIONS THAT WOULD HAVE NEGLIGIBLE IMPACTS ON MINERAL RESOURCE DEVELOPMENT

Negligible impacts to mineral resource development would result from air quality, cultural resources, fire, health and safety, livestock grazing, travel, or woodlands management decisions. The impacts would be negligible because maintaining air quality within NAAQS thresholds through appropriate mitigation; identifying, protecting, and preserving cultural resources, and complying with section 106; reducing wildland fire risks; reducing the risks of hazardous spills, and maintaining safety around AML sites; establishing utilization levels and applying grazing standards and guidelines; designating recreational OHV access within the planning area; and permitting woodland harvesting would not reduce the opportunities for minerals leasing or for the exploration and development of mineral resources. Therefore, the impacts of management actions for these resources or programs on mineral resource development will not be analyzed further in this section.

4.3.7.2 ASSUMPTIONS

For this analysis, it is assumed that:

- 50% of the wells drilled would be productive,
- the remaining 50% would be abandoned and reclaimed, and
- revegetation would be successful within a scope of 10 years.

In addition, the surface-disturbance associated with geophysical exploration would be successfully reclaimed within a scope of 10 years.

Most geophysical exploration would occur in the Big Flat-Hatch Point, Lisbon Valley, and Eastern Paradox RFD areas. This exploration would beneficially impact mineral resource

development and production, in that it would refresh or increase the data available for making prudent mineral resource development decisions (BLM 2005f). This beneficial impact cannot be quantified further because it is not possible to predict the number of wells that would ultimately result from this exploration or to predict whether such data would remain useful as data-gathering technologies advance over the next 15 years.

The RFD prepared in anticipation of this RMP utilizes data on past and current development to predict future development for all lands in the MPA, both BLM lands and non-BLM lands (BLM 2005e, 2005f). The RFD is a hypothetical scenario which allows the discussion to focus the analysis on the potential impacts. For purposes of analysis, the average acreage of disturbance per well (including the well pad, roads, and pipelines) was estimated to be 15 acres. Therefore, 15 acres is assumed to be the projected, approximate disturbance per well under each alternative.

The percentage of all lands in the MPA determined to be administered by the BLM was 69.7% (Table 4.37). Assuming the RFD applies uniformly across all lands in the MPA, any calculations made, in conjunction with the disturbance per well number (15 acres) and the alternatives matrix in Chapter 2, can be used to estimate potential mineral resource development impacts (measured in number of wells and resulting acres of surface disturbance) on BLM lands for each alternative. It was assumed that the number of wells likely to be drilled under each alternative would be proportional to the acreage of land open for mineral resource development under that alternative. For example, if an alternative had 90% of BLM lands in the MPA open for development, it would be assumed that 90% of the RFD on BLM lands would be drilled under that alternative.

Table 4.47 shows the acreages of and predicted number of wells on BLM lands within the seven RFD development areas, which are to be the focus of this analysis and of future oil and gas development within the MPA.

Table 4.47. Baseline/RFD Acreages of Lands and Average Predicted Number of Oil and Gas Wells in the Seven RFD Areas, over 15 Years

RFD Area	Acreage		BLM% of Total	Wells	
	Total	BLM		Total	BLM
Bigflat – Hatch Point	470,133	391,395	83	60	50
Book Cliffs	326,070	255,074	78	135	105
Eastern Paradox	1,121,340	675,577	60	60	36
Greater Cisco	292,952	235,620	80	247	198
Lisbon Valley	153,916	114,494	74	75	56
Roan Cliffs	329,841	95,849	29	8	2
Salt Wash	65,246	54,526	84	15	13
Total[1]	**2,759,498**	**1,822,535**	**69.7**	**600**	**459**

Due to rounding, table totals may differ from the sum of the rows above.

Using the above method, similar calculations can be made regarding impacts of geophysical exploration, in conjunction with the disturbance associated with linear miles of source line within

the MPA (disturbance of 3,600 acres caused by 2,000 linear miles of source line; BLM 2005f). Table 4.48 shows the acreages for development of BLM lands throughout the MPA.

Locatable and salable mineral resource development, in conjunction with the acres of disturbance within the MPA (disturbance of 350 acres caused by locatable mineral resource development and of 390 acres caused by salable mineral resource development; BLM 2005e) will be applied uniformly across the alternatives.

Short-term and long-term impacts are discussed in the introduction to Chapter 4. Because the impact indicators for this resource are number of wells and the number of acres available for mineral resource development over the life of the RMP, short-term impacts are not distinguished from long-term impacts.

The analysis of the impacts of NSO stipulations assumes that development and production of the underlying mineral resources are administratively available by directional drilling from outside the area. The extent of directional drilling technology is currently approximately 1 mile in this region; therefore, for this RMP, 1 mile was assumed. Because the resources underlying NSO-stipulated surfaces are more difficult and costly to extract, developers are less likely to opt to develop in NSO areas if less restrictive leases are available to them. For these reasons, NSO lands experience far less development than lands with standard lease terms and special stipulations (timing limitations and controlled surface use). Since the unit of analysis in this section is acres of disturbance, and since NSO areas would not undergo surface disturbance, NSO and closed acreage has been combined in the analysis of surface disturbance. Acreage has been divided into those lands which allow surface disturbance and those lands on which surface disturbance is not allowed, and analysis performed on those two categories.

Table 4.48. Acres of BLM Lands Available for Mineral Resource Development under Each Alternative

Resource	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
LEASABLE MINERAL RESOURCE DEVELOPMENT, INCLUDING OIL AND GAS				
Standard Lease Terms	1,038,344	264,344	427,273	797,031
Special Stipulations (CSU and TL)	389,605	543,751	806,994	590,442
Subtotal of Open Lands	**1,427,949**	**808,096**	**1,234,267**	**1,387,473**
No Surface Occupancy (NSO) Stipulations	38,912	342,931	217,480	84,772
Closed to Leasing*	353,293	671,444	370,250	350,219
Subtotal of Closed Lands**	**392,205**	**1,014,375**	**587,730**	**434,991**
All BLM Lands	**1,820,154**	**1,822,471**	**1,821,997**	**1,822,464**
SALABLE MINERAL RESOURCE DEVELOPMENT (MINERAL MATERIAL DISPOSAL)				
Standard Terms/Conditions	1,466,861	264,344	427,273	797,031
Special Conditions (CSU and TL)		543,751	806,994	590,442
Subtotal of Open Lands	**1,466,861**	**808,097**	**1,234,267**	**1,387,473**
NSO		342,931	217,480	84,772
Closed		671,444	370,250	350,219
Subtotal of Closed Lands**		**1,014,375**	**587,730**	**434,991**
LOCATABLE MINERAL RESOURCE DEVELOPMENT (MINERAL ENTRY)				
Open, Standard Terms/Conditions	1,389,531	268,873	427,273	797,031
Open, Special Conditions (CSU and TL)		1,120,658	962,258	592,500
Open within WSAs, Subject to IMP	353,510	353,510	353,510	353,510
Subtotal of Open Lands	**1,743,041**	**1,743,041**	**1,743,041**	**1,743,041**
Withdrawn	78,333	78,333	78,333	78,333

* More than 350,000 of these acres are closed due to WSA designation (BLM 1990, 1991c, 1995, 1999; see the IMP). WSA closures are non-discretionary and, thus, are beyond the scope of this EIS's analysis. WSA designations would continue to apply across all alternatives, including Alternative A.

** See previous paragraph. NSO and closed lands compose this subtotal.

4.3.7.3 ALTERNATIVE IMPACTS

4.3.7.3.1 IMPACTS OF LANDS AND REALTY DECISIONS ON MINERAL RESOURCE DEVELOPMENT

4.3.7.3.1.1 Impacts Common to All Alternatives

Under all alternatives, approximately 78,333 acres of withdrawals from mineral entry (or 4.3% of BLM lands) would continue as follows (see Appendix C):

- Three Rivers Withdrawal (65,037 acres)
- Westwater Withdrawals (8,096 acres)
- Black Ridge Wilderness Withdrawal (5,200 acres)

These withdrawals constitute an adverse impact that would result in fewer opportunities for locatable mineral resource development on those parcels and less production and supply of locatable mineral resources (see Section 4.3.7.3.2.1).

4.3.7.3.1.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Under all action alternatives (i.e., excluding Alternative A), an NSO stipulation would be placed on oil and gas leasing, and other surface-disturbing activities would be precluded (see Appendix C) along the U.S. Highway 191 utility corridor within Moab Canyon and within the area of the existing withdrawals. These leasing restrictions would constitute adverse impacts compared to Alternative A. Only limited development (i.e., oil and gas production using directional drilling) would be conducted on the lands managed as NSO, which would result in a lower domestic supply of mineral resources and fewer royalties.

4.3.7.3.2 IMPACTS OF MINERAL RESOURCE DEVELOPMENT DECISIONS ON MINERAL RESOURCE DEVELOPMENT

4.3.7.3.2.1 Impacts Common to All Alternatives

Adverse impacts to mineral resource development in the MPA result from discretionary land-use restrictions (e.g., seasonal wildlife restrictions). These restrictions would increase the cost, time, and effort devoted to production of mineral resources. In addition, non-discretionary procedures (i.e., protection of special status plant and animal species) would also increase the cost, time, and effort devoted to the production of mineral resources.

<u>Impacts of Federal Leases on Non-BLM Lands</u>

Under all alternatives, the BLM controls Federal lease operations on certain lands not administered by the BLM, including:

- 141,241 acres within the Manti-La Sal National Forest, Moab Ranger District, and
- 29,678 acres on split-estate lands, of which 9,617 acres (or 0.5% of all Federally leased lands) would be subject to NSO or closed to leasing.

The impacts of administering leasing operations on these non-BLM lands within the MPA—a total of 170,919 acres—would result in a net benefit for mineral resource development, particularly of oil and natural gas, over the long term. Leasing of these non-BLM lands would result in the permitting of additional wells, which in turn would result in an increase in the domestic supply of oil and natural gas and increased royalties to the Federal government and the State of Utah. However, continued oil and gas extraction would, over time, reduce the quantities of finite fossil fuel resources in the MPA. It should be noted that these lands are considered in the RFD prepared in conjunction with this PRMP/EIS.

Impacts of Mineral Leasing on Mineral Resource Development

Under all alternatives, potash solution mining exploration and development may occur on approximately 50 acres in the east-central portion of the MPA (i.e., the Big Flat – Hatch Point RFD Area).

This decision would result in beneficial impacts, taking the form of small increases in the domestic supply of potash. Furthermore, the development of potash resources in this area is not expected to conflict with the development of other mineral resources, including oil and gas (even if these developments are co-located; BLM 2005e, 2005f), due primarily to the small scale of development. Thus, the net impact of this decision would be beneficial across all alternatives.

Impacts of Salable Minerals on Mineral Resource Development

Under all alternatives, over the life of the RMP, sand and gravel resource development would continue at known deposits and could disturb approximately 360 acres in close proximity to transportation corridors and communities. Development of building stone, humate, and clay resources would also continue at existing and historical deposits and would disturb approximately 10, 17, and 7 acres, respectively, adjacent to existing and historical deposits. Therefore, a total of 394 acres are expected to be disturbed due to the development of salable minerals, which in turn would result in beneficial impacts of the types described above for potash, for similar reasons. Although development of salable mineral resources may be co-located with oil and gas and other mineral resource development, mineral material disposal operations are typically discrete sites, small enough to avoid conflicts with the development of other mineral resources. Very few adverse impacts in the form of resource conflicts between development and extraction of salable and other mineral resources would be anticipated.

Impacts of Locatable Minerals on Mineral Resource Development

Approximately 1,743,041 acres of BLM land would remain open to development of locatable mineral resources (i.e., uranium-vanadium and copper) across all alternatives, and development of these mineral resources would continue during the life of the RMP at a consistent level, regardless of the alternative implemented. The impacts of any future development of locatable resources would be analyzed through site-specific NEPA when and if the project(s) are proposed.

Approximately 300 acres (about 20 acres per year) could be disturbed for uranium-vanadium resource development over the life of the plan. This continuation of uranium-vanadium resource development would result in beneficial impacts described above for potash. Oil and gas development has some potential to co-occur with uranium-vanadium development. However, uranium-vanadium mining operations are small enough to preclude conflict or adverse impacts with oil and gas development at the planning area-wide scale (BLM 2005f).

Development of copper resources is expected to continue and expand slightly over the life of the RMP. The newly initiated Lisbon Valley Copper project—involving the Centennial, Sentinel, and GTO copper deposits—has begun copper production and is anticipated to utilize and then reclaim 1,103 acres over the life of the RMP. This multi-year copper resource development project would result in beneficial impacts, which would take the form of an increase in the domestic supply of copper. The project is, however, within an area of high development potential for oil and gas. The project's copper development operations could eliminate some opportunities for oil and gas exploration and development because oil and gas could not be developed where it would interfere with mining operations. Exploration and drilling is anticipated in the Lisbon Valley Copper area, which would amount to approximately 25–50 acres of surface disturbance over the next 10 years. In addition, along the Salt Valley anticline, drilling and potentially open-pit mining or in situ leaching facilities may cause 20 acres of surface disturbance. All of this additional copper resource development (up to approximately 70 acres) would result in beneficial and adverse impacts of the same type as those described for the Lisbon Valley Copper project, for the same reasons.

4.3.7.3.2.2 Alternative A

Oil and Gas Resources

Approximately 1,427,949 (or 78.5%) of BLM lands within the MPA would be open for oil and gas leasing subject to standard lease terms and conditions and special stipulations (see Appendix C) within the seven RFD development areas (see Table 4.48). Based on the proportion of BLM lands open for leasing, and on the information contained in the RFD scenario (BLM 2005f), it is estimated that 451 oil and gas wells would be drilled over the life of the RMP (Table 4.49; Map 3-16). These restrictions are discussed under the resource section imposing the stipulation or closure. See the Socioeconomic analysis in this chapter (Section 4.3.12) for the projected production and revenue of oil and gas for Alternative A.

Geophysical Exploration

Under Alternative A, approximately 1,332 linear miles of source line for geophysical exploration would be conducted over the life of the RMP for the purposes outlined in Section 4.3.7.2 and would result in approximately 2,397 acres of surface disturbance over the life of the RMP. This exploration would result in beneficial impacts to mineral resource development of the same type and quality described in Section 4.3.7.2, for the same reasons (BLM 2005f).

Table 4.49. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative A, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Open			% of BLM Lands Open	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Bigflat – Hatch Point	242,405	121,185	363,590	93	46	4
Book Cliffs	36,347	114,304	150,651	99	104	12
Eastern Paradox	428,369	99,088	527,457	95	34	4

Table 4.49. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative A, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Open			% of BLM Lands Open	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Greater Cisco	182,272	33,440	215,712	99	196	24
Lisbon Valley	102,100	12,303	114,403	100	56	6
Roan Cliffs	6	3,144	3,150	100	2	1
Salt Wash	46,845	6,141	52,986	97	13	2
Total	1,038,344	389,605	1,427,949		451	52

Note: Calculations based on BLM lands only.

*Oil and natural gas wells are considered together.

**Based on the RFD (BLM 2005f), Maximum per Year (MPY) reflects the maximum development that *could* occur in *any given year* over 15 years. During most years, development per year would be less than this maximum. To find the *average* development per year, take the Average over 15 years and divide it by 15, which is the number of years projected in the RFD.

Other Leasable Resources

Under Alternative A, approximately 1,427,949 acres of BLM land would be open for the leasing of potash and salt. However, the same level of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1.

Salable Resources

Under Alternative A, approximately 1,466,861 acres of BLM land would be open to development of salable minerals. Although development could occur anywhere within this acreage, the same *level* of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1. The restrictions on salable resource development are discussed under the resource sections imposing these restrictions.

4.3.7.3.2.3 Alternative B

Oil and Gas Resources

Approximately 808,096 acres (or 44.3%) of BLM lands within the MPA would be open for oil and gas leasing subject to standard lease terms and special stipulations (see Appendix C), within the seven RFD development areas (see Table 4.48). Based on the proportion of BLM lands open for leasing under standard lease terms and special stipulations, and on the information contained in the RFD scenario (BLM 2005f), it is estimated that 264 oil and gas wells would be drilled over the life of the RMP (Table 4.50; Map 3-16; BLM 2005f). This alternative would result in a decrease of approximately 619,853 acres (or 34.1%) of BLM lands available for development and a decrease of 187 predicted oil and gas wells (or 41.4%) compared to Alternative A. The NSO stipulations and closures for mineral resource development are discussed under the resource sections imposing the restrictions. See the Socioeconomic analysis in this chapter (Section 4.3.12) for the projected production and revenue of oil and gas for Alternative B.

Table 4.50. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative B, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Open			% Of BLM Lands Open	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Bigflat – Hatch Point	76,845	68,081	144,926	39	19	2
Book Cliffs	23,515	72,486	96,001	63	66	7
Eastern Paradox	80,032	237,603	317,635	59	21	2
Greater Cisco	47,840	44,879	92,719	46	92	11
Lisbon Valley	89	110,766	110,855	97	54	6
Roan Cliffs	0	1,398	1,398	37	1	0
Salt Wash	36,024	8,539	44,563	82	11	1
Total	**264,345**	**543,752**	**808,097**		**264**	**29**

Note: Calculations based on BLM lands only.

*Oil and natural gas wells are considered together.

**Based on the RFD (BLM 2005f), MPY reflects the maximum development that *could* occur in *any given year* over 15 years. During most years, development per year would be less than this maximum. To find the *average* development per year, take the 15 year projection and divide it by 15, which is the number of years projected in the RFD.

Geophysical Exploration

Under Alternative B, approximately 780 linear miles of source line for geophysical exploration would be conducted over the life of the RMP for the purposes outlined in Section 4.3.7.2 and would result in approximately 1,404 acres of surface disturbance over the life of the RMP. This exploration would result in beneficial impacts to mineral resource development by providing new data for making prudent mineral resource development decisions. However, less exploration would happen under Alternative B than under Alternative A; 552 fewer miles of source line (a decrease of 41%) would be used under Alternative B compared to Alternative A.

Other Leasable Resources

Under Alternative B, approximately 808,096 acres of BLM land would be open for the leasing of potash and salt. The same level of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1.

Salable Resources

Under Alternative B, approximately 808,097 acres of BLM land would be open to development of salable minerals (a decrease of approximately 659,671 acres, or 44.9%, compared to Alternative A). Although development could occur anywhere within this acreage, the same *level* of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1. The restrictions on salable resource development are discussed under the resource sections imposing these restrictions.

4.3.7.3.2.4 Proposed Plan

Oil and Gas Resources

Approximately 1,234,267 acres (or 67%) of BLM lands within the MPA would be open for oil and gas leasing subject to standard lease terms and special stipulations (see Appendix C) within the seven RFD development areas (see Table 4.48). Based on the proportion of BLM lands open for leasing under standard lease terms and special stipulations, and on the information contained in the RFD (BLM 2005f), it is estimated that 432 oil and gas wells would be drilled over the life of the RMP (Table 4.51; Map 3-16; BLM 2005f). This alternative would result in a decrease of approximately 193,682 acres (or 10%) of BLM lands available for development and a decrease of 19 oil and gas wells (or 4%) compared to Alternative A. The NSO stipulations and closures for mineral resource development are discussed under the resource sections imposing the restrictions. See the Socioeconomic analysis in this chapter (Section 4.3.12) for the projected production and revenue of oil and gas for the Proposed Plan.

Table 4.51. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under the Proposed Plan, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Available			% of BLM Lands Available	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Bigflat – Hatch Point	114,903	150,323	265,226	68	34	3
Book Cliffs	37,257	113,105	150,362	99	104	12
Eastern Paradox	115,124	321,160	436,284	78	28	3
Greater Cisco	110,602	106,768	217,370	100	197	24
Lisbon Valley	10,444	103,439	113,883	100	56	6
Roan Cliffs	0	3,434	3,434	90	2	1
Salt Wash	38,943	8,765	47,708	88	11	1
Total	**427,273**	**806,994**	**1,234,267**		**432**	**50**

Note: Calculations based on BLM lands only.

*Oil and natural gas wells are considered together.

**Based on the RFD (BLM 2005f), MPY reflects the maximum development that *could* occur in *any given year* over 15 years. During most years, development per year would be less than this maximum. To find the *average* development per year, take the 15 Year Average and divide it by 15, which is the number of years projected in the RFD.

Geophysical Exploration

Under the Proposed Plan, approximately 1,151 linear miles of source line for geophysical exploration would be conducted over the life of the RMP for the purposes outlined in Section 4.3.7.2 and would result in approximately 2,072 acres of surface disturbance over the life of the RMP. This exploration would result in beneficial impacts to mineral resource development by providing new data for making prudent mineral resource development decisions. However, less exploration would happen under the Proposed Plan than under Alternative A; 181 fewer miles of source line (a decrease of 14%) would be used under the Proposed Plan compared to Alternative A.

Other Leasable Resources

Under the Proposed Plan, approximately 1,234,267 acres of BLM land would be open for the leasing of potash and salt. However, the same level of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1.

Salable Resources

Under the Proposed Plan, approximately 1,234,267 acres of BLM land would be open to development of salable minerals (a decrease of approximately 193,682 acres, or 10.6%, compared to Alternative A). Although development could occur anywhere within this acreage, the same *level* of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1. The restrictions on salable resource development are discussed under the resource sections imposing these restrictions.

4.3.7.3.2.5 Alternative D

Oil and Gas Resources

Approximately 1,387,473 acres (or 76%) of BLM lands within the MPA would be open for oil and gas leasing subject to standard lease terms and special stipulations (see Appendix C) within the seven RFD development areas (see Table 4.48). Based on the proportion of BLM lands open for leasing under standard lease terms and special stipulations and on the information contained in the RFD (BLM 2005f), it is estimated that 448 oil and gas wells would be drilled over the life of the RMP (Table 4.52; Map 3-16; BLM 2005f). This alternative would result in a decrease of approximately 40,476 acres (or 2.8%) of BLM lands available for development and a decrease of 3 oil and gas wells (or 0.7%) compared to Alternative A. The NSO stipulations and closures for mineral resource development are discussed under the resource sections imposing the restrictions. See the Socioeconomic analysis in this chapter (Section 4.3.12) for the projected production and revenue of oil and gas for Alternative D.

Geophysical Exploration

Under Alternative D, approximately 1,294 linear miles of source line for geophysical exploration would be conducted over the life of the RMP for the purposes outlined in Section 4.3.7.2 and would result in approximately 2,329 acres of surface disturbance over the life of the RMP. This exploration would result in beneficial impacts to mineral resource development of the same type and quality described in Section 4.3.7.2, for the same reasons (BLM 2005f). However, less exploration would happen under Alternative D than under Alternative A; 38 fewer miles of source line (a decrease of 2.9%) would be used under Alternative D compared to Alternative A.

Table 4.52. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative D, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Available			% of BLM Lands Available	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Bigflat – Hatch Point	242,777	104,200	346,977	89	44	4
Book Cliffs	42,733	109,467	152,200	100	105	12
Eastern Paradox	241,991	259,192	501,183	90	32	4

Table 4.52. Number of Predicted Oil and Gas Wells on BLM Lands within RFD Areas under Alternative D, Average over 15 Years and Maximum per Year (MPY)

RFD Area	Acres of BLM Lands Available			% of BLM Lands Available	# of Predicted Wells*	
	Standard	Special	Total		15 Years	MPY**
Greater Cisco	194,535	22,902	217,437	100	197	24
Lisbon Valley	25,261	88,650	113,911	100	56	6
Roan Cliffs	0	3,746	3,746	98	2	1
Salt Wash	49,734	2,285	52,019	95	12	2
Total	**797,031**	**590,442**	**1,387,473**		**448**	**52**

Note: Calculations based on BLM lands only.

*Oil and natural gas wells are considered together.

**Based on the RFD (BLM 2005f), MPY reflects the maximum development that *could* occur in *any given year* over 15 years. During most years, development per year would be less than this maximum. To find the *average* development per year, take the 15 year average and divide it by 15, which is the number of years projected in the RFD.

Other Leasable Resources

Under Alternative D, approximately 1,387,473 acres of BLM land would be open for the leasing of potash and salt. However, the same level of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1.

Salable Resources

Under Alternative D, approximately 1,387,473 acres of BLM land would be open to development of salable minerals (a decrease of approximately 40,476 acres, or 2.8%, compared to Alternative A). Although development could occur anywhere within this acreage, the same *level* of development is projected for all alternatives, as mentioned in Section 4.3.7.3.2.1. The restrictions on salable resource development are discussed under the resource sections imposing these restrictions.

4.3.7.3.3 Impacts of Non-WSA Lands with Wilderness Characteristics Management Decisions on Mineral Resource Development

4.3.7.3.3.1 Alternative A

Under Alternative A, no acres of lands with wilderness characteristics are to be managed to protect these characteristics, resulting in no additional closures of BLM lands to salable and leasable mineral resource development. No impacts to mineral development would result in the form of lower supply of mineral resources and fewer royalties.

4.3.7.3.3.2 Alternative B

Under Alternative B, 266,485 acres of lands with wilderness characteristics (in 32 areas) would be managed to protect these characteristics. This would result in a closure of approximately 14.6% of all BLM lands to salable and leasable mineral resource development. Closing these areas to leasing would preclude extraction of a) oil and gas resources in any of the 32 areas, b) coal-bed methane leasing and development in Hells Hole, Hideout Canyon, and Mexico Point,

and c) potash resources in Goldbar. An estimate of oil and gas wells foregone is 41 wells within the Bookcliffs RFD area, 8 wells within the Big Flat Hatch Point RFD area and 8 wells within Eastern Paradox RFD area over the 15 year RFD scenario. An estimate of coal-bed methane wells foregone is one 5-spot well cluster over the 15 year RFD scenario.

Development of valid existing oil and gas leases on 50,516 acres within 20 of the 32 non-WSA lands with wilderness characteristics could occur, however, additional mitigation may be required to protect wilderness characteristics values.

There would be no potential for the expansion of existing salable mineral disposal sites into the Horsethief Point, Goldbar, Behind the Rocks and Mary Jane Canyon units.

Alternative B represents the greatest adverse impacts to mineral resource development due to management of lands with wilderness characteristics.

4.3.7.3.3.3 Proposed Plan

Under the Proposed Plan, approximately 47,761 acres (or 2.6% of all BLM lands) in Beaver Creek, Fisher Towers and Mary Jane Canyon would be managed to protect wilderness characteristics. This would include applying a NSO stipulation for oil and gas leasing and precluding other surface-disturbing activities to lands with wilderness characteristics. This would restrict development of leasable minerals (though still allow development at greater cost) and preclude the development of salable minerals. (Certain lands within the NSO areas unreachable by directional drilling would be closed to oil and gas leasing. Due to the small amount of acreage, it is not anticipated that this would affect the RFD scenario for oil and gas development.)

There would be no potential for expansion of the two sand and gravel salable mineral disposal sites on the boundary of the Mary Jane Canyon into the non-WSA lands with wilderness characteristics.

This decision would result in impacts to mineral development, but the acreage affected would be far less than Alternative B, but more than Alternatives A and D.

4.3.7.3.3.4 Alternative D

Same as Alternative A.

4.3.7.3.4 Impacts of Paleontology Decisions on Mineral Resource Development

Under all alternatives (i.e., including Alternative A), lease notices, stipulations, and other requirements would be attached to permitted activities, including mineral resource development, to prevent the degradation or destruction of paleontological resources. These additional stipulations and requirements would result in an adverse impact that would take the form of additional expenditures of time, money, and effort by mineral resource developers in completing projects within the MPA.

4.3.7.3.5 Impacts of Recreation Decisions on Mineral Resource Development

4.3.7.3.5.1 Alternative A

The designation of SRMAs in Alternative A does not limit mineral resource development, and no other special recreation management decisions are proposed under Alternative A. Therefore, no recreation-related impacts to mineral resource development would occur under Alternative A.

4.3.7.3.5.2 Alternative B

Under Alternative B, NSO stipulations would apply as follows:

- in the Goldbar/Corona Arch Hiking Focus Area (4,781 acres) of the Labyrinth Rims/ Gemini Bridges SRMA, and
- throughout the Sand Flats SRMA (6,246 acres).

These limitations on 11,027 acres would have a slight, adverse impact on mineral resource development, in the form of additional costs for individual projects associated with NSO leases in these areas, and/or in the form of less domestic supply of oil and gas and fewer royalties.

4.3.7.3.5.3 Proposed Plan

Impacts under the Proposed Plan would take the same form as under Alternative B, but because the NSO stipulation would apply to 590 fewer acres under the Proposed Plan, the magnitude of the adverse impacts to minerals would be slightly reduced from Alternative B.

4.3.7.3.5.4 Alternative D

There would be no adverse impacts to mineral resource development from recreation management decisions under this alternative because no restrictions on mineral development are proposed.

4.3.7.3.6 Impacts of Riparian Resource Decisions on Mineral Resource Development

Under all action alternatives, no surface disturbance would be allowed on lands within 100-year floodplains or within 100 m of riparian areas, public water reserves, or springs. This may result in additional costs to oil and gas developers because directional drilling would be required to access mineral resources in riparian zones. In Alternative A, some select floodplains within the MPA are identified for protection; however, the acreage is less than under the action alternatives, and the additional costs to oil and gas developers because of directional drilling would be less under Alternative A.

4.3.7.3.7 Impacts of Soil and Water Decisions on Mineral Resource Development

4.3.7.3.7.1 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Under all action alternatives, oil and gas developers would be required to follow the Guidance for Pipeline Crossings (see Appendix H), including conducting hydraulic analysis during the design phase to eliminate potential environmental degradation. This may result in adverse

impacts to oil and gas development, as it would potentially increase the up-front cost of specific development projects.

Under all action alternatives, any mineral resource development occurring in sensitive soils (see Table 2.1 in Chapter 2, Proposed Plan and Draft Alternatives, and Section 3.14.2.2 Sensitive Soils in Chapter 3, Affected Environment) would require BMPs and applicable mitigation measures to minimize impacts. Requiring a project proponent to comply with BMPs and mitigation measures would result in adverse impacts to mineral resource development, as it may increase the cost and time required to fully implement a mineral resource exploration or development project in sensitive soils.

Under all action alternatives, a controlled surface use stipulation (see Appendix C) would be applied on all slopes upwards of 30% throughout the MPA, and an additional timing limitation stipulation would be put into effect on steep slopes in the Book Cliffs RFD Area from November 1 through April 30 (i.e., 181 days, or 50% of the year). These special stipulations would have an adverse impact upon mineral resource development, though these lands would still be open to development with the restrictions specified.

4.3.7.3.7.2 Alternative A

Under Alternative A, surface-disturbing activities would be prohibited on approximately 313,800 acres of saline soils in Mancos Shale (or 17% of all BLM lands) from November 1 through April 30 (i.e., 181 days). This timing limitation stipulation would have an adverse impact upon mineral resource development, for the reasons stated in Section 4.3.13.5.

4.3.7.3.7.3 Alternative B

Under Alternative B, the Castle Valley watershed and the Mill Creek–Spanish Valley watershed would be closed to leasing to protect the aquifers. These closures would result in adverse impacts to mineral resource development, as these lands would not yield a supply of mineral resources or royalties. Of all the alternatives, Alternative B represents the greatest impacts to mineral resource development due to the closure of these two watersheds.

Under Alternative B, surface-disturbing activities would be prohibited on approximately 330,142 acres of moderately to highly saline soils in Mancos Shale (or 18.1% of all BLM lands) from December 1 through May 31 (i.e., 182 days). This timing limitation stipulation would have an adverse impact upon mineral resource development, for reasons stated in Alternative A. Impacts would be essentially of the same magnitude as Alternative A.

Under Alternative B, a minimum of 487,917 acres of BLM lands (or 60.4% of open BLM lands) with highly limited sensitive soils/slopes would be subject to surface-disturbing mineral resource development with a timing limitation or controlled surface use stipulation (see Sections 3.13, Soil and Water, and 4.3.13, Soil and Water). These particular stipulations and their attendant impacts upon mineral resource development are described in Section 4.3.7.3.7.1. Alternative B represents the smallest acreage of sensitive soils/slopes available for leasing under standard lease terms and special stipulations because much of the acreage with sensitive soils/slopes is closed or NSO due to other resource decisions.

4.3.7.3.7.4 Proposed Plan

Under the Proposed Plan, the Castle Valley watershed and the Mill Creek–Spanish Valley watershed would be subject to NSO stipulations for leasing to protect the aquifers by allowing no drilling on the surface above them. These restrictions would result in adverse impacts to mineral resource development, as development of these lands would require directional drilling and the attendant increases in cost and effort. The Proposed Plan thus represents fewer impacts to mineral resource development than Alternative B (which closes these aquifers to leasing), but more than Alternatives A and D.

The same timing limitation stipulation on the same moderately to highly saline soils in Mancos Shale under Alternative B would also apply under the Proposed Plan. Impacts under the Proposed Plan would be identical to those of Alternative B.

Under the Proposed Plan, a minimum of 710,129 acres of BLM lands with sensitive soils/slopes are open to surface-disturbing mineral resource development (or 57.5% of open BLM lands) with a timing limitation or controlled surface use stipulation (see Sections 3.13, Soil and Water, and 4.3.13, Soil and Water). These particular stipulations and their attendant impacts upon mineral resource development are described in Section 4.3.7.3.7.1. The Proposed Plan represents a much larger acreage of sensitive soils/slopes open to mineral leasing under standard lease terms and special stipulations than Alternative B because less acreage with sensitive soils/slopes is closed or NSO due to other resource decisions.

4.3.7.3.7.5 Alternative D

Under Alternative D, no lease stipulations would be applied to the Castle Valley watershed or the Mill Creek–Spanish Valley watershed to protect the aquifers. Therefore, no impacts to mineral resource development in these areas would result.

No timing limitation stipulations on the moderately to highly saline soils in Mancos Shale would be applied under Alternative D. Therefore, impacts to mineral resource development would be beneficial compared to Alternative A. Of all the alternatives, Alternative D has the least restrictions regarding saline soils in Mancos Shale, and is therefore the least impacting on mineral development.

Under Alternative D, a minimum of 784,782 acres of BLM lands with sensitive soils/slopes are open to surface-disturbing mineral resource development (or 56.6% of open BLM lands) with a timing limitation or controlled surface use stipulation (see Sections 3.13, Soil and Water, and 4.3.13, Soil and Water). These particular stipulations and limitations and their attendant impacts upon mineral resource development are described in Section 4.3.7.3.7.1. Alternative D is most like the Proposed Plan in acreage and proportion; therefore, the impacts to mineral resource development would be similar to the Proposed Plan.

4.3.7.3.8 Impacts of Special Designations Decisions on Mineral Resource Development

4.3.7.3.8.1 Impacts Common to All Alternatives

The MPA includes 11 Wilderness Study Areas (WSAs) and one Wilderness Area (WA), which together total 354,015 acres (or approximately 19% of BLM lands). WAs are closed to oil and

gas leasing pursuant to the Wilderness Act, and WSAs are closed to oil and gas leasing under the Interim Management Policy for Lands under Wilderness Review (BLM 1995). These areas are also closed to salable minerals. WSAs are open to the location of mining claims for locatable minerals; WAs are withdrawn from locatable minerals, and are therefore closed to development.

WSA and wilderness designations would continue to apply across all alternatives and would remain closed to leasing due to their designation. These closures are non-discretionary and, thus, are beyond the scope of this analysis.

4.3.7.3.8.2 Alternative A

ACECs

In Alternative A, no ACECs are designated. However, the Negro Bill Outstanding Natural Area (1,287 acres) would continue. This area is entirely within the Negro Bill WSA, and is therefore closed to leasing and mineral development. This closure is non-discretionary and thus, is beyond the scope of this analysis.

WSRs

Under Alternative A, Colorado River Segments #1, #2, and #3 and all segments of the Dolores River are eligible. This eligibility results in 16,079 acres (or 0.8% of all BLM lands) managed as NSO. Therefore, these areas would be removed from mineral resource development except for directional drilling for oil and gas, which would add expense for individual oil and gas producers.

4.3.7.3.8.3 Alternative B

ACECs

Management of ACECs in the MFO would result in greater restrictions on mineral resource development, replacing standard lease terms or special stipulations with NSO stipulations. Under Alternative B, 610,714 acres of BLM lands would occur in ACECs (Table 4.53), all of which are subject to an NSO stipulation or closed to leasing. Since 309,599 acres (out of 610,714 acres) are automatically closed to leasing because they are located in WSAs, the remainder—301,115 acres—would be managed with an NSO stipulation as a direct result of designation of the ACECs (see Table 4.43). Therefore, for the purposes of this analysis, implementation of Alternative B represents a restriction of 16.5% of all BLM lands (301,115 acres) due to ACEC designation. ACEC designation under Alternative B would result in an adverse impact upon mineral resource development because the resources underlying NSO-designated surfaces are more difficult and costly to extract. In addition, developers are less likely to develop in NSO areas if less restrictive leases are available to them. Alternative B is more restrictive to mineral resource development than any of the other alternatives and thus would have the greatest overall adverse impact on mineral resource development.

WSRs

Under Alternative B, all WSR segments are recommended as suitable. WSR suitability recommendations, of themselves, do not impose limitations on surface-disturbing activities, because limitations on surface disturbance would be imposed by other resource decisions, such

as wilderness, wilderness characteristics, scenery, watershed, and the Three Rivers withdrawal. These other resource decisions would protect the outstandingly remarkable values of the WSRs.

Therefore, with the exception of VRM Class, it was not necessary to impose duplicative restrictions on mineral development as a result of WSR suitability. Suitable segments tentatively classified as Wild would be designated as VRM Class I; all other segments would be designated as VRM Class II. As a result, except for VRM Class, recommendations of suitable WSR segments would not impose direct impacts to mineral resource development under Alternative B. The protections imposed by other resources are identified in Table 4.53, Acreages of Potential ACECs that are Available to Mineral Development under Alternative B.

Table 4.53. Acreages of Potential ACECs that are Available to Mineral Resource Development under Alternative B

ACEC	Acres*			Acres in Each Lease Category			
	Total	Within WSA[1]	Outside WSA	Standard	Special	NSO	Closed
Behind the Rocks	17,848	12,983	4,865	0	0	4,865	12,983
Bookcliffs Wildlife Area[2]	302,449	247,853	54,596	0	0	28,157	274,292
Canyon Rims[3]	23,414	0	23,414	0	0	22,972	442
Cisco White-tailed Prairie Dog Complex	117,481	0	117,481	0	0	83,977	33,504
Colorado River Corridor	50,708	2,752	47,956	0	0	24,310	26,398
Cottonwood-Diamond Watershed[4]	35,042	33,218	1,824	0	0	1,824	33,218
Hwy 279 Corridor/Shafer Basin/Long Canyon	13,487	0	13,487	0	0	12,544	943
Labyrinth Canyon	8,529	0	8,529	0	0	8,529	0
Mill Creek Canyon	13,501	7,833	5,668	0	0	0	13,501
Ten Mile Wash	4,980	0	4,980	0	0	4,980	0
Upper Courthouse	11,529	0	11,529	0	0	8,480	3,049
Westwater Canyon	5,069	4,960	109	0	0	109	4,960
White Wash	2,988	0	2,988	0	0	2,988	0
Wilson Arch	3,689	0	3,689	0	0	3,689	0

1. Or with Wilderness values; always VRM I, or closed to leasing.
2. Portions of this ACEC lie within 5 WSAs.
3. Within Canyon Rims SRMA
4. Portions of this ACEC lie within 3 WSAs.

*Acreage variations may be due to GIS rounding errors

Table 4.54. Suitable Rivers and Restrictions on Mineral Development under Alternative B

Suitable River	Oil and Gas Leasing Category	Resource Imposing Oil and Gas Restriction	VRM Class
Beaver Creek	NSO	Three Rivers Withdrawal to protect scenery, recreation, wildlife, riparian; non-WSA lands with wilderness characteristics.	II
Colorado River	NSO/Closed	Three Rivers Withdrawal to protect scenery, recreation, wildlife, riparian; WSA.	I in Westwater; otherwise II
Cottonwood Creek	Closed	WSA.	I
Dolores River	NSO	Three Rivers Withdrawal.	II
Green River	NSO	Three Rivers Withdrawal.	II
Mill Creek (South Fork)	Closed	ACEC; Moab Watershed.	I
Negro Bill Creek	Closed/NSO	Three Rivers Withdrawal; WSA.	I (in WSA) and II
North Fork Mill Creek	Closed	WSA.	I
Onion Creek	NSO/Closed	Three Rivers Withdrawal; wilderness characteristics.	II
Professor Creek	NSO/Closed	Three Rivers Withdrawal; wilderness characteristics.	II
Rattlesnake Creek	Closed	WSA.	I (Desolation WSA)
Salt Wash	NSO (Three Rivers)	Three Rivers Withdrawal.	II
Thompson Creek	NSO	Wilderness characteristics.	II

4.3.7.3.8.4 Proposed Plan

ACECs

Under the Proposed Plan, 63,781 acres of BLM lands would occur in ACECs (Table 4.55), all of which are subject to an NSO stipulation or closed to leasing. Since 33,218 acres (out of 63,781 acres) are automatically closed to leasing because they are located in WSAs, the remainder—30,563 acres—would be managed with an NSO stipulation as a direct result of designation of the ACECs (see Table 4.55). Therefore, for the purposes of this analysis, implementation of the Proposed Plan represents a restriction of 1.7% of all BLM lands (30,563 acres) due to ACEC designation. ACEC designation under the Proposed Plan would result in less of an adverse impact upon mineral resource development than it does under Alternative B, but more than Alternatives A and D.

Table 4.55. Acreages of Potential ACECs that are Available to Mineral Resource Development under the Proposed Plan

ACEC	Acres*			Acres in Each Lease Category			
	Total	Within WSA[1]	Outside WSA	Standard	Special	NSO	Closed
Behind the Rocks	4,687	0	4,687	0	0	4,687	0
Cottonwood-Diamond Watershed[2 3]	35,042	33,218	1,804	0	0	1,804	33,218
Hwy 279 Corridor/ Shafer Basin/Long Canyon	13,487	0	13,487	0	0	13,487	0
Mill Creek Canyon	5,585	0	3,721	0	0	3,721	0
Ten Mile Wash	4,980	0	4,980	0	0	4,980	0

1. Or with Wilderness values; always VRM I, or closed to leasing.
2. Portions of this ACEC lie within 3 WSAs.
3. Same as Alternative B.
*Acreage variations may be due to GIS rounding errors.

WSRs

Impacts to mineral resource development from WSR suitability recommendations would be the same as under Alternative B, for the same reasons. Table 4.56 shows the WSR recommendations under the Proposed Plan, and the resource imposing the restriction on mineral development.

Table 4.56. Suitable Rivers and Restrictions on Mineral Development under the Proposed Plan

Suitable River	Oil and Gas Leasing Category	Resource Imposing Oil and Gas Restriction	VRM Class
Colorado River	NSO/Closed	Three Rivers Withdrawal to protect scenery, recreation, wildlife, riparian; WSA.	I in Westwater; otherwise II
Dolores River	NSO	Three Rivers Withdrawal.	II
Green River	NSO	Three Rivers Withdrawal.	II

4.3.7.3.8.5 Alternative D

ACECs

Under Alternative D, zero acres of BLM lands would occur in ACECs. Though management prescriptions are made for these parcels of land (e.g., leasing and VRM categories, whether to allow minerals entry, disposal, or geophysical work), none of these prescriptions is associated with an ACEC designation. Therefore, under Alternative D, special designation decisions regarding ACECs would have no impacts upon mineral development.

WSRs

Under Alternative D, none of the eligible WSR segments carried forward in this RMP would be determined suitable. Therefore, special designation decisions regarding WSRs would have no impacts upon mineral development.

4.3.7.3.9 Impacts of Special Status Species Decisions on Mineral Resource Development

4.3.7.3.9.1 Impacts Common to All Alternatives

All alternatives require some degree of spatial or temporal limitation on surface-disturbing activities so as to protect special status species and their important habitats. In the case of mineral resource development, specific conditions of approval or lease terms are often required in order to mitigate the adverse impacts of development activities on special status species.

Standard lease terms and conditions (lease notices) have been developed in consultation with the USFWS for mineral resource development and other surface-disturbing activities. The terms and conditions consist of specific measures to protect special status species and to comply with the Endangered Species Act (see Appendix C). These measures are required by law, are non-discretionary, and are applicable under all alternatives. The impacts of these non-discretionary

measures will not be analyzed in this document, as they are outside the scope of the planning process.

4.3.7.3.9.2 Alternative A

Because alternative-specific decisions regarding special status species are not specified under Alternative A, only the impacts common to all alternatives (see Section 4.3.7.3.8.1) would occur.

4.3.7.3.9.3 Alternative B

The following timing limitation stipulations would result in impacts to mineral resource development under Alternative B:

- a 242-day timing limitation stipulation in greater sage-grouse habitat (on 12,850 acres or 0.6% of all BLM lands), and
- a 57-day timing limitation stipulation in Gunnison sage-grouse habitat (on 246,107 acres or 13.4% of all BLM lands).

In both cases, the resulting impacts would be adverse compared to Alternative A and would take the form of extra cost and effort—for surveys, for the avoidance of occupied areas, for the re-routing of roads and pipelines and the re-siting of oil and gas facilities (i.e., permanent structures), or for directional drilling—or additionally operational time, if the surface-disturbance window does not accommodate an individual project's schedule and timeline and project activities need to be postponed.

Various, year-round restrictions on surface-disturbing activities and structures would apply as follows:

- within 2 miles of greater sage-grouse active strutting grounds (10,928 acres or 0.6% of all BLM lands);
- within 6 miles of Gunnison sage-grouse leks (246,107 acres or 13.4% of all BLM lands);
- within and near white-tailed prairie dog habitat (199,505 acres or 10.8% of all BLM lands); and
- within and near Gunnison prairie dog colonies (10,700 acres or 0.7% of all BLM lands).

Adverse impacts to mineral resource development would result from these decisions and would take the form of increased expenditures of time, cost, effort, and materials associated with re-siting projects or individual facilities or conducting directional drilling.

4.3.7.3.9.4 Proposed Plan

The following timing limitation stipulations would result in impacts to mineral resource development under the Proposed Plan:

- a 242-day timing limitation stipulation in greater sage-grouse habitat (3,068 acres or 0.2% of all BLM lands), and
- a 57-day timing limitation stipulation in Gunnison sage-grouse habitat (175,727 acres or 9.6% of all BLM lands).

In both cases, the resulting impacts would be adverse to mineral resource development compared to Alternative A—though less so than Alternative B—and would take the form of extra cost, effort, or time, as described under Alternative B.

Various, year-round restrictions on surface-disturbing activities and structures would apply as follows:

- within 2.0 miles of greater sage-grouse active strutting grounds (3,068 acres or 0.2% of all BLM lands);
- within 2.0 miles of Gunnison sage-grouse leks (175,727 acres or 9.6% of all BLM lands);
- within and near white-tailed prairie dog habitat (117,481 acres or 6.4% of all BLM lands); and
- within and near Gunnison prairie dog colonies (10,700 acres or less than 0.6% of all BLM lands).

Adverse impacts to mineral resource development would result from these decisions—though less so than Alternative B due to lessened acreage affected—and would take the forms described under Alternative B.

4.3.7.3.9.5 Alternative D

The following timing limitation stipulations would result in impacts to mineral resource development under Alternative D:

- a 242-day timing limitation stipulation in greater sage-grouse habitat (1,986 acres or 0.1% of all BLM lands), and
- a 57-day timing limitation stipulation in Gunnison sage-grouse habitat (41,620 acres or 2.3% of all BLM lands).

In both cases, the resulting impacts would be adverse to mineral resource development compared to Alternative A—though less so than Alternative B and the Proposed Plan due to lessened acreage affected—and would take the form of extra cost, effort, or time, as described under Alternative B.

Year-round restrictions on surface-disturbing activities and structures would apply:

- within 0.25 miles of greater sage-grouse active strutting grounds (1,986 acres or 0.1% of all BLM lands);
- within 0.25 miles of Gunnison sage-grouse leks (41,620 acres or 2.3% of all BLM lands); and
- within and near white-tailed prairie dog habitat (41,620 acres or 1.7% of all BLM lands).

Adverse impacts to mineral resource development would result from these decisions—though less so than Alternative B and the Proposed Plan—and would take the forms described under Alternative B.

4.3.7.3.10 Impacts of Vegetation Management Decisions on Mineral Resource Development

Under all action alternatives, the vegetation management decision to implement the restrictions under Extreme (D3) and Exceptional (D4) drought conditions would result in adverse impacts to new mineral resource development. Under D3, no new surface-disturbing activities would be permitted in areas with sensitive soils, and under D4, no new surface-disturbing activities would be permitted at all (subject to valid existing rights; see Appendix C and Appendix M). The impacts to mineral resource development would take the form of delayed completion of individual projects and the attendant increases in cost and effort.

4.3.7.3.11 Impacts of Visual Resource Management Decisions on Mineral Resource Development

4.3.7.3.11.1 Impacts Common to All Alternatives

Mineral resource development would be subject to the VRM class objectives of the area within which development would occur. VRM management on areas with lower scenic values (designated as VRM Class III and IV) imposes minimal restrictions on mineral resource development. Designation of an area as VRM Class I essentially closes the area to mineral resource activity. Management of areas as VRM Class II allows alteration of line, form, color and texture that characterize the existing landscape, although the resulting contrast should not attract the attention of the casual observer. Meeting VRM Class II objectives imposes additional costs on mineral resource developers. Table 4.57 quantifies the acreages of land within each VRM class.

Table 4.57. Acreages of Each VRM Class, by Alternative

VRM Class	Alternative A**	Alternative B	PROPOSED PLAN	Alternative D
I	349,110	453,462	358,911	349,617
II	401,015	373,647	365,567	245,773
III	800,782	784,247	829,158	956,724
IV	271,356	210,533	268,133	269,641
Totals	**1,822,263**	**1,821,887**	**1,821,768**	**1,821,755**

* Note that these acreages include the 354,015 acres of WSAs and WAs, which are managed as VRM Class I and are non-discretionary closures. Table 4.49 and other tables discussing the impacts of mineral resource development decisions on mineral resource development exclude these areas, and thus reflect different acreages.

**In Alternative A, VRM class reflects the VRM Inventory (except for 33,037 acres of VRM Class II and 67,236 acres of VRM Class III in management in Alternative A).

4.3.7.3.11.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Under all action alternatives, areas managed as VRM Classes II, III, and IV would typically be available to leasing with either standard lease terms or controlled surface use stipulations (see Table 4.57). This visual resource decision would generally have a beneficial effect on mineral resource development, in that more areas would be available under standard lease terms or

controlled surface use stipulations, rather than being restricted with NSO. The beneficial impact would be that mineral exploration and development could still occur.

Under all action alternatives, direct, adverse impacts to mineral resource development resulting from VRM class I designations would include the exclusion of lands available for mineral resource development, a lower number of locations where potential wells could be drilled, a lower yield and commercial supply of oil and natural gas, and fewer royalties.

4.3.7.3.11.3 Alternative A

Under Alternative A, only WSAs would be designated as VRM Class I. Because the closure of WSAs to mineral resource development is non-discretionary, no impacts to mineral resources would result from visual resource management decisions under Alternative A.

4.3.7.3.11.4 Alternative B

Under Alternative B, approximately 453,462 acres (or 24.9% of BLM lands, including WSAs) would be designated as VRM Class I, which limits lands as either NSO or closed. In addition, 373,631 acres would be designated as VRM Class II, imposing additional costs on mineral resource developers. Adverse impacts resulting from these visual resource decisions under Alternative B would be of the same type as in Section 4.3.7.3.11.2. Alternative B proposes the greatest VRM-related limits to mineral resource development because the greatest number of acres would be designated as VRM Class I and Class II.

4.3.7.3.11.5 Proposed Plan

Under the Proposed Plan, approximately 359,020 acres (or 19.7% of BLM lands, including WSAs) would be designated as VRM Class I class, which limits lands as either NSO or closed. In addition, 365,567 acres would be designated as VRM Class II, imposing additional costs on mineral resource developers. Adverse impacts resulting from these visual resource decisions under the Proposed Plan would be of the same type as in Section 4.3.7.3.11.2, though less so than under Alternative B and more than under Alternative D.

4.3.7.3.11.6 Alternative D

Under Alternative D, approximately 349,617 acres (or 19.2% of BLM lands, including WSAs) would fall into the VRM I class, which consistently limits lands as either NSO or closed. In addition, 245,773 acres would be managed as VRM II, imposing additional costs on mineral resource developers. Adverse impacts resulting from these visual resource decisions under Alternative D would be of the same type as in Section 4.3.7.3.11.2, though less so than under Alternative B and the Proposed Plan.

4.3.7.3.12 Impacts of Wildlife and Fisheries Decisions on Mineral Resource Development

4.3.7.3.12.1 Impacts Common to All Alternatives

All alternatives include some degree of spatial or temporal limitation on surface-disturbing activities to protect wildlife populations and their important habitats. In the case of mineral resource development, specific conditions of approval, lease terms, and/or discretionary

measures are often required in order to mitigate the adverse impacts of development activities on wildlife.

The discretionary measures include spatial and temporal limitations (hereafter referred to as controlled surface use and timing limitation stipulations, respectively), which would have an adverse impact on mineral resource development by increasing exploration costs, time, and effort. However, the degree and magnitude of such increases depend on many factors, including the options for project siting, the locale of the lease, and the drilling schedule and window.

The MFO coordinates with UDWR for the purpose of protecting wildlife species (see Appendixes K, N, and O). Under all alternatives, mineral resource developers would be required to avoid surface-disturbing activities in occupied, migratory bird habitat during nesting season. Under all alternatives, these timing limitation stipulations and the associated limited drilling window only apply to up to one mile around migratory bird and raptor nests. Therefore, impacts would be adverse for operators with leases within these buffer areas, but not elsewhere. These stipulations could be waived or modified, depending on the species (see Appendix C for details). In addition, spatial buffers and timing limitation stipulations would be applied to areas around occupied raptor nest sites during their nesting seasons. This would result in planning area-wide impacts upon mineral resource development (see Appendixes N and O). Adverse impacts upon mineral resource development, in terms of extra costs, time, and effort, would result.

The *exact* impact of wildlife management decisions common to all cannot be quantified. Exact acreages of habitat to be restricted would depend on the results of field surveys associated with specific projects within the MPA. However, some general conclusions can be drawn regarding the timing limitation stipulations. The fall and winter months (i.e., September through February) generally would have the fewest timing limitation stipulations upon mineral resource development, while the spring and summer months (i.e., March through August) generally would have the most. The most restrictive months of the year would be April through July; most timing limitation stipulations would be in effect during that period. Together, these decisions would result in adverse impacts to mineral resource development at the planning area-wide level.

4.3.7.3.12.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Under all action alternatives, a 92-day timing limitation stipulation on surface-disturbing activities in the Hatch Point bighorn sheep habitat (9,278 acres, or 0.5% of all BLM lands) and a 46-day timing limitation stipulation on surface-disturbing activities in deer and/or elk summer range (105,636 acres, or 5.8% of all BLM lands) would result in adverse impacts, in the form of delayed or slowed implementation of individual projects if the surface-disturbance limitation did not suit that project's schedule and timeline.

Under all action alternatives, the timing limitation stipulations (see Section 4.3.7.3.2.1) and the associated limited drilling window only apply to 9,278 acres of bighorn lambing and rutting areas within Hatch Point. This constitutes less than 1% of the MPA. Impacts would be adverse for operators with leases within the habitat or buffer areas, but not elsewhere. These stipulations could be waived or modified, depending on the species (see Appendix C for details).

4.3.7.3.12.3 Alternative A

Three wildlife management decisions would result in impacts to mineral resource development under Alternative A:

- a Category 2 stipulation in 25,431 acres of desert bighorn sheep habitat, year-round;
- a prohibition on surface disturbance in 42,500 acres of desert bighorn sheep lambing and breeding habitat; and
- a prohibition on surface disturbance in 260,769 acres of deer and/or elk winter range.

These decisions together would result in development limitations on a maximum of 328,700 possible acres (or 18.1% of BLM lands) for 90 days of the year. This would be an adverse impact to mineral resource development and would take the form of delayed or slowed implementation of individual projects in these habitats if the surface-disturbance limitation did not suit that project's schedule and timeline.

4.3.7.3.12.4 Alternative B

The following wildlife management decisions would result in impacts to mineral resource development under Alternative B:

- a 46-day timing limitation stipulation in pronghorn habitat (822,001 acres or 45.1% of all BLM lands);
- a 92-day timing limitation stipulation in Rocky Mountain bighorn sheep habitat (458,242 acres or 23.6% of all BLM lands);
- a 196-day timing limitation stipulation on deer and/or elk winter range (635,774 acres or 34.8% of all BLM lands); and
- a year-round, NSO stipulation in desert bighorn sheep habitat (130,419 acres or 7.1% of all BLM lands).

In all cases, the resulting impacts would be adverse compared to Alternative A and would take the form of extra cost and effort—for surveys, for the avoidance of occupied areas, for the re-routing of roads and pipelines and the re-siting of oil and gas facilities (i.e., permanent structures), or for directional drilling—or extra operational time, if the surface-disturbance window does not accommodate an individual project's schedule and timeline and project activities need to be postponed.

4.3.7.3.12.5 Proposed Plan

The following species management decisions would result in impacts to mineral resource development under the Proposed Plan:

- a 46-day timing limitation stipulation in pronghorn habitat (293,741 acres or 16.1% of all BLM lands);
- a 92-day timing limitation stipulation in Rocky Mountain bighorn sheep habitat (310,726 acres or 17.1% of all BLM lands);
- a 151-day timing limitation stipulation on deer and/or elk winter range (349,955 acres or 15.2% of all BLM lands); and

- a year-round, NSO stipulation in desert bighorn sheep habitat (101,897 acres or 5.6% of all BLM lands).

In all cases, the resulting impacts would be adverse to mineral resource development compared to Alternative A—though less so than Alternative B because of lesser time periods or reduced acreage—and would take the form of extra cost, effort, or time, as described under Alternative B.

4.3.7.3.12.6 Alternative D

The following wildlife management decisions would result in impacts to mineral resource development under Alternative D:

- a 46-day timing limitation stipulation in pronghorn habitat (78,477 acres or 4.3% of all BLM lands);
- the "recognition" of 194,560 acres, or 10.7% of all BLM lands as Rocky Mountain bighorn sheep habitat (BLM 1985a, 1986, 1993b);
- a 136-day timing limitation stipulation on deer and/or elk winter range (349,955 acres or 15.2% of all BLM lands); and
- a 137-day timing limitation stipulation in desert bighorn sheep habitat (46,319 acres or 2.5% of all BLM lands).

The resulting impacts would be adverse to mineral resource development compared to Alternative A—though less so than Alternative B and the Proposed Plan because of lesser time periods or reduced acreage—and would take the form of extra cost, effort, or time, as described under Alternative B.

4.3.7.4 Summary of Impacts

The alternatives propose varying amounts and types of restrictions on the exploration, development, and production of mineral resources. Generally, Alternative B is the most restrictive, while Alternative A is the least restrictive. Among the action alternatives, Alternative B is the least amenable, and Alternative D is the most amenable to the exploration, development and production of mineral resources.

Impacts from lands and realty, paleontological resources, riparian areas, and vegetation management actions would result only in Impacts Common to All Alternatives (including Alternative A) or Impacts Common to All Action Alternatives (excluding Alternative A). Withdrawal decisions would adversely impact 4.3% of all BLM land, other impacts resulting from lands and realty, paleontological, riparian, and vegetation decisions, while not quantifiable, generally would result in additional restrictions to mineral development.

4.3.8 Non-WSA Lands with Wilderness Characteristics

This section analyzes impacts to the 266,435 acres of non-WSA lands determined to have wilderness characteristics from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning non-WSA lands with wilderness characteristics are described in Chapter 3, Affected Environment.

Non-WSA lands with wilderness characteristics are areas having 5,000 acres, or areas less than 5,000 acres that are contiguous to designated wilderness, WSAs, or other areas administratively

endorsed for wilderness management, or, in accordance with the Wilderness' Act's language, areas "of sufficient size as to make practicable its preservation and use in an unimpaired condition." BLM used the same criteria for determining wilderness characteristics as in the 1979 wilderness inventory. The 5,000 acre value was helpful to BLM in making preliminary judgments, but it was not considered a limiting factor. These lands consist of landscapes generally in a natural or undisturbed condition. These areas also provide outstanding opportunities for solitude or primitive forms of recreation (non-motorized and non-mechanized activities in undeveloped settings). All of the alternatives would impact the values of non-WSA areas with wilderness characteristics to some degree. Generally, actions that create surface disturbance impact the natural character of these areas, and the setting for experiences of solitude and primitive recreational activities. Motorized uses in these areas detract from opportunities for both solitude and primitive forms of recreation.

Resources or uses determined not to have any impacts on non-WSA lands with wilderness characteristics include the following: Air Quality, and Health and Safety. There are no abandoned mine lands, unauthorized dumping sites, or hazardous materials spills that have been identified in non-WSA lands with wilderness characteristics; therefore, it is not an issue or resource for further analysis.

4.3.8.1 Impacts Common to All Alternatives

There would be no impacts common to all alternatives for non-WSA lands managed to protect wilderness characteristics because no lands would be managed to maintain wilderness characteristics outside designated wilderness and WSAs in either Alternatives A or D.

4.3.8.2 Alternatives Impacts

Impacts to non-WSA lands with wilderness characteristics are analyzed based on the enhancement (beneficial impacts) or degradation (adverse impacts) of naturalness and outstanding opportunities for solitude or primitive recreation.

4.3.8.2.1 Impacts of Cultural Resources Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.1.1 Alternative A

Alternative A would not limit visitation or camping in high-density cultural sites when archeological site integrity may be endangered. However, areas where these high-density sites are primarily located (Behind-the-Rocks, Mill Creek Canyon, and Negro Bill Canyon non-WSA lands with wilderness characteristics) are already in areas where OHV use is limited to designated routes and camping is restricted.

4.3.8.2.1.2 Alternatives B, D, and the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve and maintain their wilderness characteristics. This acreage includes the entire Beaver Creek area, and portions of the Mary Jane and Fisher Towers areas. (Mary Jane was reduced to 16,499 acres in the Proposed Plan from 24,779 acres in Alternative B, and Fisher Towers was reduced to 5,540 acres in the Proposed Plan from 17,235 acres in Alternative B.) Under this management, these lands would be managed with a no surface occupancy stipulation. There

would be no other surface-disturbing activities allowed within this acreage, including no new road building or construction. Cultural resource decisions are compatible with these protections.

The cultural resource decisions under common to all action alternatives provide protection of cultural resources, including avoiding or minimizing impacts within Traditional Cultural Properties, closing areas to visitor use when it is endangering site integrity, prohibiting camping within or on archeological and historic sites, protecting and mitigating sensitive cultural sites being impacted by grazing activities, monitoring sites, inventorying new sites, ensuring compliance with the National Historic Preservation Act, implementing interim protection to newly discovered sites, mitigating impacts to sites, allocating sites to public and scientific purposes, consulting with Tribes, and others. Protection of historic and prehistoric resources in non-WSA lands with wilderness characteristics would enhance opportunities for primitive forms of recreation. Knowing more about the cultural resources of an area, interpreting the resource in an appropriate fashion, and viewing cultural resource sites in the non-WSA areas with wilderness characteristics all add to the enjoyment of these areas for primitive recreational purposes. And, protection of cultural resources adds to the character of the setting that supports these recreational opportunities.

There are no additional cultural resource decisions that would impact non-WSA lands with wilderness characteristics under these alternatives.

4.3.8.2.2 Impacts of Fire Management Decisions on Non-WSA Lands with Wilderness Characteristics

Under all alternatives, BLM would attempt to restore natural fire regimes in fire-dependent and adapted ecosystems through the use of prescribed or managed wildland fire. The MFO would base its priorities for all aspects of fire management decisions based on five categories (see Fire Management section in Chapter 2, Table 2.1, Moab RMP Description of Alternatives) to determine where fire is desired and where it is not. Further, following any wildland fire event, emergency stabilization and restoration (ESR) actions would be developed and implemented, as appropriate. Fuels treatment and management activities would be consistent with the resource goals and objectives in the RMP and may include mechanical treatments, manual treatments, prescribed fire, chemical spraying, or biological treatments and seeding.

Restoration of the use of fire to fire-dependent and adapted ecosystems would restore a more natural vegetation community (in both species and composition) and watershed conditions and wildlife populations dependent on those communities. In the short-term, a burned landscape may reduce opportunities for primitive recreation. In the long-term, however, a more natural landscape would benefit the natural character of non-WSA lands with wilderness characteristics and enhance the setting and opportunities for primitive forms of recreation, including hiking, backpacking, hunting, wildlife viewing, and nature study. This would enhance the natural conditions of these areas.

Setting fire objectives through fire management categories would identify where fire is desired on the land, leading to the same benefits to natural conditions as restoring the use of fire to fire-dependent and adapted ecosystems. When it is necessary to suppress fire in non-WSA lands with wilderness characteristics, development and implementation of the ESR plan will restore fire suppression disturbances to the land and vegetation (e.g., fire line construction), resulting in the restoration of the natural character of the non-WSA areas. Fuels treatments in non-WSA lands

with wilderness characteristics would aid in restoration of a more natural fire regime in these lands. The use of fire to accomplish this reduction would be compatible with the natural character of these areas. The use of mechanical treatments would leave an apparent imprint of human work on the land that would degrade the natural character of the non-WSA lands with wilderness characteristics.

In the short-term, fire operations (aircraft over-flights, fire line construction, etc.) would degrade the natural landscape and character of the non-WSA lands with wilderness characteristics. The noise and presence of the people, equipment, and operations would also diminish opportunities for solitude and primitive forms of recreation. In the long-term, however, surface disturbance associated with the fire treatment would be restored, with little to no net effect on naturalness. The effects of fire operations on opportunities for solitude and primitive recreation would cease, restoring those opportunities.

4.3.8.2.3 Impact of Lands and Realty Management Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.3.1 Common to All Alternatives

Under all alternatives, the Three Rivers withdrawal would remain in place. This would protect portions along the river of the Beaver Creek, Dome Plateau, Fisher Towers, Mary Jane Canyon, Gooseneck and Labyrinth Canyon non-WSA lands with wilderness characteristics. The mineral withdrawal would continue to preserve the naturalness and opportunities for both solitude and primitive forms of recreation in each of these areas by preventing mining claims and the noise and presence of surface disturbance, people, vehicles, and equipment associated with mining.

4.3.8.2.3.2 Alternative A

This alternative proposes land disposal for about 1,300 acres of public lands on the east side portion of the Behind the Rocks non-WSA lands with wilderness characteristics. Disposal of these lands would take them out of public ownership and allow for development and surface-disturbing activities out of BLM's control. The wilderness characteristics would be foregone.

All of Shafer Canyon and Gooseneck, and a portion of Goldbar (2,437 acres) and Labyrinth Canyon (12,000) non-WSA lands with wilderness characteristics would continue to be rights-of-way avoidance areas (Table 4.58). These areas are to be avoided but may be available for location of right-of-ways with special stipulations if the proposal meets the goals and objectives of other resources and uses in the land-use plan. It is expected and assumed that the avoidance areas would protect the natural character of the non-WSA lands in these areas. However, the rest of the non-WSA lands with wilderness characteristics (249,363 acres) would remain available for the placement of rights-of-way. More permanent, long term impacts would occur if the right-of-way is for an overhead power line than for a buried pipeline. However, any surface-disturbing activity and/or placement of permanent visual facilities would detract from the natural character of the area and disrupt the setting needed to support primitive forms of recreation.

Table 4.58. Acres of Avoidance or Exclusion for Rights-of-way (ROWs) in Non-WSA Lands with Wilderness Characteristics

Name of Non-WSA Land with Wilderness Characteristics	Total Acres	Alternative A	Alternative B (all acres are exclusion)	PROPOSED PLAN (all acres are avoidance)	Alternative D
Arches Adjacent	6,396	0	6,396	513	513
Beaver Creek	25,722	0	25,722	25,722*	8,152
Behind the Rocks	3,643	0	3,643	1,582	55
Big Triangle	5,200	0	5,200	0	0
Coal Canyon	21,632	0	21,632	0	0
Dead Horse Cliffs	797	0	797	98	0
Desolation Canyon	10,498	0	10,498	985	244
Dome Plateau	14,207	0	14,207	9,580	6,390
Fisher Towers	17,235	0	17,235	8,153**	3,312
Floy Canyon	9,983	0	9,983	0	0
Flume Canyon	3,520	0	3,520	730	0
Goldbar	6,437	2,437	6,437	6,064	543
Gooseneck	843	843	843	843	0
Granite Creek	4,528	0	4,528	0	0
Harts Point	1,465	0	1,465	0	0
Hatch/Harts/Lockhart	2,670	0	2,670	0	0
Hatch Wash	10,983	0	10,983	0	0
Hells Hole	2,538	0	2,538	0	0
Hideout Canyon	11,607	0	11,607	0	0
Horsethief Point	8,358	0	8,358	1,190	1,162
Hunter Canyon	4,465	0	4,465	2,855	310
Labyrinth Canyon	25,361	12,000	25,361	17,954	2,456
Lost Spring Canyon	11,456	0	11,456	0	0
Mary Jane Canyon	24,779	0	24,779	22,169***	976
Mill Creek Canyon	3,388	0	3,388	3,388	59
Mexico Point	12,837	0	12,837	0	0
Negro Bill Canyon	2,333	0	2,333	1,177	240
Shafer Canyon	1,842	1,842	1,842	1,842	0
Spruce Canyon	1,131	0	1,131	957	0
Westwater Canyon	3,086	0	3,086	84	0
Westwater Creek	7,188	0	7,188	0	40
Yellow Bird	357	0	357	0	0

Table 4.58. Acres of Avoidance or Exclusion for Rights-of-way (ROWs) in Non-WSA Lands with Wilderness Characteristics

Name of Non-WSA Land with Wilderness Characteristics	Total Acres	Alternative A	Alternative B (all acres are exclusion)	PROPOSED PLAN (all acres are avoidance)	Alternative D
Total Acres	**266,485**	**17,122**	**266,485**	**105,886**	**24,455**
Total Acres Open for Rights of Way		249,363	0	160,599	242,030

Note: All acreage not under exclusion or avoidance remains open for ROW.

* All 27,722 acres of Beaver Creek are managed to protect, preserve and maintain their wilderness characteristics. Of these acres, 6,358 acres are exclusion.

**About 5,540 acres of the Fisher Towers area are managed to protect, preserve and maintain their wilderness characteristics.

***About 16,499 acres of the Mary Jane area are managed to protect, preserve and maintain their wilderness characteristics.

4.3.8.2.3.3 Alternative B

Under this alternative, all non-WSA lands with wilderness characteristics would be managed as right-of-way exclusion areas. Exclusion from future rights-of-way development for pipelines and power lines, corridor designation, or other rights-of-ways would protect the natural character in all these lands. Protection of the natural landscape would also preserve the setting needed to support primitive forms of recreation and experiences of solitude. The same protections would prevent corridor designations within any of the non-WSA lands with wilderness characteristics, thus protecting those values.

4.3.8.2.3.4 Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage includes the entire Beaver Creek area, and portions of Mary Jane and Fisher Towers areas. Under this management, these lands would be managed with a no surface occupancy stipulation. There would be no other surface-disturbing activities allowed within this acreage, including no new road building or construction. These areas are avoidance areas for rights of ways. There are no designated utility corridors within this acreage.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Both the Behind the Rocks and Floy Canyon non-WSA lands with wilderness characteristics would have small portions of them overlain by designated utility corridors. The Behind the Rocks non-WSA area (east side) would be partially overlain by the proposed Spanish Valley corridor. The southern-most part of Floy Canyon would be partially within the 1/2 mile width of the I-70 proposed utility corridor. Placement of future utility rights-of-ways within these portions of the corridors would diminish the wilderness characteristics by creating surface-disturbing activities (and possibly placing surface facilities) that would no longer maintain the wilderness characteristics values in the most southern portion of the Floy Canyon area.

Non-WSA lands with wilderness characteristics that would remain open to rights-of-way permitting include all of 13 areas and portions of 15 areas, totaling 160,599 acres (see Table 4.58). Presently there are no proposals for rights-of-ways in these areas; however, if that opportunity arises, more permanent, long term impacts would occur if the right-of-way is for an overhead power line than for a buried pipeline. Any surface-disturbing activity and/or placement of permanent visual facilities would detract from the natural character of the area and disrupt the setting needed to support primitive forms of recreation.

There are 80,164 acres in 18 non-WSA lands with wilderness characteristics areas that would be protected, in whole or in part, from surface-disturbing activities under this alternative because they would be rights-of-way avoidance areas (see Table 4.58). Gooseneck, Mill Creek Canyon and Shafer Canyon would be completely within the avoidance areas. These areas are to be avoided but may be available for location of right-of-ways with special stipulations if the proposal meets the goals and objectives of other resources and uses in the land-use plan. It is expected and assumed that the avoidance areas would protect the natural character of the non-WSA lands in these areas.

4.3.8.2.3.5 Alternative D

Both the Behind the Rocks and Floy Canyon non-WSA lands with wilderness characteristics would have minor portions of them overlain by designated utility corridors. The Behind the Rocks non-WSA area (east side) would be partially overlain by the proposed Spanish Valley corridor (same as the Proposed Plan). Floy Canyon would be partially within the 1 mile width of the I-70 proposed utility corridor. Placement of future utility rights-of-way within these portions of the corridors would diminish the wilderness characteristics of these areas by causing surface-disturbing activities (and possible placing surface facilities) that would no longer maintain the wilderness characteristics values. Floy Canyon would have more potential impacts than in the Proposed Plan because the corridor width would be 1 mile on each side of I-70, providing more room for the placement of additional rights-of-way.

Non-WSA lands with wilderness characteristics that would remain open to rights-of-way permitting include all of 18 areas and portions of 14 areas, totaling 242,030 acres. Presently there are no proposals for rights-of-ways in these areas, however, if that opportunity arises, more permanent, long term impacts would occur if the right-of-way is for an overhead power line than for a buried pipeline. Any surface-disturbing activity and/or placement of permanent visual facilities would detract from the natural character of the area and disrupt the setting needed to support primitive forms of recreation.

There are 14 non-WSA lands with wilderness characteristics areas, totaling 24,455 acres that would be protected, in part, from surface-disturbing actives under this alternative because they would be rights-of-way avoidance areas (see Table 4.58). None of the areas would be completely within an avoidance area. These areas are to be avoided but may be available for location of right-of-ways with special stipulations if the proposal meets the goals and objectives of other resources and uses in the land-use plan. It is expected and assumed that the avoidance areas would protect the natural character of the non-WSA lands in these areas. Because none of the avoidance areas protect 5,000 acres of the stand alone areas, those areas could be subject to losing their wilderness characteristics if rights-of-way were developed on the non-WSA lands outside of the avoidance areas.

4.3.8.2.4 Impacts of Livestock Grazing on Non-WSA Lands with Wilderness Characteristics

Livestock grazing is guided by livestock objectives set in the Standards for Rangeland Health and Guidelines for Grazing Management. Proper levels of livestock use are guided by these objectives, thus, it is not anticipated that livestock grazing would have impacts on non-WSA lands with wilderness characteristics under any alternatives because meeting these objectives would not permit degradation of the lands. When livestock use is properly managed, it would not affect the appearance of naturalness. Grazing assessments completed by MFO staff and any subsequent actions taken to remedy impending issues would enhance the natural character of non-WSA lands with wilderness characteristics. Further, improved natural condition would sustain the setting needed to support opportunities for primitive and unconfined recreation and the experience of solitude that visitors seek.

While there could be some visual evidence of livestock use in the areas (presence of livestock, feces, trampling of soil, fences, and consumption of vegetation), rangeland health and riparian conditions would be maintained through proper management under the Standards and Guides assessments, and the appearance of a natural condition of these areas would be maintained. For some visitors, the presence of livestock would be an adverse impact on the desired experience (connection with the natural world and experiences of solitude). However, this effect would be seasonal. At other times of the year, livestock would not be present, soils would recover, and vegetation would re-grow, reducing the impact on the visitor.

Under all alternatives, the Negro Bill Canyon non-WSA lands with wilderness characteristics area would remain unavailable for livestock grazing. In addition, small portions of some of the non-WSA lands with wilderness characteristics would be unavailable for grazing under the range of alternatives. When some visitors encounter an area with little or no evidence of livestock use, their experience of solitude and primitive recreation may be enhanced.

4.3.8.2.5 Impacts of Mineral Resources on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.5.1 Oil and Gas

The mineral assumptions for analysis and the Reasonably Foreseeable Development scenarios presented in the beginning of this chapter were used in the analysis of impacts to non-WSA lands with wilderness characteristics. These RFD scenarios for oil and gas development were derived from the Mineral Potential Report for the MPA (BLM 2005e). Of the seven RFD areas identified in the MPA, non-WSA lands with wilderness characteristics fall within three of them.

The Bookcliffs RFD Area totals 151,834 acres outside of WSAs. It encompasses seven non-WSA lands with wilderness characteristics areas which total 60,453 acres, or about 39% of the RFD area (see Table 4.59). About 28,277 acres within non-WSA lands with wilderness characteristics are currently leased.

Table 4.59. Bookcliffs RFD Area and Non-WSA Lands with Wilderness Characteristics

Name of Non-WSA Lands with Wilderness Characteristics	Percent of Bookcliffs RFD Area	Acres of Unit with Existing Leases and % of Total
Coal Canyon	14%	13,312 (62%)
Flume Canyon	2%	1,355 (38%)
Hells Hole	2%	1,724 (68%)
Hideout Canyon	7%	5,399 (46%)
Mexico Point	8%	6,294 (49%)
Spruce Canyon	1%	161 (14%)
Westwater Creek	5%	32 (<1%)

The Big Flat-Hatch Point RFD Area has a total of 391,149 acres outside of WSAs. It includes 11 non-WSA lands with wilderness characteristics areas which total 66,864 acres, or about 17% of the area (see Table 4.60). About 10,127 acres within non-WSA lands with wilderness characteristics are currently leased.

Table 4.60. Big Flat-Hatch Point RFD Area and Non-WSA Lands with Wilderness Characteristics

Name of Non-WSA Lands with Wilderness Characteristics	Percent of Big Flat-Hatch Point RFD Area	Acres of Unit with Existing Leases and % of Total
Behind the Rocks	<1%	0
Dead Horse Cliffs	<1%	237 (30%)
Goldbar	2%	1,125 (17%)
Gooseneck	<1%	0
Harts Point	<1%	0
Hatch Wash	3%	3,006 (27%)
Hatch/Lockhart/Hart	<1%	833 (31%)
Horsethief Point	2%	838 (10%)
Hunter Canyon	1%	251 (5%)
Labyrinth Canyon	6%	3,658 (14%)
Shafer Canyon	<1%	179 (9%)

The Eastern Paradox RFD Area has a total of 556,389 acres outside of WSAs. It encompasses fourteen non-WSA lands with wilderness characteristics areas which total 138,410 acres, or about 25% of the area (see Table 4.61). About 12,117 acres of non-WSA lands with wilderness characteristics are currently leased.

Table 4.61. Eastern Paradox RFD Area and Non-WSA Lands with Wilderness Characteristics

Name of Non-WSA Lands with Wilderness Characteristics	Percent of Eastern Paradox RFD Area	Acres of Unit with Existing Leases and % of Total
Arches Adjacent	1%	56 (<1%)
Beaver Creek	5%	0
Big Triangle	<1%	0
Desolation Canyon	2%	0
Dome Plateau	3%	2,364 (17%)
Fisher Towers	3%	0
Floy Canyon	2%	8,859 (86%)
Granite Creek	1%	0
Lost Spring Canyon	2%	771 (6%)
Mary Jane Canyon	4%	0
Mill Creek Canyon	<1%	0
Negro Bill Canyon	<1%	0
Westwater Canyon	<1%	0
Yellow Bird	<1%	67 (18%)

Each of the three RFD areas has differing projections for oil and gas development by alternative. Table 4.62 portrays those projections. It is assumed that 15 acres would be disturbed for every well drilled.

Table 4.62. RFD Areas with Projected Number of Wells per Year, over 15 Years

RFD Areas (Acres outside WSAs)	Projected Wells Per Year/over 15 Years			
	Alternative A	Alternative B	Proposed Plan	Alternative D
Bookcliffs (151,834)	~7 / 104	~4 / 64	~7 / 104	~7 / 104
Big Flat – Hatch Point (391,149)	~3 / 46	~1 / 19	~2 / 34	~3 / 44
Eastern Paradox (556,389)	~2 / 34	~1 / 21	~2 / 28	~2 / 32

Impacts Associated with Oil and Gas Leasing/Development under All Alternatives

A number of variables would determine the degree of impact to non-WSA lands with wilderness characteristics, including where surface-disturbing activities occur, land form or topography, vegetation type, sequence of development, and reclamation time. Soil types and climate would affect the time it takes to reclaim disturbances. Successful reclamation would take about 10 years.

Construction and operation of oil and gas wells and associated support facilities, including roads, surface and buried pipelines, power lines, and compressor stations would create soil and vegetation disturbance and the presence of permanent structures that would degrade the natural characteristics of non-WSA lands with wilderness characteristics. In addition to site-specific

surface disturbance, the cumulative number of wells would change the appearance of naturalness.

The noise of construction and operation of producing wells, including the presence of work crews, vehicles, and equipment, would degrade opportunities for solitude and conflict with primitive recreational opportunities in proximity to industrial development. As recreational visitors move away from the sources of development, the sights and sounds of development would diminish. However, it can be expected that sights and sounds from development would reduce opportunities for solitude and primitive and unconfined recreation up to one-half mile beyond the direct loss of natural character.

Table 4.63 displays the oil and gas leasing stipulations, by alternative, for each of the non-WSA lands with wilderness characteristics.

Table 4.63. Non-WSA Lands with Wilderness Characteristics Leasing Stipulations By Alternative

Name	Total Acres	Currently Leased	Stipulation	Alt. A	Alt. B	PROPOSED PLAN*	Alt. D
Arches Adjacent	6,396	56	Standard	6,396	0	0	0
			CSU/TL	0	0	5,883	5,883
			NSO	0	0	513	513
			Closed	0	6,396	0	0
Beaver Creek	25,722	0	Standard	17,744	0	0	3,956
			CSU/TL	3,030	0	0	13,614
			NSO	4,948	0	22,561	8,152
			Closed		25,722	2,977	0
Behind the Rocks	3,643	0	Standard	2,616	0	1,339	3,588
			CSU/TL	0	0	684	0
			NSO	1,019	0	1,582	55
			Closed		3,643	0	0
Big Triangle	5,200	0	Standard	137	0	659	659
			CSU/TL	5,063	0	4,541	4,541
			NSO	0	0	0	0
			Closed	0	5,200	0	0
Coal Canyon	21,632	13,312	Standard	15,145	0	6,831	13,069
			CSU/TL	5,129	0	14,801	8,563
			NSO	0	0	0	0
			Closed	0	21,632	0	0
Dead Horse Cliffs	797	237	Standard	512	0	0	642
			CSU/TL	0	0	699	121
			NSO	250	0	98	34
			Closed	35	797	0	0

Table 4.63. Non-WSA Lands with Wilderness Characteristics Leasing Stipulations By Alternative

Name	Total Acres	Currently Leased	Stipulation	Alt. A	Alt. B	PROPOSED PLAN*	Alt. D
Desolation Canyon	10,498	0	Standard	1,378	0	411	1,286
			CSU/TL	9,120	0	9,102	8,968
			NSO	0	0	985	250
			Closed	0	10,498	0	0
Dome Plateau	14,207	2,364	Standard	12,255	0	2,252	2,373
			CSU/TL	1,952	0	2,375	5,444
			NSO	0	0	8,267	6,390
			Closed	0	14,207	1,313	0
Fisher Towers	17,235	0	Standard	14,810	0	4,238	4,763
			CSU/TL	1,328	0	4,551	9,173
			NSO	1,097	0	4,528	3,312
			Closed	0	17,235	3,625	0
Floy Canyon	9,983	8,589	Standard	3,615	0	3,422	5,064
			CSU/TL	6,368	0	6,561	4,919
			NSO	0	0	0	0
			Closed	0	9,983	0	0
Flume Canyon	3,520	1,355	Standard	1,709	0	1,952	1,263
			CSU/TL	1,682	0	838	2,257
			NSO	129	0	730	0
			Closed	0	3,520	0	0
Goldbar	6,437	1,125	Standard	4,565	0	0	5,802
			CSU/TL	1,735	0	373	419
			NSO	0	0	6,064	543
			Closed	0	6,437	0	0
Gooseneck	843	0	Standard	275	0	0	530
			CSU/TL	530	0	0	313
			NSO	0	0	843	0
			Closed	0	843	0	0
Granite Creek	4,528	0	Standard	431	0	1,378	13
			CSU/TL	4,097	0	3,150	4,515
			NSO	0	0	0	0
			Closed	0	4,528	0	0

Table 4.63. Non-WSA Lands with Wilderness Characteristics Leasing Stipulations By Alternative

Name	Total Acres	Currently Leased	Stipulation	Alt. A	Alt. B	PROPOSED PLAN*	Alt. D
Harts Point (MFO)	1,465	0	Standard	0	0	0	33
			CSU/TL	1,436	0	1,429	1,432
			NSO	29	0	36	0
			Closed	0	1,465	0	0
Hatch Wash	10,983	3,006	Standard	0	0	3,366	5,842
			CSU/TL	10,983	0	7,617	5,141
			NSO	0	0	0	0
			Closed	0	10,983	0	0
Hatch/Lockhart/Hart	2,670	833	Standard	0	0	0	114
			CSU/TL	2,670	0	2,670	2,556
			NSO	0	0	0	0
			Closed	0	2,670	0	0
Hells Hole	2,538	1,724	Standard	0	0	0	180
			CSU/TL	2,538	0	2,538	2,358
			NSO	0	0	0	0
			Closed	0	2,538	0	0
Hideout Canyon	11,607	5,399	Standard	0	0	0	0
			CSU/TL	11,607	0	11,607	11,607
			NSO	0	0	0	0
			Closed	0	11,607	0	0
Horsethief Point	8,358	838	Standard	7,417	0	2,326	6,824
			CSU/TL		0	4,842	372
			NSO	816	0	1,190	1,162
			Closed	125	8,358	0	0
Hunter Canyon	4,465	251	Standard	3,092	0	0	4,155
			CSU/TL	0	0	1,610	0
			NSO	1,373	0	2,855	310
			Closed	0	4,465	0	0
Labyrinth Canyon	25,361	3,658	Standard	20,545	0	6,774	15,534
			CSU/TL	2,105	0	271	7,053
			NSO	2,458	0	17,954	2,456
			Closed	0	25,361	0	0

Table 4.63. Non-WSA Lands with Wilderness Characteristics Leasing Stipulations By Alternative

Name	Total Acres	Currently Leased	Stipulation	Alt. A	Alt. B	PROPOSED PLAN*	Alt. D
Lost Spring Canyon	11,456	771	Standard	11,456	0	5,588	4,363
			CSU/TL	0	0	5,823	7,093
			NSO	0	0	45	0
			Closed	0	11,456	0	0
Mary Jane Canyon	24,779	0	Standard	21,076	0	122	1,995
			CSU/TL	3,703	0	2,457	21,807
			NSO	0	0	8,993	946
			Closed	0	24,779	13,176	0
Mexico Point	12,837	6,294	Standard	0	0	0	0
			CSU/TL	12,837	0	12,837	12,837
			NSO	0	0	0	0
			Closed	0	12,837	0	0
Mill Creek Canyon	3,388	0	Standard	3,051	0	0	192
			CSU/TL		0	0	3,127
			NSO	337	0	3,388	69
			Closed	0	3,388	0	0
Negro Bill Canyon	2,333	0	Standard	2,226	0	0	0
			CSU/TL	0	0	1,156	2,093
			NSO	107	0	1,177	240
			Closed	0	2,333	0	0
Shafer Canyon	1,842	179	Standard	900	0	0	129
			CSU/TL	0	0	0	1,700
			NSO	942	0	1,842	13
			Closed	0	1,842	0	0
Spruce Canyon	1,131	161	Standard	0	0	13	13
			CSU/TL	1,131	0	161	1,118
			NSO	0	0	957	0
			Closed	0	1,131	0	0
Westwater Canyon	3,086	0	Standard	2,251	0	1,835	1,876
			CSU/TL	0	0	1,171	1,170
			NSO	840	0	84	40
			Closed	0	2,328	0	0
Westwater Creek	7,188	32	Standard	0	0	0	0
			CSU/TL	7,188	0	7,188	7,188
			NSO	0	0	0	0
			Closed	0	7,188	0	0

Table 4.63. Non-WSA Lands with Wilderness Characteristics Leasing Stipulations By Alternative

Name	Total Acres	Currently Leased	Stipulation	Alt. A	Alt. B	PROPOSED PLAN*	Alt. D
Yellow Bird	357	67	Standard	357	0	233	
			CSU/TL	0	0	124	357
			NSO	0	0	0	0
			Closed	0	357	0	0

*In the Proposed Plan, 27,722 acres of Beaver Creek are managed to protect, preserve and maintain their wilderness characteristics. Of these acres, 22,561 acres are managed with a no surface occupancy stipulation, and 2,977 acres are closed to oil and gas leasing.

In the Proposed Plan, 5,540 acres of the Fisher Towers lands with wilderness characteristics are managed to protect, preserve and maintain their wilderness characteristics. Of these acres, 1,629 are closed to oil and gas leasing, and 3,911 are open to leasing with a no surface occupancy stipulation.

In the Proposed Plan, 16,499 acres of the Mary Jane lands with wilderness characteristics are managed to protect, preserve and maintain their wilderness characteristics. Of these acres, 7,525 are closed to oil and gas leasing, and 8,910 are open to leasing with a no surface occupancy stipulation.

Alternative A

All or parts of the 32 non-WSA lands with wilderness characteristics areas would remain open to leasing and development under standard oil and gas stipulations or under controlled surface use or timing limitation stipulations (250,853 acres). This comprises about 94% of these areas. Six percent of the non-WSA lands with wilderness characteristics (within 12 areas) would be either closed to leasing or have a no surface occupancy stipulation on the leases.

In the Book Cliffs RFD area, all seven non-WSA wilderness characteristics areas would remain open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (60,324). Only 129 acres in Flume Canyon (4%) would have a no surface occupancy stipulation applied to the lease. Based on the percentage of non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or development would be in Coal Canyon, Hideout Canyon, Mexico Point, or Hells Hole. Given that the projection for drilling for oil and gas is 7 wells/year for the whole RFD area, and that 39% of the RFD area encompasses non-WSA lands with wilderness characteristics, up to three wells per year—or up to 45 wells over a 15 year period—could be drilled within these areas. This could disturb up to 45 acres per year, or up to 675 acres over the life of the plan. Leasing and development within these non-WSA areas would cause that portion to lose their natural character and opportunities for solitude and primitive recreation due to exploration for and development of oil and gas resources. However, it is not anticipated that any of the areas would lose their wilderness characteristics in totality because of the small amount of acreage projected to be disturbed and the number of projected wells in this RFD area over the 15 year scenario.

In the Big Flat-Hatch Point RFD area, all eleven non-WSA wilderness characteristics areas would remain partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations. However, 1,019 acres (28%) in Behind the Rocks, 285 acres (36%) in Dead Horse Cliffs, 941 acres (11%) in Horsethief Point, 1,373 acres (31%) in Hunter Canyon, 2,458 acres (10%) in Labyrinth Canyon and 945 acres (51%) in Shafer Canyon would be under a no-surface occupancy stipulation or closed to leasing. Based on the percentage of

non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or development would be in Labyrinth Canyon, Hatch Wash, or Goldbar. Given that the projection for drilling for oil and gas is 3 wells/year for the whole RFD area, and that 17% of the RFD area encompasses non-WSA lands with wilderness characteristics, up to one well per year—or up to 15 wells over a 15 year period—could be drilled within the non-WSA areas. This could disturb up to 15 acres per year, or up to 225 acres over the life of the plan. Leasing and development within these non-WSA areas could cause that portion to lose its natural character and opportunities for solitude and primitive recreation due to exploration for and development of oil and gas resources. However, it is not anticipated that any of the areas would lose their wilderness characteristics in totality because of the small amount of acreage projected to be disturbed and the few projected wells in this RFD area over the 15 year scenario.

In the Eastern Paradox RFD area, all fourteen non-WSA wilderness characteristics areas would remain open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (133,462 acres). However, 4,948 acres in Beaver Creek (19%), 1,097 acres in Fisher Towers (6%), 337 acres in Millcreek (10%), 110 acres in Negro Bill Canyon (5%), and 840 acres in Westwater Canyon (36%), would be under a no-surface occupancy stipulation or closed to leasing). Based on the percentage of non-WSA lands with wilderness characteristics and/or the existing leases within those areas, the highest potential for leasing and/or development would be in Beaver Creek, Desolation Canyon, Dome Plateau, Floy Canyon, Fisher Towers, Mary Jane Canyon and Lost spring Canyon. Floy Canyon would have the highest probability for development based on existing leases. Given that the projection for drilling for oil and gas is two wells/year for the whole RFD area, and that 24% of the RFD area encompasses non-WSA lands with wilderness characteristics open to leasing under standard stipulation, controlled surface use, or timing stipulations, up to one well per year—or up to 15 wells over a 15 year period—could be drilled within the non-WSA areas. This could disturb up to 15 acres per year, or up to 225 acres over the life of the plan. Leasing and development within these non-WSA areas could cause that portion to lose their natural character and opportunities for solitude and primitive recreation due to exploration for and development of oil and gas resources. However, it is not anticipated that any of the areas would lose their wilderness characteristics in totality because of the small amount of acreage projected to be disturbed and the few projected wells in this RFD area over the 15 year scenario.

In summary, up to 5 wells per/year or up to 75 wells over the 15 year RFD scenario, disturbing up to 75 acres/year or 1,125 acres over the 15 year RFD scenario could occur in non-WSA lands with wilderness characteristics. Thirteen of the 32 areas have a higher potential for these wells to be drilled based on existing leases and/or percentages of non-WSA lands within the RFD area.

Alternative B

Under Alternative B, all lands within the non-WSA lands with wilderness characteristics would be closed to leasing. However, existing leases still remain in 20 of the 32 non-WSA lands with wilderness characteristics areas. Development of these leases could compromise wilderness characteristics values in these areas. Below is a breakdown of how or where that may occur based on the RFD areas and the predicted surface disturbance for oil and gas activity for this alternative. Those non-WSA lands with wilderness characteristics that are not currently leased would be fully protected under the leasing closure under this alternative. This would preserve the

naturalness of the areas and maintain the outstanding opportunities for primitive recreation and solitude.

In the Book Cliffs RFD area, all seven non-WSA wilderness characteristics areas have portions of the areas under existing leases comprising 28,277 acres. Based on the percentage of the non-WSA lands with wilderness characteristics under existing leases, the highest potential for development of those leases would be in Coal Canyon, Hideout Canyon, Mexico Point, or Hells Hole. Given that the projection for drilling for oil and gas is 4 wells/year for the whole RFD area under this alternative, and that 18% of the lands the RFD area encompasses are in non-WSA lands with wilderness characteristics that are leased, approximately one well per year—or up to 15 wells over a 15 year period—could be drilled within the non-WSA areas currently under lease. This could disturb up to 15 acres per year, or up to 225 acres over the life of the plan. The 15 year projection is on the high side, given that leases, if not developed or held in production, will expire after 10 years. Development of any leases within the non-WSA areas could cause that portion to lose their natural character and opportunities for solitude and primitive recreation due to exploration for and development of oil and gas resources. Because of the small amount of acreage projected to be disturbed and the few projected wells in this RFD area over the 15 year scenario, it is anticipated that small portions of areas could loose their wilderness characteristics in any of the three large non-WSA lands with wilderness characteristics with existing leases. Far less than 1% of any of those three areas would be at risk of loss of wilderness characteristics. However, if all of the development over the 15 year period occurs in the smaller Hells Hole area, approximately 9% of that area could lose its wilderness characteristics.

In the Big Flat RFD area, eight of the eleven non-WSA wilderness characteristics areas have portions of the areas under existing leases comprising 10,127 acres. Based on the percentage of the non-WSA lands with wilderness characteristics under existing leases, the highest potential for development of those leases could be in Labyrinth Canyon, Hatch Wash or Goldbar. Given that the projection for drilling for oil and gas is 1 well/year for the whole RFD area under this alternative, and that 3% of the lands the RFD area encompasses are in non-WSA lands with wilderness characteristics that are leased, it is not anticipated that any well would be drilled within the non-WSA lands with wilderness characteristics. Thus, all lands would maintain and protect their wilderness characteristics values in this RFD area.

In the Eastern Paradox RFD area five out of the 14 non-WSA wilderness characteristics areas have portions of the areas under existing leases comprising 12,112 acres. The rest would all be closed to leasing (126,298 acres). Based on the percentage of the non-WSA lands with wilderness characteristics under existing leases, the highest potential for development of those leases could be in Dome Plateau and Floy Canyon. Given that the projection for drilling for oil and gas is 1 well/year for the whole RFD area under this alternative, and that 2% of the lands the RFD area encompasses are in non-WSA lands with wilderness characteristics that are leased, it is not anticipated that any wells would be drilled within the non-WSA lands with wilderness characteristics. Thus, all lands would maintain and protect their wilderness characteristics values in this RFD area.

In summary, up to 1 well per/year or up to 15 wells over the 15 year RFD scenario, disturbing up to 15 acres/year or 225 acres over the 15 year RFD scenario could occur on existing leased lands in non-WSA lands with wilderness characteristics. Three non-WSA areas in the Book Cliffs RFD area have the highest potential for these wells to be drilled based on existing leases in the

non-WSA lands within the RFD area. All other non-WSA lands with wilderness characteristics would be protected from oil and gas leasing and developments activities by closing the areas to future leasing.

Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage includes the entire Beaver Creek area, and portions of Mary Jane (16,499 acres) and Fisher Towers (5,540 acres) areas. Under this management, these lands would be managed as closed, or with a no surface occupancy stipulation. There would be no other surface-disturbing activities allowed within this acreage, including no new road building or construction. Minerals decisions would have no surface impacts upon the three non-WSA areas to be managed to protect, Preserve, and maintain their wilderness characteristics as no leases would be granted that would impact these wilderness characteristics.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

All or parts of 27 of the 31 non-WSA lands with Wilderness Characteristics areas would remain all or partially open to leasing and development under standard oil and gas stipulations or under controlled surface use or timing limitation stipulations (160,522 acres). This comprises about 60% of non-WSA areas. About 80,241 acres of the non-WSA lands with wilderness characteristics spread among 20 areas would be either closed to leasing or have a no surface occupancy stipulation on the leases. Three of those non-WSA lands with wilderness characteristics areas would be protected, in whole, from all surface-disturbing activities: Gooseneck, Mill Creek Canyon, and Shafer Canyon.

In the Book Cliffs RFD area, all seven non-WSA wilderness characteristics areas would remain all or partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (58,766 acres). However, a total of 1,687 acres would be under a no-surface occupancy stipulation or closed to leasing in the following areas: 730 acres in Flume Canyon (21%) and 957 acres in Spruce Canyon (85%). Based on the percentage of non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or development would be in Coal Canyon, Hideout Canyon, Mexico Point, or Hells Hole. Because well projections under this alternative are the same as in Alternative A, and generally the same percentage of lands in the RFD area encompass non-WSA lands with wilderness characteristics, the same analysis portraying 3 wells in this area would be applied.

In the Big Flat-Hatch Point RFD area, nine of the eleven non-WSA wilderness characteristics areas would remain all or partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (33,970 acres). However a total of 32,464 acres would be under a no-surface occupancy stipulation in the following areas: 1,582 acres in Behind the Rocks (43%), 98 acres in Dead Horse Cliffs (12%), 6,064 acres in Goldbar (94%), 842 acres in Gooseneck (100%), 36 acres in Harts Point (2%), 1190 acres in Horsethief Point (14%), 2,855 acres in Hunter Canyon (64%), 17,954 acres in Labyrinth Canyon (71%), and 1,842 acres of Shafer Canyon (100%). Based on the percentage of non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or

development would be in Labyrinth Canyon, Hatch Wash, or Goldbar. Given that the projection for drilling for oil and gas is 2 wells/year for the whole RFD area under this alternative, and that less than 9% of the lands the RFD area encompasses are in non-WSA lands with wilderness characteristics (not under a no-surface occupancy stipulation), it is not anticipated that any wells would be drilled within the non-WSA lands with wilderness characteristics. Thus, all lands would maintain and protect their wilderness characteristics values in this RFD area.

In the Eastern Paradox RFD area, twelve of the fourteen non-WSA wilderness characteristics areas would remain all or partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (66,594 acres). However, a total of 24,055 acres would be under a no-surface occupancy stipulation or closed to leasing in the following areas: 513 acres in Arches Adjacent (9%), 985 acres in Desolation Canyon (10%), 9,580 acres in Dome Plateau (67%), 45 acres in Lost Spring Canyon (<1%), 3,388 acres in Millcreek (100%), 1,177 acres in Negro Bill Canyon (50%), and 84 acres in Westwater Canyon (4%). Based on the percentage of non-WSA lands with wilderness characteristics and/or the existing leases within those areas, the highest potential for leasing and/or development would be in Desolation Canyon, Dome Plateau, Floy Canyon, and Lost Spring Canyon. Floy Canyon would have the highest probability for development based on existing leases. Given that the projection for drilling for oil and gas is 2 wells/year for the whole RFD area under this alternative, and that less than 12% of the lands the RFD area encompasses are in non-WSA lands with wilderness characteristics (not under a no-surface occupancy stipulation or closed to leasing), it is not anticipated that any wells would be drilled within the non-WSA lands with wilderness characteristics. Thus, all lands would maintain and protect their wilderness characteristics values in this RFD area.

In summary, up to 3 wells per/year or up to 45 wells over the 15 year RFD scenario, disturbing up to 45 acres/year or 675 acres over the 15 year RFD scenario could occur in non-WSA lands with wilderness characteristics, most likely within the Book Cliffs RFD area. However, eleven of the 32 areas have a higher potential for these wells to be drilled based on existing leases and/or percentages of non-WSA lands within the RFD area.

Alternative D

All or of the 32 non-WSA lands with Wilderness Characteristics areas would remain all or partially open to leasing and development under standard oil and gas stipulations or under controlled surface use or timing limitation stipulations (242,006 acres). This comprises about 91% of non-WSA areas. Nine percent (24,479 acres) of the non-WSA lands with wilderness characteristics spread between 16 areas would be have a no surface occupancy stipulation on the leases.

In the Book Cliffs RFD area, all seven non-WSA wilderness characteristics areas would remain open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (60,453 acres). Based on the percentage of non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or development would be in Coal Canyon, Hideout Canyon, Mexico Point, or Hells Hole. Because well projections under this alternative are the same as in Alternative A, and generally the same percentage of lands in the RFD area encompass non-WSA lands with wilderness characteristics, the same analysis portraying three wells in this RFD area would be applied.

In the Big Fat-Hatch Point RFD area, all eleven non-WSA wilderness characteristics areas would remain all or partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (62,291 acres). However a total of 4,573 acres would be under a no-surface occupancy stipulation in the following areas: 55 acres in Behind the Rocks (2%), 34 acres in Dead Horse Cliffs (4%), 543 acres in Goldbar (9%), 1162 acres in Horsethief Point (16%), 310 acres in Hunter Canyon (7%), 2,456 acres in Labyrinth Canyon (11%), and 13 acres of Shafer Canyon (<1%). Based on the percentage of non-WSA lands with wilderness characteristics and the existing leases within those areas, the highest potential for leasing and/or development would be in Labyrinth Canyon, Hatch/Lockhart/Hart, Hatch Wash, or Goldbar. Because well projections under this alternative are the same as in Alternative A, and generally the same percentage of lands in the RFD area encompass non-WSA lands with wilderness characteristics (16%), the same analysis portraying one well in this RFD area would be applied.

In the Eastern Paradox RFD area, all fourteen non-WSA wilderness characteristics areas would remain all or partially open to leasing under standard stipulations or under controlled surface use or timing limitation stipulations (118,498 acres). However, a total of 19,912 acres would be under a no-surface occupancy stipulation or closed to leasing in the following areas: 513 acres in Arches Adjacent (9%), 8,152 acres in Beaver Creek (32%), 250 acres in Desolation Canyon (2%), 6,390 acres in Dome Plateau (45%), 3,312 acres in Fisher Towers (19%), 946 acres in Mary Jane Canyon (4%), 69 acres in Millcreek (2%), 240 acres in Negro Bill Canyon (10%), and 40 acres in Westwater Canyon (2%). Based on the percentage of non-WSA lands with wilderness characteristics and/or the existing leases within those areas, the highest potential for leasing and/or development would be in Desolation Canyon, Dome Plateau, Floy Canyon, and Lost Spring Canyon. Floy Canyon would have the highest probability for development based on existing leases. Because well projections under this alternative are the same as in Alternative A, and generally the same percentage of lands in the RFD area encompass non-WSA lands with wilderness characteristics (21%), the same analysis portraying one well in this RFD area would be applied.

In summary, like Alternative A, up to 5 wells per/year or up to 75 wells over the 15 year RFD scenario, disturbing up to 75 acres/year or 1,125 acres over the 15 year RFD scenario could occur in non-WSA lands with wilderness characteristics. Twelve of the 32 areas have a higher potential for these wells to be drilled based on existing leases and/or percentages of non-WSA lands within the RFD area.

4.3.8.2.5.2 Coal-bed Methane

Alternatives A, D, and the Proposed Plan

In the Book Cliffs RFD area there is potential for coal-bed methane development in Hells Hole, Hideout Canyon, and Mexico Point non-WSA lands with wilderness characteristics. Predictions of up to 225 cumulative acres of disturbance from 15 wells over the 15 year RFD scenario is anticipated for an area three times as large as the non-WSA lands together. Due to the large area of potential development for coal-bed methane in the northeastern corner of the MPA, one 5-spot well cluster, and up to 75 acres may be disturbed within these areas over the next 15 years. The impacts to wilderness characteristics from coal-bed methane leasing and development would be the same as described for oil and gas leasing and development. Leasing would be subject to the same stipulations as oil and gas leasing portrayed in on Table 4.53.

Alternative B

None of the areas would be leased for coal-bed methane under this alternative, thereby protecting the wilderness characteristics resource from that potential development.

In summary, Alternatives A and D would provide the most opportunities for oil and gas leasing and development to impact non-WSA lands with wilderness characteristics. In both alternatives, projections of up to five wells per year, or 75 wells over the 15 year RFD scenario could occur. This would cause surface disturbance and impact naturalness and outstanding opportunities for primitive recreation and solitude on up to 75 acres per year or up to 1,125 acres over the 15 year spread.

Under Alternative B, although all areas would be closed to leasing, projected development tied to valid existing leases could allow for up to one well a year to be developed on non-WSA lands with wilderness characteristics. This could have surface impacts on up to 15 acres a year or up to 225 acres over the 15 year RFD scenario. Statistics show that this development is most probable in the Coal Canyon, Hells Hole, Hideout Canyon, or Mexico Point areas.

The Proposed Plan would allow opportunities for up to three oil and gas wells to be developed in the non-WSA lands with wilderness characteristics areas. This could disturb up to 45 acres per year of surface disturbance, and up to 675 acres of surface disturbance over the 15 year RFD scenario.

Although oil and gas well development would cause surface-disturbing activities that may result in loss of wilderness characteristics in some areas, it is not expected under any alternative that the amount of disturbance based on well projections and the scattered nature of the wells would be substantial. Although small acreages may be lost in some of the non-WSA lands with wilderness characteristic, it is not predicted that any of the areas would lose the wilderness characteristics value in whole.

4.3.8.2.5.3 Potash Leasing

Alternatives A and D

Only the southernmost portion of the Goldbar non-WSA area with wilderness characteristics is intersected with a known potash leasing area. Under Alternatives A and D, this area could be leased and developed for potash. Approximately 15% of the Goldbar area would lose its wilderness characteristics if developed for potash.

Alternative B and the Proposed Plan

The 47,761 acres of non-WSA lands to be managed to protect, preserve, and maintain their wilderness characteristics (Beaver Creek – 25,722 acres, Mary Jane – 16,499 acres, and Fisher Towers—5,540 acres) would not be leased for potash under the Proposed Plan, thereby protecting the wilderness characteristics resource from that potential development.

Under these alternatives the integrity of the wilderness characteristics would be protected from surface-disturbing mining activities for potash because the area would be closed to leasing under Alternative B, and under a no-surface-occupancy stipulation under the Proposed Plan.

4.3.8.2.5.4 Salable Minerals

Alternatives A and D

Although salable mineral disposal is a discretionary decision, there is potential for expansion of existing salable mineral disposal sites that could encroach into four non-WSA areas with wilderness characteristics: Horsethief Point, Goldbar, Behind the Rocks, and Mary Jane Canyon. These areas remain available for salable mineral disposal under Alternatives A and D. There is one sand and gravel site near the northernmost boundary of Horsethief Point, one building stone site near the southernmost boundary of Goldbar, three sand and gravel sites and one building stone site on the boundary of Behind the Rocks, and two sand and gravel sites on the boundary of Mary Jane Canyon that could expand into small portions of these areas. Where surface disturbance would occur, naturalness and opportunities for primitive recreation and solitude would be foregone.

Only minimal acreage within the non-WSA areas would be affected by surface-disturbing mineral disposal activities because the existing sites area on the boundaries of these areas, and quarries or sand and gravel operations could expand in other directions as well. If the gravel pits or building rock quarries have associated support facilities, including roads and power lines, additional soil and vegetation disturbance and the presence of permanent structures would degrade the natural characteristics of non-WSA lands with wilderness characteristics. The noise of the operations of sand and gravel pits or rock quarries, including the presence of work crews, vehicles, and equipment, would degrade opportunities for solitude and conflict with primitive recreational opportunities in proximity to industrial development. As recreational visitors move away from the sources of development, the sights and sounds of development would diminish. However, it can be expected that sights and sounds from development would reduce opportunities for solitude and primitive and unconfined recreation up to 1/2 mile beyond the direct loss of natural character, depending on topography. Up to five acres in each of these areas could loose their wilderness characteristics by future expansion of the existing sites.

Alternative B

All non-WSA lands with wilderness characteristics would be closed to salable mineral disposal, thereby protecting the wilderness values of the four areas that contain the salable mineral sources.

The Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

The 47,761 acres of non-WSA lands to be managed to protect, preserve, and maintain their wilderness characteristics (Beaver Creek – 25,722 acres, Mary Jane – 16,499 acres, and Fisher Towers—5,540 acres) would not be available for salable mineral disposal under the Proposed Plan, thereby protecting the wilderness characteristics resource from that potential development.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Only two of the four non-WSA lands with wilderness characteristics as described in Alternative A above would be open to salable minerals: one sand and gravel site at Horsethief Point, and three sand and gravel sites and one building stone area in Behind the Rocks non-WSA areas with

wilderness characteristics. Where development would occur, the same impacts as described in alternative A would ensue.

4.3.8.2.5.5 Locatable Minerals

All Alternatives

There are eight non-WSA lands with wilderness characteristics areas that are located within moderate potential areas for uranium and vanadium: Arches Adjacent, Beaver Creek, Behind the Rocks, Goldbar, Gooseneck, Horsethief Canyon, Labyrinth Canyon, and Yellow Bird. Most of the uranium/vanadium development is expected to occur within the historic mining areas with high development potential, which are outside of the non-WSA lands with wilderness characteristics. However, if new mining development does occur within these areas, direct loss of wilderness characteristics would be unavoidable due to major surface-disturbing activities. Although Behind the Rocks non-WSA lands would be within an ACEC under Alternative B and the Proposed Plan, and thus would provide for some mitigative actions, surface disturbance from mining would still occur.

Existing mining claims currently overlay Floy Canyon, Goldbar, Dome Plateau, Beaver Creek, Hatch/Lockhart, and Hatch Wash. To date, there has been no activity associated with the claims within the non-WSA areas. New mining claims are filed continually, however, and changes could occur that would impact lands with wilderness characteristics by denuding the naturalness, and creating loss of primitive recreation activities and solitude for those areas where new mining activities may occur.

4.3.8.2.6 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Non-WSA Lands with Wilderness Characteristics

There are 32 areas (outside of existing wilderness study areas [WSAs]) totaling 266,485 acres, that were found to have wilderness characteristics. See Tables 3.16 and 3.17 for a list of non-WSA areas with wilderness characteristics by name and acreage.

4.3.8.2.6.1 Alternatives A and D

Under these alternatives, there are no specific actions prescribed to directly protect or enhance the naturalness and opportunities for solitude or primitive recreation of the non-WSA areas. Thus, numerous allocations and uses could detract from the natural character or opportunities for solitude or primitive recreation of the non-WSA areas.

4.3.8.2.6.2 Alternative B

Under Alternative B, all non-WSA lands with wilderness characteristics would be managed with the following prescriptions:

- Visual resource management (VRM) Class II objectives.
- Limited to Designated Road and Trails for off-highway vehicle (OHV) use.
- Closed to oil and gas leasing.
- Closed to disposal of mineral materials.
- Retain public lands in Federal ownership.

- Rights-of-way exclusion area.
- Closed to commercial and personal-use wood cutting
- Closed to new road construction.

This prescription would prevent road construction and surface disturbances that would degrade the natural character of the non-WSA areas, prevent surface disturbances and uses that would be incompatible with primitive recreation activities, and protect the setting needed to support the experience of solitude. This management prescription would protect the natural character of all of the non-WSA lands, and the opportunities for solitude or primitive recreation that exist within these areas.

4.3.8.2.6.3 Proposed Plan

There are 47,761 acres within Beaver Creek (25,722 acres), Fisher Towers (5,540 acres), and Mary Jane Canyon (16,499 acres) non-WSA lands with wilderness characteristics that would be managed to protect their wilderness characteristics through the following prescriptions:

- Visual resource management (VRM) Class II objectives.
- Limited to Designated Road and Trails for off-highway vehicle (OHV) use.
- Closed or No Surface Occupancy stipulation for oil and gas leasing.
- Closed to disposal of mineral materials.
- Retain public lands in Federal ownership.
- Rights-of-way avoidance area.
- Closed to commercial and personal-use wood cutting
- Closed to new road construction.

This prescription, although not as restrictive as Alternative B, would still prevent new road construction and surface disturbances that would degrade the natural character of the non-WSA areas, prevent surface disturbances and uses that would be incompatible with primitive recreation activities, and protect the setting needed to support the experience of solitude. This management prescription would protect the natural character of all of the non-WSA lands, and the opportunities for solitude or primitive recreation that exist within these areas.

For the other 218,724 acres of non-WSA lands with wilderness characteristics, there are no specific actions prescribed to directly protect or enhance the naturalness and opportunities for solitude or primitive recreation of the non-WSA areas. Thus, numerous allocations and uses could detract from the natural character or opportunities for solitude or primitive recreation of the non-WSA areas.

In summary, Alternatives A, and D prescribe no specific management prescriptions would protect the naturalness or opportunities for solitude or primitive recreation of non-WSA lands. Alternative B however, would prescribe a management scheme that would protect the naturalness and opportunities for solitude or primitive recreation of all of the non-WSA lands (266,485 acres). The Proposed Plan would manage three areas (47,761 acres) to protect their wilderness characteristics to protect naturalness and opportunities for solitude and primitive recreation in those areas.

4.3.8.2.7 Impacts of Paleontology Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.7.1 Alternative A

Petrified wood gathering in Gooseneck, Goldbar, Dome Plateau, Mary Jane Canyon and Fisher Towers non-WSA lands with wilderness characteristics would continue to be allowed along the Colorado Riverway Special Recreation management areas, including commercial sales of this resource. This could impact the wilderness characteristics values by detracting from naturalness due to surface disturbance and affecting primitive recreational opportunities and solitude from commercial activities.

4.3.8.2.7.2 Alternatives B, D, and the Proposed Plan

Petrified wood gathering and in Gooseneck, Goldbar, Dome Plateau, Mary Jane Canyon and Fisher Towers, would be prohibited within the Colorado Riverway Special Recreation Management Area to protect resources for future public enjoyment. In addition commercial sales of petrified wood would not be permitted. These decisions would maintain the wilderness characteristics of the areas. Like cultural resources, knowing more about the paleontological resources of the area, interpreting the resource in an appropriate fashion, and viewing fossil sites in the non-WSA lands with wilderness characteristics would add to the enjoyment of these areas for primitive recreational purposes. And protection of fossils adds to the character of the setting that supports these recreational opportunities.

4.3.8.2.8 Effects of Recreation Decisions on Non-WSA Lands with Wilderness Characteristics

The MFO does not prescribe specific allocation and use decisions for other resources in designated SRMAs. Each alternative designates SRMAs based on different types of recreational uses and opportunities in concert with other goals and objectives for those alternatives.

4.3.8.2.8.1 Alternative A

Two designated SRMAs overlay all or portions of six non-WSA lands with wilderness characteristics. All other non-WSA lands would be managed as an Extensive Recreation Management Area (ERMA)

All of Hatch Wash, Harts Point, and Hatch/Lockhart non-WSA lands with wilderness characteristics lie within the Canyon Rims SRMA. Although the SRMA is much larger than those three areas, the primary objectives for management of these scenic and remote lands is in accordance with the MFO's Recreation Opportunity Spectrum (ROS) inventory. Both the Hatch Wash and Hatch/Lockhart areas were inventoried as semi-primitive non-motorized areas primarily for hiking and backpacking opportunities within the canyons. Harts Point non-WSA wilderness characteristics area was inventoried as a roaded natural area for the opportunity of auto touring on primary roads and visiting scenic overlooks into the Colorado River canyon and Canyonlands National Park. The SRMA opportunities would protect the natural landscape and opportunities for solitude and primitive forms of recreation in all three areas, however, motorized vehicle use of designated routes in the Harts Point area would temporarily disrupt opportunities for solitude and conflict with primitive forms of recreation.

The Colorado River SRMA envelopes a portion of the Dome Plateau and Westwater Canyon non-WSA areas for a 1/2 mile on either side of the Colorado River, and a portion of the Beaver Creek non-WSA area along the Dolores River. The purpose of this SRMA is to focus on boating and river rafting opportunities and to preserve these areas for non-motorized primitive recreation opportunities. The SRMA recreational management focus would protect the natural landscape and opportunities for solitude and primitive forms of recreation in all three areas.

None of the other 26 non-WSA lands with wilderness characteristics are within SRMAs under this alternative, therefore, there would be no recreational management objectives or focus within those areas. Because these lands are not within a managed SRMA with specific recreation objectives, they would be vulnerable to surface-disturbing uses including commercial permitting activities, special recreation permits, new road construction, and other activities that could impact the natural values and primitive recreational opportunities and solitude that currently exist in those areas.

4.3.8.2.8.2 Alternative B

All portions of 21 non-WSA lands with wilderness characteristics, and portions of seven others would be within eight designated SRMAs. Only four non-WSA land areas (Lost Spring, Granite Creek, Big Triangle, and Yellow Bird) would not be within a designated SRMA for focused recreation management.

The Bookcliffs SRMA includes all of Hideout Canyon, Mexico Point, Hells Hole and portions of Desolation Canyon (90%), Floy Canyon (45%), and Coal Canyon (5%). This SRMA would be managed as an undeveloped SRMA for non-mechanized recreation use, including hiking and backpacking, among others. No motorized permits would be authorized. The primitive recreation setting of this large SRMA would enhance and preserve the non-WSA lands with wilderness characteristics.

The Canyon Rims SRMA incorporates all of Hatch Wash, Harts Point, and Hatch/Lockhart non-WSA areas. A focus area for non-mechanized recreation lies in Hatch Wash, which prioritizes this area for hiking and backpacking opportunities. Designated motorized routes to scenic vistas are near the Harts Point non-WSA area. The recreational management within this SRMA would maintain and preserve the wilderness characteristics in these three non-WSA areas.

The Colorado Riverway SRMA includes all of Fisher Towers, Shafer Canyon, and portions of Dome Plateau (60%), Negro Bill (50%), and Mary Jane Canyon (90%). The main recreational emphasis in this SRMA would be to manage camping, boating, river access, trails, among others things, to protect the outstanding resource values of the area. Approximately half of the lands in Fisher Towers and 80% of the lands in Mary Jane Canyon would be non-motorized recreation focus areas. The priorities within these areas would be for hiking, climbing, and equestrian use. All of Negro Bill Canyon would be within a hiking and ecological study focus area and would be restricted to day use only. Managed recreation in these non-WSA lands with wilderness characteristics would help maintain and protect the natural character of the areas and provide for solitude and primitive recreation opportunities.

The Dolores River Canyons SRMA envelops all of the Beaver Creek non-WSA lands with wilderness characteristics. It would be managed as an undeveloped SRMA with focus on non-motorized boating, day hiking, and backpacking. Its remote setting would continue to protect and enhance wilderness characteristics values.

The Labyrinth Rims/Gemini Bridges SRMA includes all of Labyrinth Canyon, Goldbar, Horsethief, and Dead Horse Cliffs non-WSA lands with wilderness characteristics, and portions of Arches Adjacent non-WSA lands (25%). The major recreational management attention needed within this large area centers on river permitting, hiking and backpacking, camping, and motorized activities. Most of Goldbar non-WSA area would be a focus area for hiking to enjoy the scenic values of the area. Areas along the Green River (within the Labyrinth Canyon non-WSA area) would be a designated focus area for canoeing. The Labyrinth Canyon non-WSA area would also include a recreational focus area for hiking within Spring Canyon. All of these activities would help promote and maintain the wilderness characteristics values in these areas. Within the portion of Arches Adjacent non-WSA land with wilderness characteristics are two focus areas for mountain bike use. Although not a motorized use, mountain biking in those areas may detract from, and be in conflict with, solitude and a primitive recreation experience.

The Sand Flats SRMA incorporates the southern portion of Negro Bill Canyon non-WSA lands with wilderness characteristics (50%). Within this area, the Moab Slickrock Bike Trail would be closed to all motorized use which would enhance the experience of solitude. Mountain bikes would still be prevalent in the area which may detract from, and be in conflict with, a primitive recreation experience.

The South Moab SRMA incorporates all of the Mill Creek Canyon and Behind the Rocks non-WSA lands with wilderness characteristics. The recreation objective for these lands within the SRMA is to create a focus area for primitive hiking experiences. The recreational management within this SRMA would maintain and preserve the wilderness characteristics in these three non-WSA areas.

The Two Rivers SRMA includes a portion of the Westwater Canyon non-WSA lands with wilderness characteristics along the Colorado River (10%). The overall goal of this SRMA is to provide high quality opportunities for recreational boating and camping, and to protect the outstanding resource values. In the portion overlying the Westwater Canyon non-WSA area, the emphasis is for hiking and whitewater boating in a very primitive and remote setting. Managed recreation in these non-WSA lands with wilderness characteristics would preserve the natural character of the areas and provide for solitude and outstanding primitive recreation opportunities.

Those non-WSA lands with wilderness characteristics that are not within an SRMA would be managed under an ERMA for recreational objectives. Because all of the non-WSA lands with wilderness characteristics are protected by restrictive management prescriptions under this alternative, all of the wilderness characteristics values would continue to be preserved under this alternative, whether or not they are in an SRMA.

4.3.8.2.8.3 Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage includes the entire Beaver Creek area (25,722 acres) and portions of Mary Jane (16,499 acres) and Fisher Towers (5,540 acres) areas. Under this management, these lands would be managed with a no surface occupancy stipulation. There would be no other surface-disturbing activities allowed within this acreage, including no new road building or construction. Primitive and unconfined recreation would be emphasized. Beaver Creek is wholly contained within the Dolores River Canyons SRMA, which is an

Undeveloped SRMA. The Mary Jane and Fisher Towers' acreage within lands to be managed to protect, preserve and maintain their wilderness characteristics are wholly within the Colorado Riverway SRMA. In addition, the Mary Jane and Fisher Towers acreage is wholly within the Richardson Amphitheater Focus Area, which emphasizes hiking, climbing and equestrian use.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

All portions of 16 non-WSA lands with wilderness characteristics, and portions of five others would be within seven designated SRMAs. Ten non-WSA land areas (Floy Canyon, Coal Canyon, Hideout Canyon, Desolation Canyon, Mexico Point, Hideout Canyon, Lost Spring, Granite Creek, Big Triangle, and Yellow Bird) would not be wholly or partially within a designated SRMA for focused recreation management.

The analysis of SRMAs and their impacts on non-WSA lands with wilderness characteristics would generally be the same as in Alternative B with the following changes:

- The Bookcliffs SRMA, which includes all of Hideout Canyon, Mexico Point, Hell's Hole and portions of Desolation Canyon, Floy Canyon, and Coal Canyon, would not be designated an SRMA. It would be managed under an Extensive Recreation Management Area.
- Only about 60% of the Fisher Towers non-WSA lands with wilderness characteristics would be incorporated into the Colorado Riverway SRMA. The remaining portion of the area would be managed under an Extensive Recreation Management Area.

All of the remaining non-WSA lands with wilderness characteristics that are not within SRMAs under this alternative would be managed under an ERMA, with no specific recreational management focus within those areas. Although the Bookcliffs SRMA would not be designated under this alternative, specific management for the ERMA would be the same as for the SRMA (non-mechanized recreation, especially equestrian use, hiking, backpacking and hunting. New constructed routes would not be allowed, and commercial motorized permits would not be issued, and competitive events would not be allowed). Thus, the impacts of maintaining this area under an ERMA would be the same as for an SRMA for wilderness characteristics values.

The other lands that are not within a managed SRMA with specific recreation objectives would be vulnerable to surface-disturbing uses, including commercial permitting activities, special recreation permitting, new road construction, and other activities that could impact the natural values and primitive recreational opportunities and solitude that currently exist in those areas.

4.3.8.2.8.4 Alternative D

All of five and portions of five more non-WSA lands with wilderness characteristics would be within four designated SRMAs. All other non-WSA lands with wilderness characteristics would be managed under an ERMA.

The Canyon Rims SRMA and Sand Flats SRMA would remain the same as in Alternative B and C. For those non-WSA lands with wilderness characteristics that remain with SRMAs under this alternative, the impacts of their designation on non-WSA lands with wilderness characteristics would be the same as in Alternative B. The following differences from Alternative B would be in place:

- The Bookcliffs SRMA, which includes all of Hideout Canyon, Mexico Point, Hell's Hole and portions of Desolation Canyon, Floy Canyon, and Coal Canyon, would not be designated an SRMA.
- Only about 55% of the Fisher Towers non-WSA lands with wilderness characteristics would be incorporated into the Colorado Riverway SRMA.
- The Dolores River Canyons SRMA would not be designated an SRMA. A narrow portion along the Dolores River with the Beaver Creek non-WSA lands with wilderness characteristics would be incorporated into the Two River SRMA.
- The Labyrinth Rims/Gemini Bridges SRMA, which includes all of Labyrinth Canyon, Goldbar, Horsethief, and Dead Horse Cliffs non-WSA lands with wilderness characteristics, and portions of Arches Adjacent non-WSA lands would not be designated an SRMA.
- The South Moab SRMA, which incorporates all of the Mill Creek Canyon and Behind the Rocks non-WSA lands with wilderness characteristics would not be designated an SRMA.
- The Two Rivers SRMA would include the Dolores River within the Beaver Creek non-WSA lands with wilderness characteristics, as well as the portion of the Westwater Canyon non-WSA lands with wilderness characteristics along the Colorado River.

All of the remaining non-WSA lands with wilderness characteristics that are not within SRMAs under this alternative would be managed under an ERMA, with no specific recreational management focus within those areas. Although the Bookcliffs SRMA would not be designated under this alternative, specific management for the ERMA would be the same as for the SRMA (non-mechanized recreation, especially equestrian use, hiking, backpacking and hunting. New constructed routes would not be allowed, and commercial motorized permits would not be issued, and competitive events would not be allowed). Thus, the impacts of maintaining this area under an ERMA would be the same as for an SRMA for wilderness characteristics values.

For the other lands that are not within a managed SRMA with specific recreation objectives, they would be managed as an ERMA and be vulnerable to surface-disturbing uses, including special recreation permitting, commercial permitting activities, new road construction, and other activities that could impact the natural values and primitive recreational opportunities and solitude that currently exist in those areas.

4.3.8.2.9 Impacts of Riparian Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.9.1 Common to All Alternatives

All non-WSA lands with wilderness characteristics contain riparian ecosystems, except for the Hatch/Lockhart non-WSA area. The objective of riparian management is to manage riparian areas for properly functioning condition and to avoid or minimize loss or degradation of riparian, wetland and associated floodplains so as to preserve and enhance natural and beneficial values and provide for fish, wildlife, and special status species habitats. Decisions to implement any of these objectives would improve the natural vegetation condition of non-WSA lands with wilderness characteristics, and thus its natural values. Improved riparian and wetland condition would enhance wildlife habitat, and thus, the natural values of non-WSA lands. Further, improved wildlife habitat would lead to increases in riparian obligate wildlife species populations and opportunities for wildlife viewing. And, improved riparian and wetland

condition would improve the setting for other primitive recreational opportunities, including hiking, camping, and nature study.

4.3.8.2.9.2 Alternative A

Under the No Action alternative, there are no specific decisions to prevent surface-disturbing activities within 100-year floodplains or riparian areas or springs. In addition, lands with these scarce resources would also be available for disposal. Allowing surface-disturbing activities within non-WSA lands with wilderness characteristics would degrade the wilderness characteristics values, especially that of naturalness. Depending on the extent of activity in riparian areas, the primitive recreation experience could also be diminished.

4.3.8.2.9.3 Alternatives B, D, and the Proposed Plan

Under these action alternatives, prohibiting surface-disturbing activities within active floodplains or within 100 meters of riparian areas or springs would help restore cottonwood, willow, and other riparian species along major riparian and wetland areas.

4.3.8.2.10 Impacts of Soils/Watershed Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.10.1 Alternative A

Under the No Action Alternative, there are no specific decisions to prevent surface-disturbing activities within 100-year floodplains or riparian areas or springs, nor are there slope restrictions for surface-disturbing activities, especially associated with oil and gas development. Because there are no restrictions on OHVs or construction of new routes in the Bookcliffs area, sensitive saline soils would continue to be disturbed. This would impact the natural character of the Floy and Coal Canyons non-WSA lands with wilderness characteristics. Depending on the level of development or disturbance in these areas, solitude and primitive recreation opportunities could by foregone.

4.3.8.2.10.2 Common to All Action Alternatives (B, D, and the Proposed Plan)

Decisions under these alternatives would prohibit surface-disturbing activities within 100 year floodplains, or within 100 meters of natural springs. They would also limit new OHV routes from being designated in saline soil areas, which include Floy and Coal Canyons. Applying these decisions would help maintain the natural values in these areas.

4.3.8.2.10.3 Alternative B and the Proposed Plan

The Mill Creek–Spanish Valley watershed would be closed to surface-disturbing activities to protect the aquifer for the Moab area. Protection of the watershed would preserve and enhance the natural character and opportunities for primitive forms of recreation present in the Mill Creek non-WSA area.

4.3.8.2.11 Impacts of Special Designation Decisions on Non-WSA Lands with Wilderness Characteristics

For the purposes of this section of the analysis, "Special Designations" include Areas of Critical Environmental Concern (ACECs) established under each alternative, rivers recommended eligible in Alternative A and suitable for inclusion in the National Wild and Scenic Rivers System under the three action alternatives, and wilderness study areas (WSAs) being managed to protect their wilderness characteristics under each alternative.

4.3.8.2.11.1 Alternative A

Under the No Action alternative there would be no ACECs designated, therefore specific decisions that may protect the wilderness characteristics in non-WSA lands with those values would not be afforded through ACEC designation.

Under this alternative, seven of the 32 non-WSA land areas intersect with eligible wild and scenic river segments, totaling 43.66 miles in those seven areas. There are 7.7 miles of Beaver Creek, 12.15 miles of the Dolores River, 2.06 miles of Onion Creek, 7.1 miles of the Green River, 12.47 miles of Professor Creek, 3.09 miles of Mill Creek, 0.08 miles of Negro Bill Creek, and 0.08 miles of Cottonwood that would be managed to preserve their wild and scenic river eligibility. Protection of river values would prevent uses and surface disturbances that would detract from the natural character of the Beaver Creek, Fisher Towers, Labyrinth Canyon, Mary Jane Canyon, Mill Creek Canyon, Negro Bill Canyon, and Spruce Canyon non-WSA lands with wilderness characteristics within the 1/2 mile river corridor (1/4 mile on each side of the river segment). The presence and noise of motor boat use along the Green River in Labyrinth Canyon non-WSA lands would reduce opportunities for solitude and conflict with primitive recreation in these river segments. The impacts would last while motorized boats were present.

Because Alternative A does not propose specific management to protect non-WSA lands with wilderness characteristics, contiguous WSAs and National Park Service lands would not have expanded opportunities for solitude and primitive forms of recreation afforded to them.

4.3.8.2.11.2 Alternative B

Of the 14 ACECs that would be designated under this alternative to protect a variety of relevant and important values, 9 ACECs would overlay non-WSA lands with wilderness characteristics. Those ACECs are Behind the Rocks, Bookcliffs, Canyon Rims, Colorado River Corridor, Cottonwood-Diamond Watershed, Highway 279/Shafer Basin/Long Canyon, Labyrinth Canyon, Mill Creek Canyon, and Ten Mile Wash. The management prescriptions for these ACECs would protect naturalness and opportunities for solitude and primitive recreation in all of the non-WSA lands.

Portions of the Behind the Rocks (1,460 acres) and Hunter Canyon (2,771 acres) non-WSA lands with wilderness characteristics lie within the 17,836-acre potential Behind the Rocks ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, closed to woodcutting, limited to designated routes for OHV use, preclude vegetation treatments, and managed by VRM Class I objectives (preserve the characteristic landscape). These prescriptions would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude

and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

Portions of Coal Canyon (6,854 acres), Desolation Canyon (8,970 acres), Floy Canyon (3,921 acres), Spruce Canyon (1,120 acres), and Mexico Point (23 acres) non-WSA lands with wilderness characteristics lie within the 304,252 acre potential Bookcliffs ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, closed to woodcutting, limited to designated routes for OHV use, and managed by VRM Class II objectives (retention of the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation

Almost all of Harts Point (1,465 acres) and Hatch/Lockhart (2,027 acres) non-WSA lands with wilderness characteristics lies within the 23,400 acres potential Canyon Rims ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, closed to woodcutting, limited to designated routes for OHV use, and managed by VRM Class II objectives (retention of the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation

Portions of Dome Plateau (9,598 acres), Fisher Towers (6,466 acres), Mary Jane Canyon (17,305 acres), and Negro Bill Canyon (9 acres) non-WSA lands with wilderness characteristics lie within the 50,483 acres potential Colorado River Corridor ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, closed to woodcutting, limited to designated routes for OHV use, preclude vegetation treatments, and managed by VRM Class I objectives (preserve the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

Portion of Flume Canyon (730 acres) and Spruce Canyon (960 acres) non-WSA lands with wilderness characteristics lie within the 35,830 acres potential Cottonwood Diamond Watershed ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, closed to OHV use at end of the Class B-road system, and managed by VRM Class II objectives (retention of the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation.

Portions of Dead Horse Cliffs, (784 acres), Goldbar (35 acres), and all of Gooseneck (843 acres) and Shafer Canyon (1,842 acres) non-WSA lands with wilderness characteristics lie within the 13,500 acre potential Highway 279/Shafer Basin/Long Canyon ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, limited to designated routes for OHV use, and managed by VRM Class I objectives (preserve the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and

protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation

Portions of Labyrinth Canyon (5,204 acres) and Horsethief Point (739 acres) non-WSA lands with wilderness characteristics lie within the 8,528 acre potential Labyrinth Canyon ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, limited to designated routes for OHV use, closed to firewood cutting, and managed by VRM Class I objectives (preserve the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

Portions of Mill Creek Canyon (2,335 acres) non-WSA lands with wilderness characteristics lie within the 13,501 acre potential Mill Creek Canyon ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, limited to designated routes for OHV use, closed to firewood cutting, and managed by VRM Class I objectives (preserve the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

A small portion of Labyrinth Canyon (232) non-WSA lands with wilderness characteristics lies within the 4,908 acre potential Ten Mile Wash ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, limited to designated routes for OHV use (no routes designated), and closed to firewood cutting. This prescription would prevent surface disturbances and preclude motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation.

Under this alternative, seven of the 32 non-WSA land areas intersect with suitable wild and scenic river segments, totaling 43.66 miles in those seven areas. There are 7.7 miles of Beaver Creek, 12.15 miles of the Dolores River, 2.06 miles of Onion Creek, 7.1 miles of the Green River, 12.47 miles of Professor Creek, 3.09 miles of Mill Creek, 0.08 miles of Negro Bill Creek, and 0.08 miles of Cottonwood that would be managed for wild and scenic river designation with segment classifications of "scenic," "recreational" and "wild" (see Table 2.1). Protection of river values (until Congress acts on BLM's recommendations) would prevent uses and surface disturbances that would detract from the natural character of the Beaver Creek, Fisher Towers, Labyrinth Canyon, Mary Jane Canyon, Mill Creek Canyon, Negro Bill Canyon, and Spruce Canyon non-WSA lands with wilderness characteristics within the 1/2 mile river corridor (1/4 mile on each side of the river segment). The presence and noise of motor boat use along the Green River in Labyrinth Canyon non-WSA lands would reduce opportunities for solitude and conflict with primitive recreation in these river segments. The impacts would last while motorized boats were present.

Managing the wilderness study areas (WSAs) under BLM's Interim Management Policy to protect their wilderness values would expand opportunities for solitude and primitive forms of recreation, found in the Behind the Rocks, Coal Canyon, Desolation Canyon, Floy Canyon,

Flume Canyon, Lost Spring Canyon, Mill Creek Canyon, Negro Bill Canyon, Spruce Canyon, and Westwater Canyon non-WSA lands with wilderness characteristics, to larger land areas, including both the WSAs and contiguous non-WSA lands with wilderness characteristics. In addition, Yellowbird, Lost Spring Canyon, Dome Plateau, and Arches Adjacent non-WSA lands with wilderness characteristics are contiguous with Arches National Park; and Dead Horse Cliffs, Shafer Canyon, Gooseneck, and Horsethief Point non-WSA lands with wilderness characteristics are contiguous with Canyonlands National Park. Similar to the WSAs, protecting the non-WSA lands with wilderness characteristics to preserve their wilderness values would enhance and expand the opportunities for solitude and primitive recreation.

4.3.8.2.11.3 Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage is located within the Beaver Creek, Mary Jane and Fisher Towers areas. None of the five ACECs that would be designated under the Proposed Plan overlap these three areas. The Dolores River, which is proposed for Wild and Scenic River designation in the Proposed Plan, lies partially within the Beaver Creek area.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Of the 5 ACECs that would be designated under this alternative to protect a variety of relevant and important values, all 5 ACECs would overlay some portions of non-WSA lands with wilderness characteristics. Those ACECs are Behind the Rocks, Cottonwood Diamond Watershed, Highway 279/Shafer Basin/Long Canyon, Mill Creek Canyon, and Ten Mile Wash. The non-WSA lands and their acreages that intersect with these five ACECs are the same as in Alternative B. Management prescriptions for the non-WSA lands with wilderness characteristics within the ACECs are slightly different, however, than in the Proposed Plan. This is because VRM Class II objectives (retention of the characteristic landscape) have been applied in most areas, and the non-WSA lands would have a no surface occupancy stipulation (NSO) for oil and gas leasing. The VRM Class II objectives and the NSO stipulation would preclude surface-disturbing activities, thereby protecting naturalness and opportunities for solitude and primitive recreation in all of the non-WSA lands.

Portions of the Behind the Rocks (1,460 acres) and Hunter Canyon (2,771 acres) non-WSA lands with wilderness characteristics lie within the 5,201-acre potential Behind the Rocks ACEC. These non-WSA lands with wilderness characteristics would have a no surface occupancy (NSO) stipulation for oil and gas leasing, closed to woodcutting, limited to designated routes for OHV use, preclude vegetation treatments, and managed by VRM Class II objectives (retention of the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation

Portion of Flume Canyon (730 acres) and Spruce Canyon (960 acres) non-WSA lands with wilderness characteristics lie within the 34,027 acre potential Cottonwood-Diamond Watershed ACEC. These non-WSA lands with wilderness characteristics would be NSO for oil and gas

leasing and closed to OHV use at end of the Class B-road system. This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation.

Portions of Dead Horse Cliffs, (784 acres), Goldbar Canyon (35 acres), and all of Gooseneck (843 acres) and Shafer Canyon (1,842 acres) non-WSA lands with wilderness characteristics lie within the 13,500 acre potential Highway 279/Shafer Basin/Long Canyon ACEC. These non-WSA lands with wilderness characteristics would be closed to oil and gas leasing, limited to designated routes for OHV use, and managed by VRM Class I and II objectives (preserve and retain the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

Portions of Mill Creek Canyon (2,335 acres) non-WSA lands with wilderness characteristics lie within the 3,721 acre potential Mill Creek Canyon ACEC. These non-WSA lands with wilderness characteristics would be NSO for oil and gas leasing, limited to designated routes for OHV use, closed to firewood cutting, and managed by VRM Class II objectives (retention of the characteristic landscape). This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

A small portion of Labyrinth Canyon (232) non-WSA lands with wilderness characteristics lies within the 4,980 acre potential Ten Mile Wash ACEC. These non-WSA lands with wilderness characteristics would be NSO for oil and gas leasing, limited to designated routes for OHV use, and closed to firewood cutting. This prescription would prevent surface disturbances and limit motorized uses and protect the natural character of the non-WSA lands with wilderness characteristics and opportunities for solitude and primitive recreation. The occasional presence and noise of OHV use would reduce opportunities for solitude and conflict with primitive forms of recreation.

Under this alternative, three of the 32 non-WSA land areas intersect with suitable wild and scenic river segments, totaling 16.00 miles in those three areas. There are 6.1 miles of the Dolores River, 2.8 miles of Onion Creek, and 7.1 miles of the Green River that would be managed for wild and scenic river designation with segment classifications of "scenic," "recreational" and "wild" (see Table 2.1). Protection of river values (until Congress acts on BLM's recommendations) would prevent uses and surface disturbances that would detract from the natural character of the Beaver Creek, Labyrinth Canyon, and Mary Jane Canyon non-WSA lands with wilderness characteristics within the 1/2 mile river corridor (1/4 mile from the high water mark on each river bank) of the river segment. The presence and noise of motor boat use along the Green River in Labyrinth Canyon non-WSA lands would reduce opportunities for solitude and conflict with primitive recreation in these river segments. The impacts would last while motorized boats were present.

Because the Proposed Plan does not propose specific management to protect non-WSA lands with wilderness characteristics contiguous to any WSAs or National Park Service lands, there would not be expanded opportunities for solitude and primitive forms of recreation afforded to the WSAs or National Park lands.

4.3.8.2.11.4 Alternative D

Under Alternative D, no ACECs would be designated; therefore, management prescriptions to protect relevant and important values would not be applied and would not afford protection of wilderness values in non-WSA lands with wilderness characteristics.

Under this alternative, no wild and scenic river segments would be found suitable. Therefore, management prescriptions to protect the suitable river segments would not be applied and would not afford protection of wilderness values in non-WSA lands with wilderness characteristics.

Because Alternative D does not propose specific management to protect non-WSA lands with wilderness characteristics, contiguous WSAs and National Park Service lands would not have expanded opportunities for solitude and primitive forms of recreation afforded to them.

In summary, Alternative B would provide the most long-term protection to the naturalness and opportunities for solitude and primitive recreation of non-WSA lands with wilderness characteristics by designating the most acres as ACEC and by recommending the longest stretches of waterways for protection in the National Wild and Scenic Rivers System, followed by the Proposed Plan. The Proposed Plan would provide some protection of the naturalness and opportunities for solitude and primitive recreation of non-WSA lands and recommend fewer river segments for protection in the National /Wild and Scenic Rivers System. Both Alternative A and D would provide the lowest level of protection, as neither one would designate ACECs or recommend suitable river segments for protection (although Alternative A does protect the eligible river segments for later study.)

4.3.8.2.12 Impacts of Special Status Species Decisions on Non-WSA Lands with Wilderness Characteristics

Under all alternatives, management actions would focus on maintaining, protecting, and enhancing habitats for special status species. Decisions that could help protect non-WSA lands with wilderness characteristics include avoiding construction of new roads within listed and non-listed special status plant and animal species habitats. This would help to maintain the natural character of non-WSA lands with wilderness characteristics where they intersect with special status species habitat. Another common to all alternatives decision is to implement habitat manipulations where translocations and population augmentation of special status species would occur. Depending on the methods used, this could degrade the naturalness of the non-WSA lands. During the time the habitat manipulation is being conducted, the opportunity for solitude and primitive recreation would be disrupted. Under all alternatives, a decision to implement management strategies that restore degraded riparian communities could, in the short term, affect the naturalness of the non-WSA lands with wilderness characteristics. Improvement of riparian condition, however, would also improve wildlife habitat for these species, improving wildlife viewing opportunities and the primitive recreational values of the non-WSA lands. In addition, any Recovery Plan actions that require fencing would introduce an unnatural element of human effects to the landscape, slightly degrading the natural condition of the non-WSA lands.

Restrictions on surface-disturbing activities within the 100-year floodplain of the Colorado River for endangered fish would help protect the wilderness characteristics values in the Dome Plateau, Labyrinth Canyon, Beaver Creek, and Shafer Canyon non-WSA lands with wilderness characteristics by maintaining the natural character along the river corridor. In addition, surface-disturbing restrictions in suitable *Cycladenia humilis* var. *jonesii* habitat would protect the natural character of Mary Jane Canyon and Fisher Towers non-WSA lands with wilderness characteristics.

Specific management actions for oil and gas leasing in special status species habitat under all alternatives are related to timing stipulations and/or controlled surface use stipulations. These stipulations would not protect non-WSA lands with wilderness characteristics from surface disturbance associated with oil and gas activities, impacting naturalness and opportunities for solitude and primitive recreation.

4.3.8.2.13 Impacts of Travel Management Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.13.1 OHV Travel Management

Table 4.64 portrays all of the non-WSA lands with wilderness characteristics and displays how the OHV management would be applied under each alternative.

Table 4.64. OHV Management in Non-WSA Lands with Wilderness Characteristics

OHV Acres in Non-WSA Lands with Wilderness Characteristics by Alternative			Alternatives			
Name	Acres	OHV Category	A	B	PROPOSED PLAN*	D
Arches Adjacent	6,396	Open	2,500	0	0	0
		Limited	3,896	6,396	6,396	6,396
Beaver Creek	25,722	Open	21,366	0	0	0
		Limited	4,356	25,722	25,722	25,722
Behind the Rocks	3,643	Open	5	0	0	0
		Limited	3,638	3,643	3,643	3,643
Big Triangle	5,200	Open	5,200	0	0	0
		Limited	0	5,200	5,200	5,200
Coal Canyon	21,632	Open	11,099	0	0	0
		Limited	10,533	21,632	21,632	21,632
Dead Horse Cliffs	797	Open	25	0	0	0
		Limited	772	797	797	797
Desolation Canyon	10,498	Open	10,380	0	0	0
		Limited	118	10,498	10,498	10,498
Dome Plateau	14,207	Open	7,853	0	0	0
		Limited	6,354	14,207	14,207	14,207
Fisher Towers	17,235	Open	9,550	0	0	0

Table 4.64. OHV Management in Non-WSA Lands with Wilderness Characteristics

OHV Acres in Non-WSA Lands with Wilderness Characteristics by Alternative			Alternatives			
Name	Acres	OHV Category	A	B	PROPOSED PLAN*	D
		Limited	7,685	17,235	17,235	17,235
Floy Canyon	9,983	Open	8,339	0	0	0
		Limited	1,644	9,983	9,983	9,983
Flume Canyon	3,520	Open	3,520	0	0	0
		Limited	0	3,520	3,520	3,520
Goldbar	6,437	Limited	6,437	6,437	6,437	6,437
Gooseneck	843	Limited	843	843	843	843
Granite Creek	4,528	Open	4,528	0	0	0
		Limited	0	4,528	4,528	4,528
Harts Point (MFO)	1,465	Limited	1,465	1,465	1465	1465
Hatch Wash	10,983	Limited	10,983	10,983	10,983	10,983
Hatch/Lockhart	2,670	Limited	2,670	2,670	2,670	2,670
Hells Hole	2,538	Open	2,538	0	0	0
		Limited	0	2,538	2,538	2,538
Hideout Canyon	11,607	Open	11,607	0	0	0
		Limited	0	11,607	11,607	11,607
Horsethief Point	8,358	Limited	8,358	8,358	8,358	8,358
Hunter Canyon	4,465	Limited	4,465	4,465	4,465	4,465
Labyrinth Canyon	25,361	Open	2,798	0	0	0
		Limited	22,653	25,361	25,361	25,361
Lost Spring Canyon	11,456	Open	11,456	0	0	0
		Limited	0	11,456	11,456	11,456
Mary Jane Canyon	24,779	Open	8,046	0	0	0
		Limited	16,733	24,779	24,779	24,779
Mexico Point	12,837	Open	12,837	0	0	0
		Limited	0	12,837	12,837	12,837
Mill Creek Canyon	3,388	Open	402	0	0	0
		Limited	2,986	3,388	3,388	3,388
Negro Bill Canyon	2,333	Open	1,363	0	0	0
		Limited	970	2,333	2,333	2,333
Shafer Canyon	1,842	Limited	1,842	1,842	1,842	1,842
Spruce Canyon	1,131	Open	1,131	0	0	0
		Limited	0	1,131	1,131	1,131
Westwater	3,086	Open	1,479	0	0	0

Table 4.64. OHV Management in Non-WSA Lands with Wilderness Characteristics

OHV Acres in Non-WSA Lands with Wilderness Characteristics by Alternative			Alternatives			
Name	Acres	OHV Category	A	B	PROPOSED PLAN*	D
Canyon		Limited	1,607	3,086	3,086	3,086
Westwater Creek	7,188	Open	7,173	0	0	0
		Limited	15	7,188	7,188	7,188
Yellow Bird	357	Open	331	0	0	0
		Limited	26	357	357	357

*All 47,761 acres of lands to be managed to protect, preserve, and maintain their wilderness characteristics (25,72 acres in Beaver Creek, 5,540 acres in Fisher Towers and 16,499 acres in Mary Jane) are to be managed with travel limited to designated routes

Alternative A

Under present management, cross-country motorized use is allowed for game retrieval and antler collection in areas open for motorized travel. The MFO also has the discretion to authorize cross-country travel for any commercial or organized group events. These actions would continue to degrade the natural character of the non-WSA lands with wilderness characteristics by allowing new surface-disturbing activity from motorized vehicles, as well as conflict with solitude and primitive recreation experiences from the sights and sounds of vehicle travel.

Current management practices designate 145,521 acres (55%) in twenty-three of the 32 non-WSA lands with wilderness characteristics as open to cross-country travel (see Table 4.64). Cross country motorized travel in these non-WSA lands would result in surface disturbance to soils and vegetation that would alter the landscape and diminish the natural character of these non-WSA lands. Further, the presence and noise of motorized vehicles would degrade a visitor's opportunity for solitude and conflict with opportunities for primitive and unconfined recreation activities.

Under this alternative, 120,964 acres within non-WSA lands with wilderness characteristics would be limited to OHV use. In these areas, 294.8 miles of routes would be designated in the following non-WSA lands:

Arches Adjacent – 0.52 miles
Beaver Creek – 18.75 miles
Behind the Rocks – 7.17 miles
Big Triangle – 0.64 miles
Coal Canyon – 7.26 miles
Desolation Canyon – 2.9 miles
Dome Plateau – 2.11 miles
Fisher Towers – 10.98 miles
Floy Canyon – 18.19 miles
Flume Canyon – 4.5 miles
Goldbar – 13.64 miles
Gooseneck – 0.66 miles
Granite Creek – 0.35 miles
Hatch Wash – 35.59 miles
Hideout Canyon – 2.99 miles
Horsethief Point – 1.27 miles
Hunter Canyon – 4.09 miles
Labyrinth Canyon – 60.26 miles
Lost Spring Canyon – 48.44 miles

Mary Jane Canyon – 33.32 miles
Mexico Point – 0.19 miles
Mill Creek Canyon – 7.99 miles
Negro Bill Canyon – 5.67 miles
Westwater Canyon – 3.83 miles
Westwater Creek – 3.37 miles
Yellow Bird – 0.27 miles

Limiting OHV use would confine soil and vegetation disturbance caused by motor vehicles to existing routes, and result in no additional change to the natural character of the non-WSA lands. The presence and noise of vehicles using these routes, however, would reduce the opportunity of visitors to find solitude in the non-WSA areas, especially in proximity to the routes. Motorized uses would conflict with primitive and unconfined recreation opportunities sought in the non-WSA areas.

Currently, there are no routes within Dead Horse Cliffs, Harts Point, Hatch/Lockhart, or Shafer Canyon, non-WSA lands with wilderness characteristics. Because no routes would be designated in these areas, surface disturbance caused by motorized travel, and the resultant impacts to the natural character of the non-WSA areas, would not be evidenced. Further, because there would be no OHV use in these areas, the opportunities for solitude or conflict with primitive forms of recreation in these areas could not be reduced. The natural character and opportunities for solitude and primitive recreation of these non-WSA areas would be unaffected by OHV travel.

While Hells Hole and Spruce Canyon non-WSA lands currently have no routes within them, they remain open to cross country OHV travel and impacts to wilderness characteristics could occur if OHV users choose to engage in cross country use.

Common to Alternatives B, D, and the Proposed Plan

Under all of the action alternatives, vehicles must stay on designated routes. Game retrieval and antler collection must be done on foot and vehicles cannot go off designated roads for such activities. The MFO would not authorize cross-country travel for any commercial or organized group events. All motorized routes that would not be designated as open would be signed as closed. These actions would continue to preserve the natural character of the non-WSA lands with wilderness characteristics because no new surface-disturbing activity would be allowed from motorized vehicles.

Alternative B

Under this alternative, all non-WSA lands with wilderness characteristics would be limited to designated routes. In these areas, 117.3 miles of routes would be designated in the following non-WSA lands:

Beaver Creek – 5.69 miles
Behind the Rocks – 2.33 miles
Coal Canyon – 2.02 miles
Desolation Canyon – 2.69 miles
Fisher Towers – 4.3 miles
Flume Canyon – 0.64 miles
Goldbar – 5.39 miles
Gooseneck – 0.66 miles
Granite Creek – 0.13 miles
Hatch Wash – 34.57 miles
Hideout Canyon – 2.58 miles
Hunter Canyon – 2.29 miles
Labyrinth Canyon – 31.38 miles
Lost Spring Canyon – 6.51 miles
Mary Jane Canyon – 7.15 miles
Mill Creek Canyon – 4.1 miles

Negro Bill Canyon – 1.65 miles

Westwater Creek – 0.32 miles

Westwater Canyon – 2.91 miles

Limiting OHV use to designated routes would confine soil and vegetation disturbance caused by motor vehicles to existing routes, and result in no additional change to the natural character of the non-WSA lands. The presence and noise of vehicles using these routes, however, would reduce the opportunity of visitors to find solitude in the non-WSA areas, especially in proximity to the routes. And, motorized uses would conflict with primitive and unconfined recreation opportunities sought in the non-WSA areas. The most notable areas where there would be a significant decrease in miles of routes would be in Labyrinth Canyon, Lost Spring Canyon, and Mary Jane Canyon. In addition, six areas that would have designated routes in Alternative A would have none in Alternative B.

There would be no routes designated in Arches Adjacent, Big Triangle, Dead Horse Cliffs, Dome Plateau, Floy Canyon, Harts Point, Hatch/Lockhart, Hells Hole, Horsethief Point, Mexico Point, Shafer Canyon, Spruce Canyon, or Yellow Bird non-WSA lands with wilderness characteristics. Because no routes would be designated in these areas, surface disturbance caused by motorized travel, and the resultant impacts to the natural character of the non-WSA areas, would not be evidenced. Further, because there would be no OHV use in these areas, the opportunities for solitude or conflict with primitive forms of recreation in these areas could not be reduced. The natural character and opportunities for solitude and primitive recreation of these non-WSA areas would be unaffected by OHV travel.

Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage is located within the Beaver Creek, Mary Jane and Fisher Towers areas. Travel is limited to designated roads within these areas. No new routes would be constructed, eliminating surface disturbance from road building activity. There are 8.36 miles of route designated within the 47,761 acres of non-WSA lands managed to protect, preserve, and maintain their wilderness characteristics. Of these miles of designated route, there are 0 miles in Fisher Towers, 0.2 miles in Mary Jane and 8.16 miles in Beaver Creek.

Thus, there would be no impacts from Travel Management decisions in Fisher Towers as no routes would be designated. Impacts from Travel Management decisions in Mary Jane would be minimized because only 0.2 miles of route have been designated and 11 miles of route have not been designated. The 8.16 miles of route remaining in Beaver Creek (reduced form 12.45 miles), minimizes the impact from Travel Management decisions to Wilderness Characteristics. Beaver Creek is a remote area and travel on the designated route would be minimal. Opportunities for solitude and primitive recreation would be preserved.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Under this alternative, and as in Alternative B, all non-WSA lands with wilderness characteristics would be limited to designated routes. In these areas, 158.54 miles of routes would be designated in the following non-WSA lands:

Behind the Rocks – 5.18 miles
Coal Canyon – 3.04 miles
Desolation Canyon – 2.9 miles
Fisher Towers (not managed as wilderness characteristics) – 4.3 miles
Floy Canyon – 3.7 miles
Flume Canyon – 0.64 miles
Goldbar – 9.54 miles
Gooseneck – 0.66 miles
Granite Creek – 0.13 miles
Hatch Wash – 34.91 miles
Hideout Canyon – 2.58 miles
Hunter Canyon – 3.7 miles
Labyrinth Canyon – 39.18 miles
Lost Spring Canyon – 12.99 miles
Mary Jane Canyon (not managed as wilderness characteristics) – 10.02 miles
Mill Creek Canyon – 5.7 miles
Negro Bill Canyon – 1.9 miles
Westwater Canyon – 2.91 miles
Westwater Creek – 2.0 miles

Limiting OHV use to designated routes would confine soil and vegetation disturbance caused by motor vehicles to existing routes, and result in no additional change to the natural character of the non-WSA lands. The presence and noise of vehicles using these routes, however, would reduce the opportunity of visitors to find solitude in the non-WSA areas, especially in proximity to the routes. And, motorized uses would conflict with primitive and unconfined recreation opportunities sought in the non-WSA areas. The most notable areas where there would be a significant decrease in miles of routes would be in Labyrinth Canyon, Lost Spring Canyon, and Mary Jane Canyon. In addition, five areas that would have designated routes in Alternative A would have none in the Proposed Plan.

There would be no routes designated in Arches Adjacent, Big Triangle, Dead Horse Cliffs, Dome Plateau, Harts Point, Hatch/Lockhart, Hells Hole, Horsethief Point, Mexico Point, Shafer Canyon, Spruce Canyon, or Yellow Bird non-WSA lands with wilderness characteristics. Because no routes would be designated in these areas, surface disturbance caused by motorized travel, and the resultant impacts to the natural character of the non-WSA areas, would not be evidenced. Further, because there would be no OHV use in these areas, the opportunities for solitude or conflict with primitive forms of recreation in these areas could not be reduced. The natural character and opportunities for solitude and primitive recreation of these non-WSA areas would be unaffected by OHV travel.

Alternative D

Under this alternative, and as in Alternative B and the Proposed Plan, all non-WSA lands with wilderness characteristics would be limited to designated routes. In these areas, 169 miles of routes would be designated in the following non-WSA lands:

Beaver Creek – 12.45 miles
Behind the Rocks – 6.79 miles
Coal Canyon – 3.42 miles
Desolation Canyon – 2.9 miles
Fisher Towers – 4.3 miles
Floy Canyon – 3.7 miles
Flume Canyon – 0.64 miles
Goldbar – 9.54 miles
Gooseneck – 0.66 miles
Granite Creek – 0.13 miles
Hatch Wash – 35.39 miles
Hideout Canyon – 2.58 miles
Hunter Canyon – 3.96 miles
Labyrinth Canyon – 40.84 miles
Lost Spring Canyon – 14.09 miles
Mary Jane Canyon – 11.81 miles

Mill Creek Canyon – 7.57 miles
Negro Bill Canyon – 2.55 miles
Westwater Canyon – 3.71 miles
Westwater Creek – 2.0 miles

Limiting OHV use to designated routes would confine soil and vegetation disturbance caused by motor vehicles to existing routes, and result in no additional change to the natural character of the non-WSA lands. The presence and noise of vehicles using these routes, however, would reduce the opportunity of visitors to find solitude in the non-WSA areas, especially in proximity to the routes. And, motorized uses would conflict with primitive and unconfined recreation opportunities sought in the non-WSA areas. The most notable areas where there would be a significant decrease in miles of routes would be in Labyrinth Canyon, Lost Spring Canyon, and Mary Jane Canyon. In addition, five areas that would have designated routes in Alternative A would have none in Alternative D.

There would be no routes designated in Arches Adjacent, Big Triangle, Dead Horse Cliffs, Dome Plateau, Harts Point, Hatch/Lockhart, Hells Hole, Horsethief Point, Mexico Point, Shafer Canyon, Spruce Canyon, or Yellow Bird non-WSA lands with wilderness characteristics. Because no routes would be designated in these areas, surface disturbance caused by motorized travel, and the resultant impacts to the natural character of the non-WSA areas, would not be evidenced. Further, because there would be no OHV use in these areas, the opportunities for solitude or conflict with primitive forms of recreation in these areas could not be reduced. The natural character and opportunities for solitude and primitive recreation of these non-WSA areas would be unaffected by OHV travel.

In summary, Alternative A would continue to allow cross country travel in some of the non-WSA lands with wilderness characteristics and also would designate the most miles of routes within the non-WSA areas. Alternative A would manage 6 areas without designated routes. Alternative B would limit travel to designated routes and reduce the number of miles of routes in these areas by 178 miles, or over 60%, from Alternative A. In addition, Alternative B would manage 13 non WSA areas without designated routes within them. The Proposed Plan would limit travel to 158.5 miles designated routes, adding 41.2 miles of routes over Alternative B into a mix of the non-WSA lands with wilderness characteristics. The Proposed Plan would manage 12 non-WSA areas without any designated routes within them. And finally, Alternative D would limit travel to 169 miles of routes, adding nearly 52 miles of routes into the mix from Alternative B. The same areas that had no designated routes in the Proposed Plan would hold for Alternative D. The highest level of protection of wilderness characteristics values from OHV impacts would be under Alternative B, then the Proposed Plan, then D, and last of all Alternative A.

4.3.8.2.13.2 Mechanized Recreational Travel (Mountain Bikes)

Alternative A

Areas currently open to motorized cross-country travel would continue to be open for cross-country mountain bike use. In non-WSA lands with wilderness characteristics, this would be the same as described under Alternative A under the OHV Travel Management section above. Any new development of trails for mountain bikes in non-WSA areas would be in conflict with the primitive forms of trail use. If there were substantial levels of use on the trails (by foot, horse, and/or bike) in the non-WSA lands, the visitor's ability to find and experience solitude would be reduced. Construction of new trails would create surface disturbance that would detract from the

natural character of the landscape and non-WSA lands, depending on the type of landform and vegetation cover. The change to the natural landscape, however, is expected to be minimal.

Common to Alternatives B, D, and the Proposed Plan

Under the action alternatives, mountain bikes would only be allowed on routes open for motorized use for resource protection purposes. Some routes would only be designated for non-motorized use only. Two of these non-motorized routes identified specifically for mountain bike use would be the "Baby-Steps" trail in Arches Adjacent non-WSA area and the Hunter Canyon Rim trail in the Behind the Rocks non-WSA land with wilderness characteristics. If there were substantial levels of use on the trails (by foot, horse, and/or bike) in the non-WSA lands, the visitor's ability to find and experience solitude would be reduced. The change to the natural landscape, however, is expected to be minimal.

Under all of the alternatives are varying miles of projected mountain-bike routes that would be designated. Because they would generally be on already existing inventoried routes that would not be designated for motorized use, impacts to naturalness would be negligible on the non-WSA lands with wilderness characteristics. Where mountain bike trails are designated within non-WSA areas, however, substantial levels of use on the trails (by foot, horse, and/or bike), would reduce the visitor's ability to find and experience solitude and primitive recreation.

4.3.8.2.13.3 Non-Mechanized Recreational Travel (Hiking, Backpacking and Equestrian)

Alternative A

Although numerous trails exist in non-WSA lands with wilderness characteristics, there would be no specific plans to design, implement, sign, or manage a non-mechanized trail system. Because these forms of recreation are complementary to the wilderness characteristic values of non-WSA lands, and can help focus the primitive recreational user, some opportunities to improve the recreational experience may be foregone.

Alternatives B, D, and the Proposed Plan

Under all of the action alternatives, the Amphitheater Loop and Fisher Towers Trails, both in the Fisher Towers non-WSA lands with wilderness characteristics, and the Corona Arch Trail in the Goldbar non-WSA area would be managed for non-mechanized travel. In addition, there are varying miles of existing trails that would be specifically managed for hiking and other non-mechanized recreation opportunities under each of the action alternatives. All of them would convert existing inventoried routes to non-mechanized travel. Impacts to naturalness would be negligible on the non-WSA lands with wilderness characteristics. Managing additional trails for hiking and horseback riding would provide further opportunities for primitive forms of recreation where the trails would be located in any of the non-WSA lands with wilderness characteristics. Under all three action alternatives, the Castleton trail in Mary Jane Canyon non-WSA area, and the Culvert-Goldbar loop trail in Goldbar non-WSA area would be marked and managed for hiking, and a new hiking trail would be signed and managed from Onion Creek to the Amphitheater Loop in the Fisher Towers non-WSA area. Any additional managed trails would be specified at the activity-level stage of planning following completion of the RMP.

4.3.8.2.14 Impacts of Vegetation Decisions on Non-WSA Lands with Wilderness Characteristics

Under all alternatives, control of noxious weeds would have both positive and negative impacts on the wilderness characteristics of non-WSA lands, depending on the method of control. The use of fire, chemical, and biological treatments would control noxious weeds and insects with no apparent evidence of human intervention on the landscape. Thus there would be no noticeable effect on the natural character of the non-WSA lands with wilderness characteristics, if those treatments were necessary in the non-WSA areas that have wilderness characteristics. Control of non-native vegetation, and restoration of native vegetation communities, however, would result in a more natural vegetation community and thus, natural condition of the non-WSA areas. The use of mechanical treatments to eradicate non-native vegetation and would leave a noticeable imprint of human work on the landscape, and degrade the natural character of non-WSA lands, if the treatments were to occur in the non-WSA areas. Depending on the vegetation community treated (grassland and shrubland versus a woodland or coniferous forest), the length of time the evidence of mechanical treatments remained on the landscape would vary before the surface and vegetation disturbances returned to a more natural or unmodified condition.

Reclaiming or restoration of up to 257,809 acres of sagebrush-steppe habitat would have the same impact on the natural character of the non-WSA lands as described above. Depending on the treatment method used, the effects on naturalness would be of little effect and beneficial to the natural condition of the non-WSA lands or an apparent evidence of human intervention on the land, and longer-lasting.

4.3.8.2.15 Impacts of Visual Resource Management Decisions on Non-WSA Lands with Wilderness Characteristics

There are four objectives for visual resources management (VRM Classes I through IV) that provide for various levels of landscape protection and change. The objective of Class I is to preserve the characteristic landscape, while the objective of Class IV provides for landscape modifications (see Section 3.19, Visual Resources). The only lands identified under all alternatives to be designated VRM Class I are lands within WSAs. VRM Class II objectives would retain the characteristic landscape, allowing for minor changes to the landform and vegetation. This objective would protect the natural condition of the land in non-WSA areas. The objective of VRM Class III is to partially retain the existing character of the landscape, allowing for moderate changes to land and vegetation. This objective is not compatible with preserving the natural character of non-WSA lands. Class IV objectives provide for major modification of the landscape and are clearly incompatible with preservation of the natural character of non-WSA lands.

Table 4.65 shows the VRM designation (Classes I through IV) within non-WSA lands with wilderness characteristics, by alternative.

Table 4.65. VRM Designation in Non-WSA Lands with Wilderness Characteristics (acres)

Name of non-WSA Area	Total Acres	VRM Class	Alternative			
			A[1]	B	PROPOSED PLAN	D
Arches Adjacent	6,396	II	0	6,396	6,396	6,396
Beaver Creek	25,722	I	0	5,477	0	0
		II	0	20,245	25,538	15,924
		III	0	0	184	9,798
Behind the Rocks	3,643	I	0	1,460	0	0
		II	0	2,183	2,007	0
		III	0	0	1,636	3,643
Big Triangle	5,200	II	0	5,200	0	0
		III	0	0	5,200	5,200
Coal Canyon	21,632	II	0	21,632	0	0
		III	0	0	7,516	7,062
		IV	0	0	14,116	14,570
Dead Horse Cliffs	797	I	0	35	0	0
		II	0	762	797	797
Desolation Canyon	10,498	II	0	10,498	9,076	9,092
		III	0	0	1,422	1,406
Dome Plateau	14,207	I	0	9,598	0	0
		II	0	4,609	11,840	11,669
		III	0	0	2,367	2,538
Fisher Towers	17,235	I	0	6,466	0	0
		II	0	10,769	12,449	12,423
		III	0	0	4,786	4,812
Floy Canyon	9,983	II	0	9,983	786	786
		III	0	0	9,158	9,158
		IV	0	0	39	39
Flume Canyon	3,520	II	0	3,520	0	0
		III	0	0	1,471	1,418
		IV	0	0	2,049	2,102
Goldbar	6,437	I	0	821	0	0
		II	0	5,616	6,437	0
		III	0	0	0	6,437
Gooseneck	843	I	0	843	0	0
		II	0	0	843	0
		III	0	0	0	843

Table 4.65. VRM Designation in Non-WSA Lands with Wilderness Characteristics (acres)

Name of non-WSA Area	Total Acres	VRM Class	Alternative			
			A[1]	B	PROPOSED PLAN	D
Granite Creek	4,528	II	0	4,528	3,150	3,150
		III	0	0	1,378	1,378
Harts Point (MFO)	1,465	II	1,425	1,465	1,425	1,425
		III	40	0	40	40
Hatch Wash	10,983	II	4,466	10,983	9,726	8,981
		III	6,517	0	1,310	2,055
Hatch/Lockhart	2,670	II	0	2,670	2,088	2,088
		III	0	0	582	582
Hells Hole	2,538	II	0	2,538	0	180
		III	0	0	2,538	2,358
Hideout Canyon	11,607	II	0	11,607	0	0
		III	0	0	11,607	11,607
Horsethief Point	8,358	I	0	739	0	0
		II	0	7,619	6,026	1,171
		III	0	0	2,332	7,187
Hunter Canyon	4,465	I	0	2,771	0	0
		II	0	1,694	4,465	0
		III	0	0	0	4,465
Labyrinth Canyon	25,361	I	0	5,668	0	0
		II	0	19,693	11,991	8,954
		III	0	0	13,370	16,407
Lost Spring Canyon	11,456	II	0	11,456	7,095	7,095
		III	0	0	4,361	4,361
Mary Jane Canyon	24,779	I	0	17,854	0	0
		II	0	6,925	24,779	24,779
Mexico Point	12,837	II	0	12,837	3	3
		III	0	0	12,834	12,834
Mill Creek Canyon	3,388	I	0	2,344	0	0
		II	0	1,044	3,388	3,388
Negro Bill Canyon	2,333	I	0	170	0	0
		II	0	2,163	2,333	2,333
Shafer Canyon	1,842	II	0	1,842	1,842	0
		III	0	0	0	1,842
Spruce Canyon	1,131	II	0	1,131	161	0

Table 4.65. VRM Designation in Non-WSA Lands with Wilderness Characteristics (acres)

Name of non-WSA Area	Total Acres	VRM Class	Alternative			
			A[1]	B	PROPOSED PLAN	D
		III	0	0	970	1,131
Westwater Canyon	3,086	I	0	83	0	0
		II	0	3,003	1,215	1,215
		III	0	0	1,871	1,871
Westwater Creek	7,188	II	0	7,188	0	0
		III	0	0	7,188	7,188
Yellow Bird	357	II	0	357	357	357

[1]VRM was not a management decision in the 1985 RMP (reflected in Alternative A), except for a plan amendment affecting only the Canyon Rims Recreation Area.

4.3.8.2.15.1 Alternative A

There were no VRM class objectives defined in the 1985 Grand RMP reflected in Alternative A, except for a plan amendment affecting only the Canyon Rims Recreation Area which incorporates Harts Point and Hatch Wash non-WSA lands with wilderness characteristics. Under this alternative, 5,892 acres in these two areas would be managed by VRM Class II objectives, protecting the natural character of those lands in the non-WSA areas. An additional 6,556 acres would be managed by VRM Class III objectives in these two areas. Because moderate changes could be allowed to the land and vegetation, this objective would not be compatible with preserving the natural character of non-WSA lands and could put these values at risk.

4.3.8.2.15.2 Alternative B

Under Alternative B, all 266,485 acres would be managed by VRM Class II objectives in the 32 non-WSA lands with wilderness characteristics. Retaining the natural character of these areas by precluding surface-disturbing activities would protect the natural character of those lands in the non-WSA areas.

4.3.8.2.15.3 Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage is located within the Beaver Creek, Mary Jane, and Fisher Towers areas. The entire acreage would be managed with VRM Class II objectives. Retaining the natural character of these areas by precluding surface-disturbing activities would protect the natural character of those lands in the non-WSA areas.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Under the Proposed Plan, 108,449 acres would be managed by VRM Class II objectives in all or parts of 24 non-WSA lands with wilderness characteristics, protecting the natural character of

those lands in the non-WSA areas. Ten of the 24 areas (Arches Adjacent, Dead Horse Cliffs, Goldbar, Gooseneck, Hunter Canyon, Mary Jane Canyon (in portion not managed to protect wilderness characteristics), Mill Creek Canyon, Negro Bill Canyon, Shafer Canyon, and Yellow Bird) would be wholly under the VRM Class II objectives, fully protecting those areas from visual intrusions and maintaining the natural character of the areas.

The areas not under the VRM II objectives would be managed by VRM III and IV objectives which would be incompatible with protecting wilderness characteristics values because changes to the landscape would be permitted. This would include all of seven non-WSA areas (Big Triangle, Coal Canyon, Flume Canyon, Hells Hole, Hideout Canyon, Mexico Point, and Westwater Creek) and portions of 22 non-WSA lands with wilderness characteristics.

4.3.8.2.15.4 Alternative D

Under Alternative D, 122,203 acres would be managed by VRM Class II objectives in all or parts of 19 non-WSA lands with wilderness characteristics, protecting the natural character of those lands in the non-WSA areas. Six of the 19 areas (Arches Adjacent, Dead Horse Cliffs, Mary Jane Canyon, Mill Creek Canyon, Negro Bill Canyon, and Yellow Bird) would be wholly under the VRM Class II objectives, protecting those areas from visual intrusions and maintaining the natural character of the areas.

The areas not under the VRM II objectives would be managed by VRM III and IV objectives which would be incompatible with protecting wilderness characteristics values because changes to the landscape would be permitted. This would include all of 12 non-WSA areas (Behind the Rocks, Big Triangle, Coal Canyon, Flume Canyon, Goldbar, Gooseneck, Hideout Canyon, Hunter Canyon, Mexico Point, Shafer Canyon, Spruce Canyon, and Westwater Creek) and portions of 18 non-WSA lands with wilderness characteristics.

In summary, the visual resource management objectives proposed in Alternative B would provide protection of the natural character of all the non-WSA lands with wilderness characteristics. VRM objectives in the Proposed Plan would provide protection to the natural character of the 156,210 acres in all or parts of 25 non-WSA areas, followed by Alternative D with 122,203 acres protected in all or parts of 19 non-WSA areas. Alternative A only has VRM class objectives for two non-WSA area, of which only a portion of each would fall into a VRM II management class. Visual resource objectives in Alternatives A and D provide the least protection to the natural character of the non-WSA lands with wilderness characteristics.

4.3.8.2.16 Impacts of Wildlife and Fisheries Decisions on Non-WSA Lands with Wilderness Characteristics

4.3.8.2.16.1 Management Actions Common to All Alternatives

Under all alternatives, a variety of actions would be implemented to restore, maintain, and enhance native wildlife populations. Improved wildlife populations would enhance the natural character of the land in all of the non-WSA lands with wilderness characteristics. Further, larger and healthier wildlife populations would expand opportunities for primitive and unconfined recreation opportunities, including wildlife viewing, hunting, and natural history study.

A goal of the Dolores Triangle HMP is to manage and benefit wildlife, bird, and fish species through the installation of fencing and enclosures in Granite Creek. This could affect the Granite

Creek non-WSA lands with wilderness characteristics. Although a benefit for wildlife, construction of human made features on the land would degrade the natural, undeveloped character of the non-WSA lands with wilderness characteristics. Under Alternative B, this activity would most likely be precluded or mitigated within the wilderness characteristics lands due to the restrictive decisions in place.

Within pronghorn habitat, a common to all alternatives decision is to install and improve year-round water sources within the LaSal Management Unit and the Cisco Desert Herd Unit. This could affect the Hatch Wash and Harts Point non-WSA lands with wilderness characteristics in the LaSal Unit, and the Floy Canyon and Coal Canyon non-WSA lands with wilderness characteristics in the Cisco Desert Herd Unit. Construction of water sources to support wildlife populations would result in more wildlife and the benefits described above. Construction of human made features on the land, however, would degrade the natural, undeveloped character of the non-WSA lands with wilderness characteristics. Under Alternative B, new water developments or facilities would most likely be precluded or mitigated within the wilderness characteristics lands due to the restrictive decisions in place.

In bighorn sheep habitat, a decision to increase bighorn populations would involve installation of new water facilities and new water developments every 5 square miles in or within 2 miles of escape terrain and lambing grounds. This would involve Labyrinth Canyon, Shafer Canyon, Gooseneck, Goldbar, Horsethief Point, Dead Horse Cliffs, and Hatch/Lockhart non-WSA lands with wilderness characteristics. These lands are small areas within a large habitat, and the animals move in and out of wilderness characteristics lands. Construction of water sources to support wildlife populations would result in more wildlife and the benefits described above. Construction of human made features on the land, however, would degrade the natural, undeveloped character of the non-WSA lands with wilderness characteristics. Under Alternative B, new water developments or facilities would most likely be precluded or mitigated within the wilderness characteristics lands due to the restrictive decisions in place.

Within deer and/or elk habitat, elk forage would be increased through vegetation treatments such as chemical, mechanical, and prescribed fire on approximately 40,000 acres of elk winter range. This could include areas in the Big Triangle, Westwater Canyon, Hells Hole, Hideout Canyon, Mexico Point, Westwater Creek, Flume Canyon, Coal Canyon, Floy Canyon and Desolation Canyon non-WSA lands with wilderness characteristics. The use of fire and chemical treatments would have no apparent evidence of human intervention on the landscape. Thus there would be no noticeable effect on the natural character of the non-WSA lands with wilderness characteristics, if those treatments were necessary in the non-WSA areas that have wilderness characteristics. Restoration of vegetation communities, however, would result in a more natural vegetation community and thus, natural condition of the non-WSA areas. The use of mechanical treatments for vegetation manipulations would leave a noticeable imprint of human work on the landscape, and degrade the natural character of non-WSA lands, if the treatments were to occur in the non-WSA areas. Depending on the vegetation community treated (grassland and shrub land vs. a woodland or coniferous forest), the length of time the evidence of mechanical treatments remained on the landscape would vary before the surface and vegetation disturbances returned to a more natural or unmodified condition.

4.3.8.2.16.2 Alternative A and D

See Management Common to All.

4.3.8.2.16.3 Alternative B

Under this alternative, a NSO stipulation to protect bighorn sheep lambing, rutting, and migration habitat would be applied. This would involve small portions of Labyrinth Canyon, Shafer Canyon, Gooseneck, Goldbar, Horsethief Canyon, Dead Horse Cliffs, and Hatch/Lockhart non-WSA lands with wilderness characteristics, and protect the natural character of these areas from surface-disturbing activities associated with oil and gas development and other surface-disturbing activities.

4.3.8.2.16.4 Proposed Plan

Under the Proposed Plan, surface-disturbing activities in Fisher Towers, Beaver Creek, and Mary Jane would be precluded to protect natural resources including big-horned sheep.

Impacts of Woodlands Decisions on Non-WSA Lands with Wilderness Characteristics

Under all alternatives, permits for woodland products would continue to be sold to the public, consistent with the availability of woodland products and the protection of sensitive resource values. Each alternative prescribes areas where woodland product harvest is allowed or prohibited. Table 4.66 provides the acres of areas open or closed to woodland harvest by alternative for non-WSA lands with wilderness characteristics.

Table 4.66. Wood-Cutting Restrictions in non-WSA Lands with Wilderness Characteristics

Name of non-WSA Area	Total Acres	Availability	Alternative			
			A	B	PROPOSED PLAN*	D
Arches Adjacent	6,396	Open	5,407	0	5,407	5,407
		Closed	989	6,396	989	989
Beaver Creek	25,722	Open	25,722	0	0	25,722
		Closed	0	25,722	25,722	0
Behind the Rocks	3,643	Open	2,807	0	1,538	2,807
		Closed	836	3,643	2,105	836
Big Triangle	5,200	Open	5,200	0	5,200	5,200
		Closed	0	5,200	0	0
Coal Canyon	21,632	Open	21,632	0	21,632	21,632
		Closed	0	21,632	0	0
Dead Horse Cliffs	797	Open	482	0	482	482
		Closed	315	797	315	315
Desolation Canyon	10,498	Open	10,498	0	5,182	10,498
		Closed	0	10,498	5,316	0

Table 4.66. Wood-Cutting Restrictions in non-WSA Lands with Wilderness Characteristics

Name of non-WSA Area	Total Acres	Availability	Alternative			
			A	B	PROPOSED PLAN*	D
Dome Plateau	14,207	Open	7,989	0	7,989	7,989
		Closed	6,218	14,207	6,218	6,218
Fisher Towers	17,235	Open	9,699	0	9,559	9,699
		Closed	7,536	17,235	7,676	7,536
Floy Canyon	9,983	Open	9,983	0	9,983	9,983
		Closed	0	9,983	0	0
Flume Canyon	3,520	Open	3,520	0	3,520	3,520
		Closed	0	3,520	0	0
Goldbar	6,437	Open	5,974	0	5,972	5,974
		Closed	463	6,437	465	463
Gooseneck	843	Closed	843	843	843	843
Granite Creek	4,528	Open	4,528	0	4,528	4,528
		Closed	0	4,528	0	0
Harts Point (MFO)	1,465	Closed	1,465	1,465	1,465	1,465
Hatch/Lockhart	2,670	Closed	2,670	2,670	2,670	2,670
Hatch Wash	10,983	Closed	10,983	10,983	10,983	10,983
Hells Hole	2,538	Open	2,358	0	2,358	2,358
		Closed	0	2,538	0	0
Hideout Canyon	11,607	Open	11,607	0	11,607	11,607
		Closed	0	11,607	0	0
Horsethief Point	8,358	Open	7,860	0	7,860	7,860
		Closed	498	8,358	498	498
Hunter Canyon	4,465	Open	4,150	0	1,378	4,150
		Closed	315	4,465	3,087	315
Labyrinth Canyon	25,361	Open	19,738	0	19,530	19,738
		Closed	5,623	25,361	5,831	5,623
Lost Spring Canyon	11,456	Open	11,456	0	11,456	11,456
		Closed	0	11,456	0	0
Mary Jane Canyon	24,779	Open	4,618	0	3,799	4,618
		Closed	20,161	24,779	20,980	20,161

Table 4.66. Wood-Cutting Restrictions in non-WSA Lands with Wilderness Characteristics

Name of non-WSA Area	Total Acres	Availability	Alternative			
			A	B	PROPOSED PLAN*	D
Mexico Point	12,837	Open	12,837	0	12,837	12,837
		Closed	0	12,837	0	0
Mill Creek Canyon	3,388	Open	2,481	0	608	2,481
		Closed	907	3,388	2,780	907
Negro Bill Canyon	2,333	Open	1,398	0	1,393	1,398
		Closed	935	2,333	940	935
Shafer Canyon	1,842	Open	40	0	40	40
		Closed	1,802	1,842	1,802	1,802
Spruce Canyon	1,131	Open	1,131	0	1,131	1,131
		Closed	0	1,131	0	0
Westwater Canyon	3,086	Open	3,086	0	3,086	3,086
		Closed	0	3,086	0	0
Westwater Creek	7,188	Open	7,188	0	7,188	7,188
		Closed	0	7,188	0	0
Yellow Bird	357	Open	367	0	357	367
		Closed	0	357	0	0

*All areas managed to protect, preserve and maintain their wilderness characteristics would be closed to woodcutting. These areas include 25,722 acres in Beaver Creek, 5,540 acres in Fisher Towers and 16,499 acres in Mary Jane Canyon.

Alternatives A and D

Under both of these alternatives, wood-cutting would be prohibited on 62,563 acres on all or portions of 17 non-WSA lands with wilderness characteristics. Four non-WSA areas would be completely restricted from wood-cutting activities (Gooseneck, Harts Point, Hatch Wash and Hatch/Lockhart), thereby preserving the natural character of the landscape from surface-disturbing activities associated with woodcutting. Those portions of the non-WSA lands with wilderness characteristics in the other 13 areas that are restricted from wood-cutting activities would be provided the same protections. However, in the 203,922 acres that remain open for wood-cutting (and where the resource exists), wilderness characteristics may be compromised by surface-disturbing activities such as driving cross-country to the trees, cutting the trunks of trees and leaving stumps and debris, and by affecting the solitude and primitive recreation opportunities with chain saws and surface disturbances associated with human activity.

4.3.8.2.16.5 Alternative B

All 266,485 acres of non-WSA lands with wilderness characteristics in the 32 areas within the MPA would be restricted from wood-cutting activities under this alternative. All wilderness

characteristics values would therefore be protected from this activity and maintain the natural character and opportunities for solitude and primitive recreation.

4.3.8.2.16.6 Proposed Plan

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

Under the Proposed Plan, 47,761 acres of non-WSA lands would be managed to protect, preserve, and maintain their wilderness characteristics. This acreage is located within the Beaver Creek, Mary Jane, and Fisher Towers areas. These acres are closed to woodcutting in their entirety and thus woodcutting activities would not affect their natural qualities.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

Under the Proposed Plan, wood-cutting would be prohibited on 52,740 acres on all or portions of 19 non-WSA lands with wilderness characteristics. Four non-WSA areas would be completed restricted from wood-cutting activities (Gooseneck, Harts Point, Harts/Lockhart, and Hatch Wash), thereby preserving the natural character of the landscape from surface-disturbing activities associated with woodcutting. Those portions of the non-WSA lands with wilderness characteristics in the other 14 areas that are restricted from wood-cutting activities would be provided the same protections. However, in the 165,984 acres that remain open for wood-cutting (and where the resource exists), wilderness characteristics may be compromised by surface-disturbing activities such as driving cross-country to the trees, cutting the trunks of trees and leaving stumps and debris, and by affecting the solitude and primitive recreation opportunities with mechanical chain saws and surface disturbances associated with human activity.

4.3.8.3 Summary

The majority of adverse impacts to naturalness and outstanding opportunities would be caused by surface-disturbing activities such as woodland product harvest, land treatments, mineral development, and OHV use.

Woodland product harvest and land treatments would have the potential to denude vegetation and create surface and visual disturbances, thereby degrading naturalness. The noise created by vehicles accompanying these activities would adversely affect the outstanding opportunities for solitude. Harvesting in areas where mechanized vehicular travel is limited to existing/designated routes would concentrate harvest next to access roads. Due to the low level of woodland harvest in the MPA, however, and the fact that opportunities for solitude and primitive recreation are already impaired next to roads, the impacts to wilderness characteristics from this activity would be minimal. As vegetation reestablishes, this effect would be less noticeable, although it could take decades before the treated area would be indistinguishable from its surroundings. In areas closed to woodland product harvest and firewood gathering, wilderness characteristics would be protected.

In areas open to oil and gas leasing the presence and noise of people, vehicles, and equipment needed for exploration and production of energy resources would impact opportunities for solitude and primitive recreation in proximity to wells. Depending upon the terrain, vegetation, atmospheric conditions, etc., outstanding opportunities for solitude and primitive recreation could be lost in a substantial portion or the whole of these areas during the period of exploration

and development. In areas that are managed as NSO or closed to oil and gas leasing, wilderness characteristics would be maintained.

Wilderness characteristics would be adversely impacted by cross-country OHV use because of surface disturbance and noise. In the areas where OHV use is limited to designated routes there would be temporary impacts from noise. The noise and exhaust from vehicles may disperse some species of wildlife and may adversely impact recreationists seeking solitude. In areas that are closed to OHV use, wilderness characteristics would be protected.

Realty actions such as road, power line or pipeline ROWs would be allowed in areas open to surface-disturbing activities. Generally, areas open to oil and gas leasing with standard lease terms and special stipulations are open to other surface-disturbing activities. Many realty actions would affect the natural character of the area within the viewshed of the development. Some developments, such as roads, would also affect opportunities for solitude and primitive recreation. Managing lands as exclusion areas for ROWs would protect wilderness characteristics from adverse impacts. Managing lands as an avoidance area for ROWs may protect wilderness characteristics but this would not be guaranteed.

Managing lands as VRM Classes III and IV would have adverse impacts on wilderness characteristics because these classes allow for moderate to major changes in the landscape thereby allowing large visual disturbances. Managing lands as VRM Class I would beneficially impact wilderness characteristics because this class precludes surface disturbance. VRM Class II management would keep the level of change to the landscape low but should not attract the attention of the casual observer. This would protect the natural character on a landscape level but there would risks of small localized impacts being visible.

Tables 4.57–4.60 summarize how the 266,485 acres of land having wilderness characteristics would be managed by alternative, whether or not they are being managed to protect wilderness characteristics. In Alternative B, the entire 266,485 acres would be managed specifically to protect wilderness characteristics. In the Proposed Plan, 47,761 acres would be managed specifically to protect wilderness characteristics. The remaining acres in the Proposed Plan, as well as the total acreage in Alternatives A and D are not managed specifically to protect wilderness characteristics.

The management of the entire 266,485 acres is shown by alternative for oil and gas leasing, VRM management, OHV use, and availability for woodland product harvest. Restrictions are a result of various management decisions, depending upon alternative. A discussion of impacts by alternative follows these tables.

Table 4.67. Summary of Oil and Gas Leasing Involving Non-WSA Lands with Wilderness Characteristics

		Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Open to Leasing					
Standard Lease Terms	Acres	157,471	0	36,644	74,194
	%	59.0	0	14.0	28.0
Controlled Surface Use/ Timing Limitations	Acres	93,382	0	124,537	157,939
	%	35.0	0	47.0	59.0
No Surface Occupancy	Acres	13,033	0	87,512	34,352
	%	5.0	0	33.0	13.0
Closed to Leasing					
Closed	Acres	2,598	266,485	17,792	0
	%	1.0	100	6.0	0
Total		**266,485**	**266,485**	**266,485**	**266,485**

*The 47,761 acres that are to be managed to protect, preserve and maintain their wilderness characteristics under the Proposed Plan are all no surface occupancy or closed. NSO = 35,630 acres Closed = 12,131 acres

Table 4.68. Summary of VRM Classes Involving Non-WSA Lands with Wilderness Characteristics

		Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Class I	Acres	130	45,048	2,689	0
	% "with WC" lands	1%	17%	1.0%	0%
Class II	Acres	168,983	221,437	147,799	115,995
	% "with WC" lands	63%	83%	55%	43%
Classes III & IV	Acres	97,462	0	115,997	150,490
	% "with WC" lands	36%	0%	44%	57%
Total		**266,485**	**266,485**	**266,485**	**266,485**

*The 47,761 acres that are to be managed to protect, preserve, and maintain their wilderness characteristics under the Proposed Plan would be managed as VRM II.

Table 4.69. Summary of OHV Area Designations Involving Non-WSA Lands with Wilderness Characteristics

		Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Open to cross-country OHV use	Acres	136,816	0	0	0
	% "with WC" lands	58%	0%	0%	0%
Limited to existing/ designated routes	Acres	96,929	266,485	266,485	266,485
	% "with WC" lands	42%	100%	100%	100%
Closed to OHVs	Acres	0	0	0	0
	% "with WC" lands	0%	0%	0%	0%
Total		**266,485**	**266,485**	**266,485**	**266,485**

*The 47,761 acres that are to be managed to protect, preserve, and maintain their wilderness characteristics under the Proposed Plan would be managed as limited to designated routes. There are 8.36 miles of route designated in the Proposed Plan.

Table 4.70. Acres of Woodland Harvest Designations Involving Non-WSA Lands with Wilderness Characteristics

		Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Open to Woodland Harvest	Acres	196,618	0	161,327	203,805
	% "with WC" lands	74%	0%	61%	76%
Closed to Woodland Harvest	Acres	69,867	266,485	105,158	62,680
	% "with WC" lands	26%	100%	39%	24%
Total		**266,485**	**266,485**	**266,485**	**266,485**

*The 47,761 acres that are to be managed to protect, preserve, and maintain their wilderness characteristics under the Proposed Plan would be closed to woodcutting.

4.3.8.3.1 ALTERNATIVE A

Under Alternative A, no acreage would be managed to protect lands with wilderness characteristics. Alternative A provides the least emphasis on management of naturalness and opportunities for solitude and primitive recreation by:

- Having the most lands available for rights-of-way permits (249,363 acres in all or portions of 30 non-WSA areas)
- Allowing for land disposal of some non-WSA lands
- Providing the least restrictions for oil and gas leasing and development
- Leaving the most amount of land available for salable mineral disposal
- Focusing no areas within SRMAs for primitive recreation opportunities
- Allowing for cross-county OHV travel in some areas. Within acreage limited for travel, 294.8 miles of routes would be designated

- Managing no acres for ACECs
- Taking wild and scenic river studies only through eligibility findings
- Having no VRM inventory management direction (with few exceptions due to a land-use plan amendment)
- Closing only 62,563 acres of non-WSA lands to commercial and personal-use wood cutting (all or portions of 17 areas);

Approximately 250,853 acres (94%) of the 266,485 acres of lands with wilderness characteristics would be open to mineral leasing with standard lease terms or with controlled surface use/timing limitation stipulations and would be subject to impacts from oil and gas development and other surface-disturbing activities. These adverse impacts would compromise the naturalness of non-WSA areas with wilderness characteristics. The wilderness characteristics within the Bookcliffs and Greater Cisco RFDs would be subject to greater potential impacts due to higher predicted number of wells to be developed over the life of the plan. See the minerals section (4.3.7) for more details on the number of wells and surface disturbance predicted for these RFDs.

Approximately 36% of the lands with wilderness characteristics would be managed under VRM Classes III and IV. This would allow major surface-disturbing activities to occur and would potentially degrade the wilderness characteristics of the entire area. In addition 53% is open to cross-country OHV use and 74% is open to woodland harvest. Due to the high percentage of lands open to these surface-disturbing activities, wilderness characteristics would potentially be lost in the entire area over the life of the plan.

4.3.8.3.2 Alternative B

Under Alternative B, 100% of the non-WSA lands with wilderness characteristics would be managed specifically to protect these characteristics. Alternative B focuses on protection to the natural values and opportunities for solitude and primitive recreation of the non-WSA lands with wilderness characteristics (266,485 acres) by:

- Making all non-WSA lands rights-of-way exclusion areas
- Retaining all non-WSA lands in public ownership to facilitate management of wilderness characteristics
- Closing all non-WSA lands to oil and gas leasing and development
- Closing all non-WSA lands to salable mineral disposal
- Focusing some SRMAs for primitive recreation opportunities
- Designating 117 miles of routes in non-WSA lands to OHV use (limited OHV category)
- Managing 9 ACECs overlying non-WSA lands to protect their relevant and important values
- Managing 43.66 miles of eligible wild and scenic river segments within 7 non-WSA areas as suitable to protect their outstandingly remarkable values
- Managing all non-WSA lands as VRM Class II to retain the characteristic landscape
- Closing the non-WSA lands to commercial and personal-use wood cutting
- Closing the non-WSA lands to road construction
- Allowing no surface disturbance (see Appendix C for a description of surface-disturbing activities)

These prescriptions would have beneficial impacts by protecting naturalness and opportunities for solitude and primitive recreation from surface-disturbing activities and noise and enhancing the continuity of wilderness characteristic lands. Therefore the entire inventory (266,485 acres) of lands having wilderness characteristics would be preserved under this alternative. This management is far more protective of these areas than the management of these areas under Alternative A.

4.3.8.3.3 PROPOSED PLAN

Impacts to Non-WSA Lands with Wilderness Characteristics Included in the Proposed Plan

The Proposed Plan manages 47,761 acres to protect, preserve, and maintain their wilderness characteristics. About 25,722 acres are in the Beaver Creek area, 5,540 acres are in the Fisher Towers area and 16,499 acres are in the Mary Jane area. These 47,761 acres would be:

- Managed as avoidance areas for rights-of-way
- Retained in public ownership
- Managed with a NSO stipulation or closure to oil and gas leasing and development
- Closed to salable mineral disposal
- Managed for primitive recreation opportunities within two SRMAs
- Managed as motorized travel limited to designated routes (with 8.36 miles of routes designated within the 47,761 acres),
- Portions of the Dolores River would be managed as a wild and scenic river to protect its outstandingly remarkable values
- Managed as VRM II
- Closed to commercial and private woodcutting activities

Based on the management prescription proposed for these 3 areas, wilderness characteristics including naturalness and outstanding opportunities for solitude and primitive recreation would be protected, preserved, and maintained.

Impacts to Non-WSA Lands with Wilderness Characteristics Not Included in the Proposed Plan

The Proposed Plan provides for some management of natural landscapes and opportunities for solitude and primitive forms of recreation by:

- Making 112,838 acres of non-WSA lands (all or portions of 28 non-WSA areas) rights-of-way avoidance or exclusion areas
- Retaining all non-WSA lands in public ownership
- Applying a NSO stipulation or closure to oil and gas leasing and development on 57,543 acres of non-WSA lands (all or portions of 21 areas)
- Closing 57,543 acres of non-WSA (all or portions of 21 areas) lands to salable mineral disposal
- Managing eligible wild and scenic river segments within 2 non-WSA areas as suitable to protect their outstandingly remarkable values
- Focusing some SRMAs for primitive recreation opportunities
- Designating 150.54 miles of routes in non-WSA lands to OHV use (limited OHV category)

- Managing 5 ACECs overlying non-WSA lands to protect their relevant and important values
- Managing 108,449 acres of non-WSA lands as VRM Class II (all or portions of 25 areas) to retain the characteristic landscape
- Closing 57,543 acres of non-WSA lands to commercial and personal-use wood cutting (all or portions of 19 areas)

About 218,724 acres of lands that have wilderness characteristics would not be managed specifically to protect naturalness and outstanding opportunities. About 161,181 acres (61% of the acreage not managed to protect wilderness characteristics) would be open to mineral leasing with standard lease terms or controlled surface use/timing limitation stipulations, and would be subject to impacts from oil and gas development and other surface-disturbing activities. These adverse impacts would compromise the naturalness of areas with wilderness characteristics. The wilderness characteristics within the Bookcliffs and Greater Cisco RFDs would be subject to greater potential impacts due to higher predicted number of wells to be developed over the life of the plan. Please see the minerals section (4.3.7) for more details.

While no acreage would be open to cross country OHV use, approximately 53% of these 218,724 acres would be managed under VRM Classes III and IV, and 61% would be open to woodlands harvest. These actions would allow major surface-disturbing activities to occur and would potentially degrade the naturalness of those lands not managed specifically to protect wilderness characteristics.

4.3.8.3.4 Alternative D

Alternative D provides for a lesser amount (than Alternative B or the Proposed Plan) of management of natural landscapes and opportunities for solitude and primitive forms of recreation by:

- Making 242,030 acres of non-WSA lands (all or portions of 32 areas) rights-of-way avoidance or exclusion areas
- Retaining all non-WSA lands in public ownership
- Applying a NSO stipulation to oil and gas leasing and development on 34,352 acres of non-WSA lands (all or portions of 14 areas)
- Closing 34,352 acres of non-WSA (all or portions of 14 areas) lands to salable mineral disposal
- Focusing some SRMAs for primitive recreation opportunities
- Designating 169 miles of routes in non-WSA lands to OHV use (limited OHV category)
- Managing no ACECs overlying non-WSA lands to protect their relevant and important values
- Managing no miles of eligible wild and scenic river segments as suitable to protect their outstandingly remarkable values
- Managing 122,203 acres of non-WSA lands as VRM Class II (all or portions of 19 areas) to retain the characteristic landscape
- Closing 62,563 acres of non-WSA lands to commercial and personal-use wood cutting (all or portions of 17 areas)

Under Alternative D, no acreage would be managed to protect lands with wilderness characteristics. About 232,133 acres of lands with wilderness characteristics (87%) would be open to mineral leasing with standard lease terms or with controlled surface use/timing limitation stipulations and would be subject to impacts from oil and gas development and other surface-disturbing activities. These adverse impacts would compromise the naturalness of non-WSA areas with wilderness characteristics. The wilderness characteristics within the Bookcliffs and Greater Cisco RFDs would be subject to greater potential impacts due to higher predicted number of wells to be developed over the life of the plan. See the minerals section (4.3.7) for more details on the number of wells and surface disturbance predicted for these RFDs.

Approximately 54% of the 266,485 acres having wilderness characteristics would be managed under VRM Classes III and IV. This would allow major surface-disturbing activities to occur and would potentially degrade the wilderness characteristics of the entire area. While no acreage would be open to cross country OHV use, 76% would be open to woodlands harvest. These actions would allow major surface-disturbing activities to occur and would potentially degrade the naturalness of those lands not managed specifically to protect wilderness characteristics. Due to the high percentage of lands open to these surface-disturbing activities, naturalness would potentially be lost in most of the non-WSA areas with wilderness characteristic over the life of the plan.

4.3.9 Paleontological Resources

This section discusses impacts to paleontological resources from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning paleontological resources are described in Chapter 3.

The BLM Regional Paleontologist for the State of Utah has classified all of the geologic units within the MPA according to the Potential Fossil Yield Classification System (PFYC). The BLM is currently using this study in lieu of the current paleontological resource management classification system in the process of considering the use of the PFYC as policy. The PFYC system is described in Section 3.9.4.2, and the results of the PFYC classification for the MPA form the basis for this impacts analysis.

4.3.9.1 Paleontological Resource Assessment

For this analysis, the 73 mapped geologic units which occur within the MPA were classified according to the PFYC, and the results are listed in Table 4.71. Nine units are Class 1, twenty-two are Class 2, twenty-seven are Class 3, thirteen are Class 4/5, and two are Class 5. Surficial exposures of Class 1 units comprise approximately 34,505 acres, Class 2 units approximately 615,034 acres, Class 3 units approximately 722,457 acres, Class 4/5 approximately 378,366 acres, and Class 5 approximately 67,114 acres.

Table 4.71. Mapped Geologic Units Within the MPA and their PFYC Classes in Approximate Descending Stratigraphic Order

Age	Mapped Geologic Unit(S)	PFYC Class
Quaternary (Holocene)	Alluvial fan deposits, undifferentiated alluvial gravel, stream alluvium, bouldery colluvium, landslide deposits, slumps and slides, talus and colluvium, tufa deposits, alluvial mud, eolian deposits	2
Quaternary (Pleistocene)	Basin fill alluvium, alluvial fan deposits, undifferentiated alluvial gravel, stream alluvium, pediment-mantle deposits, terrace gravel, bouldery colluvium, landslide deposits, slumps and slides, talus and colluvium, tufa deposits, alluvial mud, eolian deposits	2
Quaternary or Tertiary	Collapse Breccia	2
Tertiary	Geyser Creek Fanglomerate	2
Tertiary	Green River Formation - Douglas Creek Member, Tongue a and Tongue c	3
Tertiary	Green River Formation - Parachute Creek Member, Upper and lower parts	3
Tertiary	Wasatch Formation	4/5
Tertiary	Wasatch Formation - Renegade Tongue	3
Tertiary	Wasatch Formation-Renegade Tongue, unit w and unit x	3
Tertiary	Green River Formation-Flagstaff Member and North Horn Formation	4/5
Cretaceous	Mancos Shale	3
Cretaceous	Mancos Shale-Buck Tongue	3
Cretaceous	Mancos Shale - Bluegate Member	3
Cretaceous	Mancos Shale-Ferron Sandstone Member	3
Cretaceous	Mancos Shale-Lower Shale Member	3
Cretaceous	Mancos Shale - Sandstone Beds	3
Cretaceous	Mancos Shale - Sandstone Beds in Upper Shale Member	3
Cretaceous	Mancos Shale - Tununk Shale Member	3
Cretaceous	Castlegate Sandstone	2
Cretaceous	Blackhawk Formation	4/5
Cretaceous	Farrer Formation	4/5
Cretaceous	Neslen Formation	4/5
Cretaceous	Sego Sandstone	2
Cretaceous	Price River Formation-Upper part	3
Cretaceous	Tuscher Formation	3
Cretaceous	Blackhawk Formation and Star Point Sandstone	4/5
Cretaceous	Castlegate Sandstone and Blackhawk Formation, undivided	4/5
Cretaceous	Dakota Sandstone	3

Table 4.71. Mapped Geologic Units Within the MPA and their PFYC Classes in Approximate Descending Stratigraphic Order

Age	Mapped Geologic Unit(S)	PFYC Class
Cretaceous	Dakota Sandstone and Cedar Mountain Formation, undivided	4/5
Cretaceous	Burro Canyon Formation	4/5
Cretaceous	Cedar Mountain Formation	5
Jurassic	Brushy Basin (Shale) Member of Morrison Formation	5
Jurassic	Salt Wash (Sandstone) Member of Morrison Formation	4/5
Jurassic	Tidwell Member of Morrison Formation	4/5
Jurassic	Summerville Formation and Morrison Formation-Tidwell and Salt Wash Members	4/5
Jurassic	Morrison Formation - Tidwell Member and Summerville Formation, undivided	3
Jurassic	Summerville Formation	3
Jurassic	Summerville and Curtis Formations, undivided	3
Jurassic	Carmel Formation-Dewey Bridge Member	2
Jurassic	Curtis Formation-Moab Member, Entrada Sandstone - Slick Rock Member, of Carmel Formation-Dewey Bridge Member	2
Jurassic	Upper Carmel Formation	2
Jurassic	Lower Carmel Formation	2
Jurassic	Curtis Formation	2
Jurassic	Curtis Formation-Moab Member	3
Jurassic	Entrada Sandstone	2
Jurassic	Entrada and Carmel Formations, undivided	2
Jurassic	Curtis Formation-Moab Member, Entrada Sandstone - Slick Rock Member	3
Jurassic	Entrada Sandstone-Earthy Member	2
Jurassic	Entrada Sandstone-Slick Rock Member	2
Jurassic	Entrada Sandstone-Earthy Member and Entrada Sandstone-Slick Rock Member	2
Jurassic	Navajo Sandstone	2
Jurassic	Navajo Sandstone-Limestone beds	3
Triassic and Jurassic	Kayenta Formation	3
Triassic and Jurassic	Wingate Sandstone	2
Triassic	Chinle Formation	4/5
Triassic	Moenkopi Formation	3
Permian	Cutler Formation	3
Permian	Cutler Formation-Arkosic facies	3
Permian	Lower Cutler Group (Rico, Elephant Canyon, and Halgaito Formations)	3

Table 4.71. Mapped Geologic Units Within the MPA and their PFYC Classes in Approximate Descending Stratigraphic Order

Age	Mapped Geologic Unit(S)	PFYC Class
Permian	White Rim Sandstone	3
Pennsylvanian	Honaker Trail Formation	2
Pennsylvanian	Honaker Trail Formation - Upper and Lower Members	2
Pennsylvanian	Honaker Trail Formation and Paradox Formation, undifferentiated	2
Pennsylvanian	Paradox Formation caprock	2
Proterozoic	Aplite and pegmatite	1
Proterozoic	Granite	1
Proterozoic	Quartz pegmatite	1
Proterozoic	Granodiorite and quartz diorite gneiss	1
Proterozoic	Felsic gneiss	1
Proterozoic	Diorite, gabbro, and quartz diorite	1
Proterozoic	Early Proterozoic rocks	1
Proterozoic	Biotite gneiss, gneiss, and schist	1
Proterozoic	Amphibole gneiss	1

Geologic mapping by Doelling 2002 (Moab and Eastern Part of San Rafael Desert 30' × 60' Quadrangle, scale 1:100,000); Doelling 2004 (La Sal 30' × 60' Quadrangle, scale 1:100,000); Witkind 2004 (Huntington 30' × 60' Quadrangle, scale 1:100,000); and Gualtieri 2004 (Westwater 30' × 60' Quadrangle, scale 1:100,000).

As discussed in Section 3.9.4.2, Class 1 geologic units have no sensitivity and no impact to paleontological resources is expected. Geologic units designated with a Class 2 have a low sensitivity, with little to low impact to paleontological resources anticipated. Class 3 geologic units have moderate sensitivity, and the risk of impacts to paleontological resources within these units is moderate. Class 4/5 and Class 5 geologic units have been designated high sensitivity units and have a high risk of adverse impacts. According to the PFYC (see Section 3.9.4.2 for detailed discussion), Class 4 units are Class 5 units with lowered risks of adverse impacts due to local conditions such as surficial cover and topography. Furthermore, Class 4 designations should be made on an action-specific basis once a determination of lowered risks to the resource has been made. For this analysis, probable Class 4 units are designated as Class 4/5 in order to best accommodate the language of the PFYC with the more programmatic approach of this study. For the purposes of this analysis, Class 3, 4/5 and 5 are considered sensitive geologic units, and Class 4/5 and Class 5 are considered highly sensitive. Since the risk of adverse impacts to paleontological resources in Class 1 and Class 2 units is negligible, only impacts to Class 3, Class 4/5 and Class 5 units are reported in the impacts analysis sections.

Within the MPA, significant vertebrate and non-vertebrate paleontological resources are generally most abundant in the Chinle, Morrison, Cedar Mountain, Neslen, Farrer, North Horn, Green River, and Wasatch Formations (PFYC Classes 4/5 and 5); and are locally present but generally less abundant in the Cutler, Moenkopi, Kayenta, Summerville, Dakota, Tuscher, Price River, and Mancos Formations (PFYC Class 3). Significant vertebrate and non-vertebrate fossils occur but are generally uncommon in the Paradox, Honaker Trail, Wingate, Navajo, Entrada, and

Carmel Formations, the Sego Sandstone and Geyser Creek Fanglomerate, and Pleistocene-age surficial deposits (PFYC Class 2). Significant vertebrate and non-vertebrate fossils do not occur in relatively young (Holocene-age) surficial deposits (PFYC Class 2), or in igneous and metamorphic rock units such as granite, pegmatite, gneiss, diorite and schist (PFYC Class 1).

4.3.9.2 Paleontological Resource Impacts

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant adverse environmental impact. Direct adverse impacts on paleontological resources primarily concern the potential destruction of non-renewable paleontological resources and the loss of information associated with these resources. This includes the unlawful or unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (adverse impact). Direct adverse impacts can typically be mitigated to below a level of significance through the implementation of paleontological mitigation.

Surface disturbance may result in the exposure of fossils that may never have been unearthed via natural processes. If mitigation measures are implemented, these newly exposed fossils become available for salvage, data recovery, scientific analysis, and preservation into perpetuity at a public museum (beneficial impact). The positive impacts of the results of mitigation include advances in scientific knowledge by both permitted field researchers and paleontologists who study fossils in museum collections, contributions to public education and interpretation, and community involvement and partnerships.

4.3.9.2.1 Direct Impacts to Paleontological Resources

Direct impacts result from activities planned or authorized by the BLM, and occur at the same time and place as the surface-disturbing action. The potential for direct impacts on scientifically significant surface and sub-surface fossils in fossiliferous sedimentary deposits is controlled by two factors. These include: 1) the depth and lateral extent of disturbance of fossiliferous bedrock and/or surficial sediments; and 2) the depth and lateral extent of occurrence of fossiliferous bedrock and/or surficial sediments beneath the surface. Ground disturbance has the potential to adversely impact an unknown quantity of fossils which may occur on or underneath the surface in areas containing paleontologically sensitive geologic units. Without mitigation, these fossils, as well as the paleontological data they could provide if properly salvaged and documented, could be destroyed, rendering them permanently unavailable for future scientific research.

4.3.9.2.2 Indirect Impacts to Paleontological Resources

Indirect impacts are caused by land management actions and occur later in time or further away in distance than direct impacts, but are still reasonably foreseeable. They typically include those impacts which result from the continuing implementation of management decisions and associated activities, and/or the normal ongoing operations of facilities constructed within a specific project area. An example of an indirect adverse impact on paleontological resources would be the construction of a new road which increases public access to a previously inaccessible area, and results in unauthorized fossil collecting and vandalism. Mitigation strategies could include surveys by permitted and qualified paleontologists to collect significant

surface fossils, transfer them to a public museum, and identify locations of fossil localities which have the potential to yield additional fossils as erosion occurs; augmentation of law enforcement staff and increased patrols; and the construction of protective fencing or other barriers around known paleontological sites.

4.3.9.3 Impacts to Paleontological Resources Common to All Alternatives

Management Actions under all alternatives would comply with Federal laws, regulations and agency guidelines governing the use and protection of paleontological resources, including but not limited to FLPMA, NEPA, CFR Title 43, Section 8365.1-5, and the BLM Manual H-8270-1 (1998b). These authorities mandate and direct the treatment of paleontological resources in the MPA. Project-specific assessments and mitigation measures would be implemented wherever and whenever significant paleontological resources would be damaged or destroyed by surface-disturbing actions.

Management strategies common to all alternatives for paleontological resources would have both long- and short-term beneficial impacts, and would lessen potential adverse impacts to below the level of significance. Each alternative promotes appropriate assessment to facilitate scientific research, encourages partnerships, manages access to significant fossils, reduces unauthorized use of paleontological resources, and provides for the mitigation of adverse impacts by qualified and permitted paleontologists where necessary and appropriate to protect them. Appropriate recreational use of common invertebrate and plant fossils is encouraged, as are public education and interpretation of paleontological resources.

The impacts of management actions related to fire management and paleontological resources on paleontological resources are common to all alternatives.

Management actions related to air quality, cultural resources, human health and safety, soil and water, special status species, vegetation, visual resource management, and wildlife and fisheries, would have negligible impacts on paleontological resources, and therefore will not be further analyzed. The impacts of these actions would be negligible because protecting air quality, protecting cultural resources under section 106, maintaining safety around AML sites and reducing the risks of hazardous materials spills, protecting sensitive soil and water resources, protecting federally listed species and their habitat, restoring and maintaining native vegetation communities, protecting non-listed wildlife and fish habitats, and maintaining scenic quality would neither inhibit nor enhance opportunities for the scientific study of important fossil resources nor the opportunities for recreational collection of fossils.

4.3.9.3.1 Impacts of Fire Management Decisions on Paleontological Resources

Actions related to fire management could have long-term direct and indirect adverse and beneficial impacts on paleontological resources. Surface-disturbing actions such as road construction, the building of fire lines, and prescribed burns, could damage or destroy surface fossils in paleontologically sensitive areas/geologic units. In these areas, paleontological mitigation would reduce potential direct adverse impacts to below the level of significance. Potential long-term adverse indirect impacts would result from the construction of new fire roads, which would increase access to BLM lands that were previously less accessible to the public, thus increasing the potential for unauthorized fossil collecting and vandalism. The recovery and preservation of fossils as the result of paleontological mitigation would be a

beneficial impact because it would permanently preserve paleontological resources which may have otherwise never been discovered, and make them available for scientific research, education and display.

4.3.9.3.2 Impacts of Paleontological Resources Decisions on Paleontological Resources

Paleontological resources identified as part of the Dinosaur Diamond National Prehistoric Byway would be recognized and protected. The Mill Canyon Dinosaur Trail, Copper Ridge Sauropod Trackway and Poison Spider Track Site would be managed as important scientific and public education resources as guided by future Special Recreation Management Area activity-level plans. All permitted activities would have lease notices and stipulations to prevent damage to paleontological resources. In areas where surface disturbance threatens significant fossils, current BLM paleontological resource management policy would be used to assess the threat and mitigate potential damage. Lands identified for disposal would be evaluated to determine whether such actions would remove significant fossils from Federal ownership. Appropriate (authorized under BLM regulations) recreational use of common invertebrate and plant fossils would be encouraged, as would public education and interpretation of paleontological resources. Commercial sales of petrified wood would be prohibited because of its limited availability. The casting of vertebrate fossils, including dinosaur tracks, would be prohibited unless allowed under a scientific research permit issued by the Utah State BLM Office. Paleontological Resource Use Permits issued and administered by the Utah State BLM Office for scientific research would provide important information to the BLM MFO about the locations (both geographic and stratigraphic) and kinds of significant paleontological resources in their jurisdiction, while promoting and facilitating scientific research and education. Providing websites, local interpretive sites, and written information to the public about fossils and hobby collection would directly increase public knowledge of the earth sciences, encourage good stewardship, reduce illegal collection, and increase the likelihood that important paleontological discoveries would be reported to the BLM in the future.

4.3.9.4 Alternatives Impacts

This section summarizes the impacts of the proposed management actions under each alternative on paleontological resources. Because the analyses of the management actions presented in this chapter do not reflect specific projects or actions, some impacts can only be expressed qualitatively. In most cases, subsequent site-specific analyses would be required in order to implement resource management decisions. These analyses would address potential site-specific impacts on a variety of resources, including (if appropriate) paleontological resources.

4.3.9.4.1 Impacts of Lands and Realty Decisions on Paleontological Resources

Generally, land acquisitions by the BLM would affect paleontological resources by increasing public access to areas that contain paleontologically sensitive geologic units and areas that contain fossil localities. Public access to these areas could result in increased risk of adverse impact by the unauthorized collection or vandalism of paleontological resources. On the other hand, there would be an opportunity for the BLM to establish stewardship of paleontological resources on these newly acquired lands. This stewardship would include access to these lands by permitted paleontological researchers, and the resulting associated educational benefits

including interpretive opportunities and the permanent storage of scientifically significant fossils collected in public museums (beneficial impact). Transfer of BLM (public) lands to private ownership would have long-term indirect and cumulative adverse impacts on paleontological resources by removing scientifically significant fossils from the public domain, thus rendering them permanently unavailable for scientific research and education. As discussed above, paleontological mitigation would reduce adverse impacts to below the level of significance by ensuring the preservation of fossils in a public museum where they would be available for scientific research, education and display. Lands and Realty management actions under each alternative concern proposals for utility corridors and LTAs.

4.3.9.4.1.1 Alternative A

Actions related to lands and realty under Alternative A would have long-term indirect adverse and beneficial impacts on paleontological resources. The utility corridors proposed under Alternative A are 1 mile wide. Of all the alternatives, Alternative A provides for the least amount of land to be available for use as utility corridors in areas containing paleontologically sensitive geologic units (21,701 acres). Of these, 4,110 acres are in areas containing highly sensitive geologic units. Thus, this alternative has the lowest potential for direct adverse impacts on paleontological resources as it could result in the least amount of surface-disturbance associated with construction within these utility corridors. This surface disturbance has the potential to damage or destroy an unknown quantity of scientifically significant fossils. New utility corridors would also facilitate greater commercial and public access to BLM lands via associated access routes, thus increasing the potential for unauthorized fossil collecting and vandalism (indirect adverse impact).

4.3.9.4.1.2 Alternative B

Under Alternative B an I-70 utility corridor would be designated that includes all existing rights-of-way identified in the existing RMP with a 100 foot width on each side of the widest Right-of-Way corridor, the existing Moab Canyon utility corridor would be designated, and the utility corridor south of Spanish Valley would be split into two corridors identical to the existing corridors. Of all the alternatives, Alternative B opens the second lowest acreage for use as utility corridors in areas containing paleontologically sensitive geologic units (38,633 acres). Of these, 5,482 acres are in areas containing highly sensitive geologic units. Thus, this alternative has the second lowest potential behind Alternative A for direct adverse impacts on paleontological resources.

4.3.9.4.1.3 Proposed Plan

Under the Proposed Plan an I-70 utility corridor would be designated that includes all major existing rights-of-way identified with a 100 foot widths on each side of the widest Right-of-Way corridor, the existing Moab Canyon utility corridor would be designated, and the two utility corridors south of Spanish Valley would be combined into a single corridor that would include the approximately 2 to 3 miles separating the two segments. Of all the alternatives, the Proposed Plan opens the second highest acreage for use as utility corridors in areas containing paleontologically sensitive geologic units (101,359 acres). Of these, 24,313 acres are in areas containing highly sensitive geologic units. Thus, this alternative has the second highest potential behind Alternative D for direct adverse impacts on paleontological resources.

4.3.9.4.1.4 Alternative D

Under Alternative D the configurations of the proposed utility corridors are identical to those under the Proposed Plan, although the width is double. Of all the alternatives, Alternative D provides for the highest amount of land to be available for use as utility corridors in areas containing paleontologically sensitive geologic units (123,132 acres). Of these, 24,887 acres are in areas containing highly sensitive geologic units. Thus, this alternative has the highest potential for direct adverse impacts on paleontological resources.

4.3.9.4.2 Impacts of Livestock Grazing Decisions on Paleontological Resources

Under each alternative, livestock grazing would be managed according to BLM guidelines for Grazing Management to achieve Standards for Rangeland Health. Livestock grazing management actions under each alternative concern amounts of acreage available for livestock grazing with the MPA as well as seasonal grazing restrictions.

4.3.9.4.2.1 Alternative A

Actions related to livestock grazing under Alternative A could have direct and indirect adverse impacts on paleontological resources if grazing occurs in areas containing occurrences of scientifically significant surface fossils. This is because damage or destruction of surface fossils is known to occur as a result of trampling by livestock. Generally, grazing would be evaluated for significant paleontological resources if they occur in areas containing paleontologically sensitive units. Avoidance of sensitive resources could be accomplished with the construction of fencing or other barriers around known fossil localities. However, this could lead to an increased risk of unauthorized collecting or vandalism of the resources as it would increase their visibility.

Of all the alternatives, Alternative A has the second least possibility for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the second least area (1,695,621 acres) to livestock grazing which could result in the destruction of some surface-occurring fossils by trampling. Of these, 394,972 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.2.2 Alternative B

Of all the alternatives, Alternative B has the lowest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because the smallest area (1,668,732 acres) is potentially available for livestock grazing, thus creating the least likelihood of inadvertent surface fossil destruction by trampling. Of these, 394,718 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.2.3 Proposed Plan

Of all the alternatives, the Proposed Plan has the third lowest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because the third smallest area (1,708,294 acres) behind Alternative B and the Proposed Plan is potentially available for livestock grazing, thus creating the second lowest likelihood of inadvertent surface fossil destruction by trampling. Of these, 394,841 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.2.4 Alternative D

Of all the alternatives, Alternative D has the highest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because the largest area (1,770,314 acres) is potentially available for livestock grazing, thus creating the highest likelihood of inadvertent surface fossil destruction by trampling. Of these, 394,832 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.3 Impacts of Mineral Decisions on Paleontological Resources

Management actions related to mineral development would provide for a variety of mineral exploration and development activities for leasable, locatable and salable minerals. Because of the potential large scale surface disturbance resulting from leasable oil and gas exploration and development, this category is analyzed quantitatively and separately from other mineral types. Because mineral exploration and development activities, including geophysical surveys, typically involve significant amounts of surface disturbance, adverse impacts on paleontological resources would result under all alternatives without mitigation. Commercial exploration and development of BLM lands for energy resources would have both direct and indirect adverse impacts on paleontological resources. Surface-disturbing activities associated with exploration and development could damage or destroy scientifically significant surface and sub-surface fossils (direct adverse impact). The ongoing operations of commercial energy facilities and associated infrastructure on BLM lands would have indirect adverse impacts on paleontological resources by increasing access to lands that were previously inaccessible through new road development, thus increasing the likelihood of unauthorized fossil collecting and vandalism. These impacts are most likely to occur in paleontologically sensitive units which are designated as Class 3, 4/5 and 5. Therefore, the sensitivities of geologic units and surface acreage eligible for minerals exploration and development is of critical consideration when analyzing potential impacts to paleontological resources.

4.3.9.4.3.1 Alternative A

The number of acres open to oil and gas leasing under both standard and special stipulations on BLM lands within each RFD area under Alternative A and corresponding paleontological sensitivities of geologic units are provided in Table 4.72.

Of all the alternatives, Alternative A has the highest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the largest area (838,412 acres) to oil and gas leasing. Of these 838,412 acres in paleontologically sensitive geologic units, 262,895 acres are located in areas containing *highly* sensitive geologic units (Classes 4/5 and 5). For Alternative A, the Eastern Paradox RFD area has the highest potential for adverse impacts on paleontological resources because it contains the largest acreage of sensitive geologic units, followed in descending order by the Greater Cisco, Bookcliffs, Bigflat, Lisbon Valley, Hatch Point, Salt Wash, and Roan Cliffs RFD areas.

Table 4.72. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under Alternative A for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Bigflat	3,875	123,354	79,179	19,838	5,809
Bookcliffs	n/a	22,427	65,766	62,458	n/a
Eastern Paradox	16,665	200,657	224,685	52,718	31,777
Greater Cisco	77	52,246	147,512	11,443	4,424
Hatch Point	597	93,016	32,656	3,557	162
Lisbon Valley	n/a	56,059	16,282	35,930	6,133
Roan Cliffs	n/a	86	1,965	1,098	n/a
Salt Wash	6,561	11,107	7,472	11,782	15,766
Total	**27,775**	**558,952**	**575,517**	**198,824**	**64,071**

See Section 3.9.4.2 for detailed PFYC class descriptions (*Class* 1 = no sensitivity, no anticipated impact; *Class* 2 = low sensitivity, little to low anticipated impact; *Class* 3 = moderate sensitivity, moderate anticipated impact; *Class* 4/5 = high sensitivity, high anticipated impact, but sensitivity level may be lowered based on site-specific assessments; *Class* 5 = high sensitivity, high anticipated impact.

Of all the alternatives, Alternative A has the highest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the largest area (838,412 acres) to oil and gas leasing. Of these 838,412 acres in paleontologically sensitive geologic units, 262,895 acres are located in areas containing *highly* sensitive geologic units (Classes 4/5 and 5). For Alternative A, the Eastern Paradox RFD area has the highest potential for adverse impacts on paleontological resources because it contains the largest acreage of sensitive geologic units, followed in descending order by the Greater Cisco, Bookcliffs, Bigflat, Lisbon Valley, Hatch Point, Salt Wash, and Roan Cliffs RFD areas.

Under Alternative A, 2,397 acres of BLM Lands (3,504 acres of all lands) would be open to geophysical exploration within the MPA. Alternative A would have the highest potential for adverse impacts on surface fossils because it makes the most amount of land available for geophysical surveys.

4.3.9.4.3.2 Alternative B

The number of acres open to oil and gas leasing under both standard and special stipulations within each RFD area under Alternative B and corresponding paleontological sensitivities of geologic units are provided in Table 4.73.

Table 4.73. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under Alternative B for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Bigflat	624	53,742	26,779	2,472	1,249
Bookcliffs	n/a	15,959	41,642	38,562	n/a
Eastern Paradox	12,566	120,870	133,236	33,790	29,574
Greater Cisco	26	22,819	65,729	8,916	3,276
Hatch Point	598	53,502	11,370	1,752	162
Lisbon Valley	n/a	54,243	15,259	35,213	6,134
Roan Cliffs	6	n/a	1,392	n/a	n/a
Salt Wash	4,607	9,199	6,626	10,155	13,939
Total	**18,427**	**330,334**	**302,033**	**130,860**	**54,334**

See Section 3.9.4.2 for detailed PFYC class descriptions (*Class* 1 = no sensitivity, no anticipated impact; *Class* 2 = low sensitivity, little to low anticipated impact; *Class* 3 = moderate sensitivity, moderate anticipated impact; *Class* 4/5 = high sensitivity, high anticipated impact, but sensitivity level may be lowered based on site-specific assessments; *Class* 5 = high sensitivity, high anticipated impact.

Of all the alternatives, Alternative B has the lowest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the smallest area (487,227 acres) to oil and gas leasing. Of these 487,227 acres in paleontologically sensitive geologic units, 185,194 are located in areas containing *highly* sensitive geologic units (Classes 4/5 and 5). For Alternative B, the Eastern Paradox RFD area has the highest potential for adverse impacts on paleontological resources because it contains the largest acreage of sensitive geologic units, followed in descending order by the Bookcliffs, Greater Cisco, Lisbon Valley, Salt Wash, Bigflat, Hatch Point, and Roan Cliffs RFD areas.

Under Alternative B, 1,404 acres of BLM Lands (2,052 acres of all lands) would be open to geophysical exploration within the MPA. Alternative B would have the lowest potential for adverse impacts on surface fossils because it makes the least amount of land available for geophysical surveys.

4.3.9.4.3.3 Proposed Plan

The number of acres open to oil and gas leasing under both standard and special stipulations within each RFD area under the Proposed Plan and corresponding paleontological sensitivities of geologic units are provided in Table 4.74.

Table 4.74. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under the Proposed Plan for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Bigflat	1,039	87,866	40,552	5,325	4,668
Bookcliffs	n/a	22,817	65,874	61,670	n/a
Eastern Paradox	15,207	160,346	183,712	45,612	31,262

Table 4.74. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under the Proposed Plan for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Greater Cisco	77	52,825	148,282	11,733	4,434
Hatch Point	598	90,198	31,284	3,516	162
Lisbon Valley	n/a	55,884	16,040	35,825	6,135
Roan Cliffs	n/a	93	2,053	1,260	n/a
Salt Wash	5,220	11,402	6,627	10,159	14,273
Total	**22,141**	**481,431**	**494,424**	**175,100**	**60,934**

See Section 3.9.4.2 for detailed PFYC class descriptions (*Class* 1 = no sensitivity, no anticipated impact; *Class* 2 = low sensitivity, little to low anticipated impact; *Class* 3 = moderate sensitivity, moderate anticipated impact; *Class* 4/5 = high sensitivity, high anticipated impact, but sensitivity level may be lowered based on site-specific assessments; *Class* 5 = high sensitivity, high anticipated impact.

Of all the alternatives, the Proposed Plan has the second lowest potential behind Alternative B for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the second smallest area (730,458 acres) to oil and gas leasing. Of these 730,458 acres in paleontogically sensitive geologic units, 236,034 are located in areas containing *highly* sensitive geologic units (Classes 4/5 and 5). For the Proposed Plan, the Eastern Paradox RFD area has the highest potential for adverse impacts on paleontological resources because it contains the largest acreage of sensitive geologic units, followed in descending order by the Greater Cisco, Bookcliffs, Lisbon Valley, Bigflat, Hatch Point, Salt Wash, and Roan Cliffs RFD areas.

Under the Proposed Plan, 2,072 acres of BLM Lands (3,029 acres of all lands) would be open to geophysical exploration within the MPA. The Proposed Plan would have the second lowest potential behind Alternative B for adverse impacts on surface fossils because it makes the second least amount of land available for geophysical surveys.

4.3.9.4.3.4 Alternative D

The number of acres open to oil and gas leasing under both standard and special stipulations within each RFD area under Alternative D and corresponding paleontological sensitivities of geologic units are provided in Table 4.75.

Table 4.75. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under Alternative D for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Bigflat	3,807	116,602	73,397	17,106	5,612
Bookcliffs	n/a	22,818	66,798	62,584	n/a
Eastern Paradox	16,528	191,309	210,985	50,248	31,926
Greater Cisco	76	52,880	148,291	11,737	4,433
Hatch Point	598	93,099	32,532	3,547	162
Lisbon Valley	n/a	55,888	16,051	35,837	6,135

Table 4.75. Proposed Acreages per PFYC Classes Open to Oil and Gas Leasing Under Alternative D for Each of the RFD Areas Within the MPA

	Class 1	Class 2	Class 3	Class 4/5	Class 5
Roan Cliffs	n/a	93	2,238	1,385	n/a
Salt Wash	6,465	11,782	7,308	11,324	15,103
Total	**27,474**	**544,471**	**557,600**	**193,768**	**63,371**

See Section 3.9.4.2 for detailed PFYC class descriptions (*Class* 1 = no sensitivity, no anticipated impact; *Class* 2 = low sensitivity, little to low anticipated impact; *Class* 3 = moderate sensitivity, moderate anticipated impact; *Class* 4/5 = high sensitivity, high anticipated impact, but sensitivity level may be lowered based on site-specific assessments; *Class* 5 = high sensitivity, high anticipated impact.

Of all the alternatives, Alternative D has the second highest potential behind Alternative A for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the second largest area (814,739 acres) to oil and gas leasing. Of these 814,739 acres in paleontogically sensitive geologic units, 257,139 are located in areas containing *highly* sensitive geologic units (Classes 4/5 and 5). For Alternative D, the Eastern Paradox RFD area has the highest potential for adverse impacts on paleontological resources because it contains the largest acreage of sensitive geologic units, followed in descending order by the Greater Cisco, Bookcliffs, Bigflat, Lisbon Valley, Hatch Point, Salt Wash, and Roan Cliffs RFD areas.

Under Alternative D, 2,309 acres of BLM Lands (3,405 acres of all lands) would be open to geophysical exploration within the MPA. Alternative D would have the second highest potential behind Alternative A for adverse impacts on surface fossils because it makes the second least amount of land available for geophysical surveys.

4.3.9.4.4 Impacts of Non-WSA Lands With Wilderness Characteristics Decisions on Paleontological Resources

Prescriptions for non-WSA lands with wilderness characteristics would generally have long-term beneficial impacts on paleontological resources that occur within their boundaries. Impacts to paleontological resources vary among alternatives based on the acreage managed for wilderness characteristics and the oil and gas leasing stipulations assigned within them.

4.3.9.4.4.1 Alternative A

Alternative A would manage no lands to protect non-WSA lands with wilderness characteristics. Therefore, no restrictions on surface-disturbing activities would be imposed in Alternative A as a result of wilderness characteristics decisions and inadvertent adverse impacts to paleontological resources could occur.

4.3.9.4.4.2 Alternative B

Alternative B would manage 266,485 acres to protect non-WSA lands with wilderness characteristics. These lands would be managed as closed to oil and gas leasing and with no surface disturbance allowed by other surface-disturbing activities. These restrictions would protect paleontological resources by precluding surface-disturbing activities.

4.3.9.4.4.3 Proposed Plan

The Proposed Plan would manage 47,761 acres (in Beaver Creek, Fisher Towers and Mary Jane) to protect non-WSA lands with wilderness characteristics. These lands would be managed as NSO for oil and gas leasing and by precluding other surface-disturbing activities. These restrictions would protect paleontological resources by precluding surface-disturbing activities.

4.3.9.4.4.4 Alternative D

Alternative D would manage no lands to protect non-WSA lands with wilderness characteristics. Therefore, no restrictions on surface-disturbing activities would be imposed in Alternative D as a result of wilderness characteristics decisions and inadvertent adverse impacts to paleontological resources could occur.

4.3.9.4.5 Impacts of Riparian Decisions on Paleontological Resources

Under all alternatives, riparian areas would be managed for properly functioning condition and management actions would ensure that stream channel morphology and functions are appropriate for local soil types, climates, and landforms. The loss or degradation of riparian areas, wetlands and associated floodplains would be avoided or minimized; natural and beneficial values would be preserved and enhanced; and fish, wildlife and special status species would be provided for. Specifically, management of riparian areas under each alternative concerns the amount of land in riparian areas that could be available for grazing and the seasonal availability of these areas.

Wherever riparian areas are underlain by paleontologically sensitive geologic units, surface disturbance (including ROWs) within these areas has the potential to adversely impact paleontological resources due to the trampling, breakage and crushing of fossil remains. Mitigation would include field surveys to collect significant surface fossils and associated data from bedrock exposures within areas that could be subject to trampling, and the transfer of all collected fossils to a public museum for curation and permanent storage. As an alternative mitigation avoidance of sensitive resources could be accomplished with the construction of fencing or other barriers around known fossil localities. However, this could lead to an increased risk of unauthorized collecting or vandalism of the resources as it would increase their visibility.

4.3.9.4.5.1 Alternative A

Under Alternative A, the Between the Creeks, North Sand Flats, South Sand Flats, Cottonwood and Diamond allotments would not be available for grazing to benefit riparian resources, and the Spring Creek, Castle Valley, Pear Park and Bogart allotments would continue to be managed as not available for grazing in order to protect riparian resources. Of all the alternatives, Alternative A places the fewest possible restrictions on grazing in riparian areas, both geographically and seasonally, and would therefore have the highest probability of short- and long-term direct adverse impacts on paleontological resources, although since most paleontological resources are subsurface, impacts would be minor.

4.3.9.4.5.2 Alternative B

Under Alternative B, grazing within riparian areas would be evaluated for exclusion from the following drainages with the installation of fencing while allowing for water access: Ten Mile from Dripping Spring to the Green River, Lower Gray Canyon of the Green River, Day Canyon,

Mill Creek, Seven Mile Canyon, East Coyote, Kane Springs, and Hatch Wash (4,422 acres. Development and implementation of the Watershed Management Plans and riparian studies for the following areas would be prioritized: Mill Creek (including North Fork, Rill, and Burkholder), Ten Mile Wash, Kane Springs, White Wash, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Professor Creek, Negro Bill Canyon, Cottonwood/Diamond, Spring Canyon, Red Wash, Green River, Colorado River, Onion Creek and Westwater Creek. Of all the alternatives, Alternative B places the most restrictions on grazing in riparian areas, both geographically and seasonally, and would therefore have the lowest probability of short- and long-term direct adverse impacts on paleontological resources.

4.3.9.4.5.3 Proposed Plan

Under the Proposed Plan, grazing in riparian areas would be evaluated for restriction while allowing for water access in the following drainages: Ten Mile from Dripping Spring to the Green River, Mill Creek, Seven Mile Canyon, and East Coyote (1,169 acres). Restrictions could include the development of an Allotment Management Plan, changing seasons of use, restricting the intensity of grazing, and the installation of fencing or other forms of exclusion. The development and implementation of the Watershed Management Plans and riparian studies for the following areas would be prioritized: Ten Mile Wash, Kane Springs, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Cottonwood-Diamond, and Onion Creek. Of all the alternatives, the Proposed Plan places the second most restrictions on grazing in riparian areas behind Alternative B, both geographically and seasonally, and would therefore have the second lowest probability of short- and long-term direct adverse impacts on paleontological resources.

4.3.9.4.5.4 Alternative D

Under Alternative D, grazing management in riparian areas would be identical as described in Alternative A. Watershed Management Plans would not be prioritized. Of all the alternatives, Alternative D places the second fewest restrictions on grazing in riparian areas behind Alternative B, both geographically and seasonally, and would therefore have the second highest probability behind Alternative A for short- and long-term direct adverse impacts on paleontological resources.

4.3.9.4.6 Impacts of Special Designations Decisions on Paleontological Resources

Management of special designations could have indirect adverse and beneficial impacts on paleontological resources. For the purpose of this analysis, Special Designations fall into three categories: Areas of Critical Environmental Concern (ACECs), Wild and Scenic Rivers (WSRs), and Wilderness Study Areas (WSAs). There are 14 potential ACECs, 13 WSRs, and 10 WSAs within the MPA. To the extent that Special Designations in paleontologically sensitive areas/geologic units result in restricted public access and use, and prohibit surface-disturbing actions, paleontological resources would be less likely to be unlawfully collected or vandalized, or damaged or destroyed by vehicular traffic or construction. Therefore, in this general sense, Special Designations represent a beneficial impact on paleontological resources because they lessen the probability of their permanent loss to science and education. If public access to Special Designation areas such as ACECs is encouraged, and surface-disturbing actions are permitted, adverse direct and indirect impacts on paleontological resources could occur.

For all alternatives, there are 343,997 total acres designated as WSAs. Table 4.76 shows the acreage of paleontologically sensitive areas contained within each WSA in the MPA.

Table 4.76. WSA Acreages by PFYC Class

WSA	Total Acreage	Class 1	Class 2	Class 3	Class 4/5
Behind the Rocks WSA	13,056		9,044	3949	64
Black Ridge Canyons WSA	57		52	5	
Coal Canyon WSA	60,599		1,409	18,066	41,124
Desolation Canyon WSA	81,363		828	37,392	43,060
Floy Canyon WSA	71,899		2,310	24,849	44,740
Flume Canyon WSA	47,823		909	17,098	29,816
Lost Spring Canyon WSA	1,625	368	399	858	
Mill Spring Canyon WSA	9,841	380	5,953	3,507	1
Negro Bill Canyon WSA	7,557		3,630	3,880	46
Spruce Canyon WSA	20,263			7,327	12,937
Westwater Canyon WSA	29,914	4,998	10,020	11,803	2,748
Total	**343,997**	**5,746**	**34,554**	**128,734**	**174,536**

See Section 3.9.4.2 for detailed PFYC class descriptions (*Class* 1 = no sensitivity, no anticipated impact; *Class* 2 = low sensitivity, little to low anticipated impact; *Class* 3 = moderate sensitivity, moderate anticipated impact; *Class* 4/5 = high sensitivity, high anticipated impact, but sensitivity level may be lowered based on site-specific assessments; *Class* 5 = high sensitivity, high anticipated impact.

For all alternatives, there are 5,106 total acres of designated wilderness (Black Ridge Wilderness Area within the Colorado Canyon National Conservation Area) within the MPA. These include 871 acres underlain by Class 2 geologic units, 4,230 acres underlain by Class 3 geologic units, and 5 acres underlain by Class 4/5 geologic units. Thus, the designated wilderness provides some protection for paleontological resources.

4.3.9.4.6.1 Alternative A

Under Alternative A, no areas are designated as ACECs. The Negro Bill Canyon Outstanding Natural Area is the only special designation. This area encompasses a total of 1,287 acres. It is underlain by 726 acres of Class 2 geologic units, and 561 acres of Class 3 geologic units. Of all the alternatives, Alternative A designates the second smallest amount of BLM lands as special designations and/or ACECs, and thus has the second highest potential for adverse impacts on significant paleontological resources because it would provide the second least amount of restrictions on land access and use.

There are no rivers that would be managed as suitable for Congressional designation into the National Wild and Scenic Rivers System under Alternative A, However, because all eligible rivers would, by BLM policy, continue to be managed in a protective manner until suitability could be determined, paleontological values would benefit from that protection.

4.3.9.4.6.2 Alternative B

Under Alternative B, a total of 71,072 acres are would be determined and managed as suitable for congressional WSR designation with recreational, scenic and wild classifications. Of these, 2,864 acres are underlain by Class 1 geologic units, 25,257 acres are underlain by Class 2 geologic units, 21,962 acres are underlain by Class 3 geologic units, 14,128 acres are underlain by Class 4/5 geologic units, and 1,864 acres are underlain by Class 5 geologic units. Because no eligible rivers would be determined as suitable for congressional designation as WSRs under Alternatives A and D, and less acreage would be determined suitable and managed in a protective manner under the Proposed Plan, Alternative B would be most protective of paleontological resources because it determines and manages the most acreage as suitable

Under Alternative B, 14 ACECs are designated encompassing a total area of 610,703 acres. Of these, 4,483 acres are underlain by Class 1 geologic units, 118,323 acres are underlain by Class 2 geologic units, 273,861 acres are underlain by Class 3 geologic units, 195,305 acres are underlain by Class 4/5 geologic units, and 5,325 acres are underlain by Class 5 geologic units. Of all the alternatives, Alternative B designates the largest acreage of BLM lands as ACECs, and thus has the lowest potential for adverse impacts on significant paleontological resources because it would provide the most restrictions on land access and use, such as NSO or closed for mineral development.

4.3.9.4.6.3 Proposed Plan

Under the Proposed Plan, a total of 41,495 acres are proposed as suitable for congressional wild and scenic river designation with recreational, scenic and wild classifications. Of these, 2,651 acres are underlain by Class 1 geologic units, 15,546 acres are underlain by Class 2 geologic units, 11,122 acres are underlain by Class 3 geologic units, 6,209 acres are underlain by Class 4/5 geologic units, and 1,338 acres are underlain by Class 5 geologic units. Because no rivers would be determined suitable and managed in a protective manner under Alternative D, and the highest amount of acreage would be managed as suitable for congressional wild and scenic designation under Alternative B, the Proposed Plan has less potential than Alternative B but more potential than Alternative D to protect paleontological values from adverse surface-disturbing impacts. Alternative A is probably more protective than the Proposed Plan, because all rivers would continue to be managed in a protective manner until suitability determinations can be made.

Under the Proposed Plan, 5 ACECs are designated encompassing a total area of 63,232 acres. Of these, 131 acres are underlain by Class 1 geologic units, 9,632 acres are underlain by Class 2 geologic units, 24,079 acres are underlain by Class 3 geologic units, 24,324 acres are underlain by Class 4/5 geologic units, and 0 acres are underlain by Class 5 geologic units. Of all the alternatives, the Proposed Plan designates the second largest acreage of BLM lands as ACECs behind Alternative B, and thus has the second lowest potential for adverse impacts on significant paleontological resources because it would provide the second most amount of restrictions on land access and use, such as NSO or closed for mineral development.

4.3.9.4.6.4 Alternative D

There would be no rivers determined suitable and managed in a protective manner under Alternative D. Therefore, there is a higher potential for adverse impacts on paleontological resources than Alternative B and the Proposed Plan.

There are no ACECs (or ONAs) designated under Alternative D as this alternative has the highest potential for adverse impacts on significant paleontological resources because it would provide the least amount of restrictions on land access and use, such as NSO or closed for mineral development.

4.3.9.4.7 Impacts of Recreation and Travel Management Decisions on Paleontological Resources

Under each alternative, decisions related to travel management would provide opportunities for a range of motorized recreation experiences on public lands while protecting resources and minimizing conflicts among various users. Specifically, travel management under each alternative address OHV use for both motorized and mechanized (e.g., mountain bikes) travel. All BLM lands would be designated as open, limited to designated routes, or closed. Areas that are either open to OHV use or limit OHV use to designated routes have the potential to adversely impact paleontological resources due to the resulting surface disturbance, and are analyzed separately below.

Generally, the construction of travel infrastructure such as roads, trails, and trailheads would be associated with construction-related surface disturbance that could damage or destroy fossils in paleontologically sensitive areas/geologic units. The designation of new routes for motorized and non-motorized travel would facilitate access to areas that were previously prohibited or inaccessible. This would also increase the potential for adverse direct impacts on surface fossils in paleontologically sensitive areas/geologic units. The overall increase in public access to BLM lands associated with travel management would increase the potential for unauthorized fossil collecting and vandalism.

4.3.9.4.7.1 Alternative A

Impacts related to travel management under Alternative A include potential adverse direct and indirect impacts on paleontological resources associated with damage by vehicles, and increased public access to BLM lands resulting in a greater potential for unauthorized fossil collecting or vandalism. Interpretive signs and displays in paleontologically sensitive areas, as well as the encouragement of lawful collecting of invertebrate and plant fossils, could foster a greater overall appreciation for paleontological resources and their scientific significance.

Of all the alternatives, Alternative A has the highest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it opens the largest area (391,133 acres) to unrestricted OHV travel, and hence provides the greatest amount of access to the general public. This increases the potential for damage and destruction of surface fossils by running over them with motorized vehicles and crushing them, as well as unauthorized fossil collection and vandalism. Of these 391,133 acres in paleontologically sensitive geologic units, 182,687 are located in areas containing highly sensitive geologic units.

Alternative A designates 764,260 acres in paleontologically sensitive geologic units as limited to designated, existing or inventoried routes.

4.3.9.4.7.2 Alternative B

Of all the alternatives, Alternative B has the lowest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it designates no lands as open to cross country OHV travel. Thus it prevents greater access to the general public which would increase the potential for damage and destruction of surface fossils by crushing, as well as unauthorized fossil collection and vandalism. Alternative B designates 860,291 acres in paleontologically sensitive geologic units as limited to designated routes. This alternative has the lowest overall potential for adverse impacts on paleontological resources. Of the 860,291 acres in paleontologically sensitive geologic units, 270,937 are located in areas containing highly sensitive geologic units.

4.3.9.4.7.3 The Proposed Plan

Of all the alternatives, the Proposed Plan has the second lowest potential behind Alternative B for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it designates the second smallest area (7 acres in paleontologically sensitive geologic units) as open to cross country OHV travel. Thus it provides less access to the general public than alternatives A and D, decreasing the potential for damage and destruction of surface fossils by crushing, as well as unauthorized fossil collection and vandalism. None of the 7 acres in paleontologically sensitive geologic units are located in areas containing highly sensitive geologic units. The Proposed Plan designates 831,367 acres in paleontologically sensitive geologic units to OHV travel limited to designated routes. This alternative has the third lowest overall potential for adverse impacts on paleontological resources. Of the 831,367 acres in paleontologically sensitive geologic units, 243,797 are located in areas containing highly sensitive geologic units.

4.3.9.4.7.4 Alternative D

Of all the alternatives, Alternative D has the second highest potential behind Alternative A for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it designates the second largest area (38 acres in paleontologically sensitive geologic units) as open to cross country OHV travel. This provides the second greatest amount of access to the general public, which increases the potential for damage and destruction of surface fossils by crushing, as well as unauthorized fossil collection and vandalism. It should be noted that although Alternative D has the second highest potential for adverse impacts behind Alternative A, Alternative D involves a much smaller area (38 acres in paleontologically sensitive geologic units) that is much closer is size to alternatives B (0 acres) and the Proposed Plan (7 acres in paleontologically sensitive geologic units), than A (391,133 acres in paleontologically sensitive geologic units). Alternative D designates 1,142,781 acres in paleontologically sensitive geologic units as limited to designated routes. This has the second highest overall potential for adverse impacts on paleontological resources. Of the 1,142,781 acres in paleontologically sensitive geologic units, 443,037 are located in areas containing highly sensitive geologic units.

4.3.9.4.8 IMPACTS OF WOODLANDS DECISIONS ON PALEONTOLOGICAL RESOURCES

Management of woodlands involves the harvesting of woodlands products for commercial and recreational uses on lands managed by the MFO. In general, the increase in public access resulting from new as well as existing routes would have indirect adverse impacts on paleontological resources because it could increase the potential for unauthorized fossil collecting and vandalism. On the other hand, an increase in public access could also benefit qualified and BLM-permitted paleontological researchers who are interested in conducting field research in the area, and facilitate the collection and study of fossils which may have otherwise never been discovered. The implementation of paleontological mitigation measures in paleontologically sensitive areas/geologic units prior to and during the construction of new roads and other surface-disturbing activities related to woodlands management would reduce potential adverse direct and indirect impacts on paleontological resources to below the level of significance.

4.3.9.4.8.1 Alternative A

Actions related to management of woodlands under Alternative A would have direct adverse impacts on paleontological resources due to surface-disturbing actions associated with woodlands harvest. Of all the alternatives, Alternative A has the highest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it would result in the largest possible area (760,344 acres) of surface disturbance resulting from activities associated with woodlands product harvest. Of these, 249,548 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.8.2 Alternative B

Of all the alternatives, Alternative B has the lowest potential for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it would result in the smallest possible area (614,848 acres) open to surface-disturbing activities associated with woodlands harvest. Of these, 201,649 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.8.3 Proposed Plan

Of all the alternatives, the Proposed Plan has the second lowest potential behind Alternative B for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it would result in the second possible smallest area (737,198 acres) open to surface-disturbing activities associated with woodlands harvest. Of these, 241,866 acres are located in areas containing highly sensitive geologic units.

4.3.9.4.8.4 Alternative D

Of all the alternatives, Alternative D has the second highest potential behind Alternative A for adverse impacts on paleontological resources in paleontologically sensitive geologic units because it would result in the second possible largest area (760,198 acres) open to surface-disturbing activities associated with woodlands harvest. Of these, 241,866 acres are located in areas containing highly sensitive geologic units, thus, impacts to highly sensitive paleontological resources would be the same as the Proposed Plan.

4.3.9.5 Summary of Impacts to Paleontological Resources

The impacts of implementing fire management, paleontological resources, lands and realty, livestock grazing, minerals development, riparian, special designations, travel management, wilderness characteristics, and woodlands decisions under all four alternatives are summarized in Table 2.2, located in Chapter 2. Those activities and alternatives which maximize the possibility of surface-disturbing activities provide the highest probability of adverse impacts to paleontological resources. Alternative B provides the most protection for these resources, followed by the Proposed Plan and Alternatives D and A, in that order.

4.3.10 Recreation

This section discusses impacts to recreation from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning recreation are described in Chapter 3. The assumptions discussed below were made in order to analyze the level of impacts the proposed RMP management actions would have on recreational resources, opportunities, and expectations and on the likelihood for user satisfaction. Recreational resources are defined as the natural elements within the environment that provide the physical basis for recreation. Recreational opportunities are defined as the combination of the natural elements (e.g., scenery, vegetation, geology, land forms, weather) and human-controlled conditions (e.g., roads and trails, developed sites, signs, route markers, facilities) that create the potential for recreation. Recreational expectations are those assumptions made by the recreation resource user (e.g., the hiker, mountain biker, the scenic driver, etc.) that, having prepared for the desired recreational experience (e.g., choosing a recreation site, traveling to the site) and having entered the area of opportunity, he/she would have that desired experience (e.g., the natural sights and sounds of an undeveloped landscape along a hiking trail or an un-crowded and challenging mountain biking or driving while enjoying high quality scenery). It is important to note that achieving recreational expectations are not guaranteed even though the MFO manages the resource for a wide range of recreational opportunities. Unforeseen and/or changing conditions that are beyond the control of the BLM can influence and partially determine what the user experiences. Recreational user satisfaction can be defined as that subjective mental state in which the resource user is able to successfully benefit from the available recreational opportunities and recognizes that his/her recreational experiences meet or exceed his/her recreational expectations.

- While recognizing that recreation resource users are individuals with uniquely personal expectations, goals, and levels of recreational satisfaction, it was assumed for the purposes of impact analysis that recreational users within the MPA could be classified into specific user groups, each of which has its own set of recreational opportunities and expectations. It was also assumed that, because each user group has group-specific opportunities and expectations, each group also has specific recreational conditions and criteria that increase the likelihood for having satisfying user experiences. The user-group criteria described below were used in the impacts analysis of the proposed RMP management actions to determine the degree to which those actions would adversely or beneficially impact recreation users within the MPA. The descriptions, expectations, and criteria of these groups were derived from MFO resource specialist knowledge of visitor use of recreational resources and of what constitutes user group satisfaction, based on informal, but long-term, in-field interviews with visitors recreating throughout the MPA. For the action alternatives (Alternatives B, D, and the Proposed Plan), the MFO's benefits-based recreation management goals and objectives

(see Appendix F) for the proposed SRMAs were also used in analyzing the impacts of resource decisions on user groups and on the likelihood of those users having satisfying recreational experiences in these areas. The recreational user groups and assumed conditions/criteria for satisfactory recreational user experiences are as follows:

- **Scenic drivers** – This group would include users of passenger cars and recreational vehicles (RVs) driving for pleasure while enjoying scenic attractions.

  This user group generally prefers paved access to scenic vistas, cultural sites, and interpretive stations with turnoffs and/or temporary parking.

  High traffic volumes, crowded parking areas, impacts to visual resources from paved viewpoints, and crowded developed campsites would adversely affect this user group.

- **Motorized (off-highway) drivers** – This group would include users of off-road motorcycles, all-terrain vehicles (ATVs) and 4-wheel drive vehicles.

  This group generally prefers a somewhat natural-appearing environment with non-paved surfaces ranging from graded, dirt roads to challenging routes with some evidence of human sights, sounds, and disturbances to remote, natural-appearing environments. The presence of other users and some presence of human-constructed structures are acceptable. The impacts of routes and facilities provided for group activities (including parking lots, route information, trailheads, and toilet facilities) are generally positive for this group.

  Overcrowding and overuse of trails, particularly by slower users such as hikers or mountain bikers, would have adverse impacts on this group's recreational experience.

- **Mountain bikers –** Mountain bike users generally prefer a relatively natural or natural-appearing environment with trails ranging from beginner to advanced. They also prefer an environment in which evidence of human disturbances, restrictions, and controls is present but not appearing to dominate the environment. Recreation facilities would be optional and ideally would blend in with the natural environment. Recreation management would encourage user dispersal. Preferred facilities include semi-primitive camping with basic facilities (parking lots, trailheads, and toilets).

  Overcrowded trails, noise (particularly from motorized users), dust/vehicle emissions, and poor trail etiquette by other users can have adverse impacts on this group's recreational experience.

- **Non-mechanized** users – This group would include hikers, backpackers, and equestrians.

  This group prefers a natural-appearing environment with little evidence of disturbance, few restrictions or visitor controls, no motorized users, and few mountain bike users. Dispersed use is preferred.

  Adverse recreational experiences include those listed for mountain bikers and also the high speeds of mechanized and motorized users. The speed and noise of motorized users is a particular concern to equestrian users.

- **River floating** users – This user group includes those recreating in boats, especially canoes, kayaks and rafts.

The needs of this group are similar to those of the non-mechanized user group. They prefer a natural-appearing environment that shows little evidence of human disturbances within the river corridor. Other than boat ramps and restroom facilities at the put-in and take-out locations and designated primitive campsites, needed facilities are few.

Overcrowding within river corridors and at campsites, noise, and impacts to river corridor scenic quality would detract from this group's user experience.

- **Specialized recreation** users –

  This group prefers locations that provide the conditions for specialized recreation. BASE jumpers generally prefer high cliffs with favorable wind conditions and safe landing zones. Rock climbers prefer a range of challenging routes in sufficient numbers so that crowding and waiting at routes are minimized. Competitive motorized and non-motorized trail users prefer challenging routes, often with enough distance and open area to allow for speed.

  Overcrowding within a given area may detract from the user or group experience for either BASE jumpers or rock climbers. Trail use conflicts with slower moving vehicles, people, or livestock would detract from the user experience for competitive motorized trail users.

- It was assumed that the designation of SRMAs and the management of recreation resources and activities within each SRMA under its specific management plan would allow the MFO to 1) protect, manage, and improve recreation resources, and 2) continue to manage the MPA for a broad range of recreational opportunities that meet recreational user expectations. In addition, areas not managed as SRMAs would lack protection for recreational opportunities from the impacts of increased visitation in the MPA, resulting in increasing resource user conflicts and intensifying recreation resource degradation (as indicated by recreational use trends for the MPA). These trends and impacts are discussed in Section 3.10.2.
- It was assumed that the management of recreation within the MPA through recreation focus areas would tend to concentrate specific recreational opportunities, activities, and users into spatially separate areas, thereby reducing conflicts among recreation resource uses. Focus areas are recreation management areas that promote specific recreational opportunities and activities while continuing to allow other recreational uses. It was assumed that a reduction in recreational use conflicts would enhance the recreational experiences within a particular focus area for certain user groups, because the focus area would be managed to meet the needs of specific user groups. It would do this by providing specific facilities and education to meet their needs (e.g., route marking, parking, campsites, and information), and thus the recreational experience would be more enjoyable and more likely to meet user recreation expectations.
- The National Visitor Use Monitoring Study, completed in the MPA in 2006, provides reliable data on user group participation. Visitors were asked what their "main activity" was while visiting Moab, and what activities they were participating in during their visit. The numbers in Table 4.77 show what activities visitors engage in as a percentage of use.

Table 4.77. Recreation Activity Participation

Activity	Percentage Participating	Percentage as the Main Activity	Number of Respondents as Main Activity
Hiking/Walking/Backpacking	53.3	18.9	220
Equestrian	1.2	0.9	3
Bicycling	17.9	13.5	118
Scenic driving	36.3	10.4	60
Viewing nature/Wildlife	96.9	9.7	89
OHV Use/Motorized Trail Use	11.5	6.0	59
Camping	22.6	2.8	26
Relaxing	42.4	3.8	24
Boating	6.9	3.9	27

4.3.10.1 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Proposed recreation prescriptions common to all action alternatives (Alternative B, D, and the Proposed Plan) would:

- Apply no surface occupancy (NSO) stipulations for oil and gas leasing within 0.5 miles of developed recreation sites, resulting in long-term, beneficial impacts on scenic drivers, mountain bikers, non-mechanized users, and some motorized users, because scenic values would be preserved in the immediate vicinity of the recreation site.
- Apply adaptive management to dispersed camping (limiting camping to designated sites where dispersed camping is causing resource damage). This would be beneficial to all users, because management would ensure that a range of camping opportunities would be maintained for all visitors to the MPA.
- Place the area of the current Colorado River SRMA within three SRMAs: the Two Rivers SRMA, the Colorado Riverway SRMA, and Dolores River Canyons SRMA to provide more focused management. This would be beneficial in the long-term for all recreation resource users, because the focus area concept would be applied to the SRMAs to reduce user conflicts, to maintain satisfying user recreational experiences, and to maintain opportunities for recreational benefits to users.

4.3.10.2 Alternatives Impacts

This analysis discusses 1) the impacts to recreational resources (e.g., vegetation, soils, and scenic quality), 2) the impacts to recreational opportunities for the user groups described above, and 3) the likelihood of resource use conflicts and meeting resource use expectations for resource user groups. Quantitative analysis of impacts was based on 1) the acreages of SRMAs and focus areas within the SRMAs, with the assumptions discussed above, and 2) the miles of designated travel routes within the SRMAs. These were used as indicators of resource user conflicts and the likelihood of satisfactory recreational experiences.

Woodland areas were dismissed from impacts analysis because the prescriptions for managing woodland harvesting areas and permits and for imposing limitations and/or prohibitions on fuelwood gathering in specified areas would have negligible impacts on recreational resources and opportunities.

4.3.10.2.1 Impacts of Air Quality Decisions on Recreation Resources

Air quality prescriptions common to all alternatives would have long-term, beneficial impacts on recreation. As noted in "Visual Resources" below (Section 4.3.10.2.17), an important component of recreation is scenic quality, so impacts that diminish or degrade scenic quality through the impacts of smoke, haze, or other air pollutants would have potentially adverse short-term or long-term impacts on the recreational opportunities that include scenic quality as part of the experience. All of the alternatives would mitigate the potential impacts from prescribed burns by timing prescribed burns to minimize potential impacts to air quality. Other air quality-mitigating prescriptions would include BLM-authorized activities that are managed to maintain and comply with air quality standards and meet PSD Class II standards and protect the Class I Areas of Arches and Canyonlands National Parks. The common prescriptions would also comply with interagency MOUs regarding smoke management. Thus, the levels of smoke, haze, and other air pollutants produced within the MPA would be managed so as to not diminish or degrade scenic quality in the long term. These actions would be beneficial for all recreation user groups because it is assumed that high scenic quality is a recreational expectation for all visitors to the MPA.

4.3.10.2.2 Impacts of Cultural Resource Decisions on Recreation Resources

Current Federal laws and BLM policy promulgated to protect cultural resources would have impacts on recreation under all of the alternatives. Recreational activities would be limited for all recreational users in the short term in areas where site restoration, surveying, inventory, and interpretive activities would be conducted. Recreational opportunities and activities for all user groups would be limited or prohibited in the long term in or near known important cultural sites. Dispersed camping would be prohibited within or on sites eligible for listing on the NRHP, limiting recreational opportunities for all user groups in these areas. Eligible cultural resources would be protected, having long-term, beneficial impacts on all recreational user groups that include scenic/cultural resources as part of their recreational expectations. The Sego and Wall Street Rock Art Sites would be further developed as interpretive sites, which would be beneficial in the long term because of the expanded recreational opportunities to sightsee and to enjoy and understand regional cultural resources.

4.3.10.2.2.1 Alternative A

This alternative would continue current prescriptions for cultural resources, including allocation of sites to scientific use or discharge of sites from management. Current grazing management would continue. There would be no priorities set for 1) public interpretation sites, 2) cultural resource field inventories, 3) scientific restoration of damaged sites, or 4) nominations for listing on the NRHP. These prescriptions would have long-term, adverse impacts on recreation resources, because they would not provide the flexibility to manage the increasing number of visitors to the MPA and the corresponding demand for recreational opportunities. These prescriptions would not manage the increasing number of motorized (OHV) users in the MPA and the associated surface disturbances created by these recreational activities in areas known to

have high densities of cultural sites (see Sections 3.10.2.6 and 3.10.2.7.1 for a discussion of OHV-related resource use conflicts and impacts). Nor would these prescriptions provide protection from long-term, adverse impacts caused by livestock to recreation-related cultural resources (e.g., trampling sites and rubbing against rock art panels) (see Section 4.3.2.4.1).

The impacts of Alternative A on all user groups that seek opportunities for cultural resource exploration, viewing, and interpretive study would be adverse in the long term, because the lack of specific prescriptions to address these concerns would perpetuate current conditions, exacerbate recreation-related cultural resource degradation, and allow resource user conflicts to intensify, resulting in a diminishing likelihood of recreation resource users having satisfactory recreational/cultural interpretive experiences.

4.3.10.2.2.2 Alternative B

This alternative would set priorities for cultural resource field inventories, with 50,000 acres prioritized for surveying. Scientific restoration would be conducted to prevent further degradation of cultural resources, sites would be developed for public interpretation, identified areas would be managed for grazing exclusion, and enhanced protection of resources would be implemented through the development of National Register nominations of sites within the MPA. These cultural resource protection-related actions would identify, preserve, and restore these resources, with long-term, beneficial impacts on recreation, because cultural resource-related scenic quality and interpretive opportunities would be maintained and enhanced. All recreation user groups that seek opportunities for cultural resource exploration, viewing, and interpretive study would benefit in the long term. Compared to Alternative A, Alternative B would have more beneficial impacts to recreation resources and recreational/cultural opportunities, because its preservation and protection actions would enhance public enjoyment of the resource.

4.3.10.2.2.3 Proposed Plan

The impacts of this alternative on recreation resources and user groups would be similar to those discussed under Alternative B, though to a lesser degree, because cultural resource protection and preservation-related actions would be reduced in scope. A total of 30,000 acres would be prioritized for cultural surveys; there would be fewer grazing exclusion areas; fewer cultural sites would be targeted for scientific restoration; and fewer sites would be nominated for listing on the NRHP. Compared to Alternative A, the Proposed Plan would be more beneficial for recreation for reasons similar to those discussed under Alternative B.

4.3.10.2.2.4 Alternative D

Alternative D would have impacts similar to those discussed under Alternative B, but to a lesser degree than under Alternative B and the Proposed Plan, because the protection and preservation-related actions for cultural resources would be less than under Alternative B and the Proposed Plan (with 20,000 acres prioritized for surveys, fewer areas with grazing exclusions, and fewer areas of scientific restoration). Compared to Alternative A, Alternative D would be more beneficial for the same reasons discussed under Alternative B.

4.3.10.2.3 IMPACTS OF FIRE DECISIONS ON RECREATION RESOURCES

All of the alternatives propose 5,000–10,000 acres/year for fuels reduction treatments, consistent with the 2005 Utah Plan for fire and fuels management (BLM 2005c). Prescriptions common to all of the alternatives would use fuels treatments, including prescribed fire, and chemical and mechanical treatments to restore ecosystems and to reduce hazards associated with fuel loading. Fire suppression would be a required consideration for all non-prescribed fires. The potential surface disturbances caused by these activities would have short-term impacts on recreational activities and recreation resources that could include the closing of recreational facilities and the loss of recreational opportunities within burned areas until the disturbed areas were adequately rehabilitated or restored. Scenic quality, as a component of recreational activities and experiences, would be degraded in the short-term in burned areas until vegetation re-growth. The long-term, beneficial impacts on recreation resources and opportunities would be produced for all user groups by the reduced risk or likelihood of naturally occurring and/or unplanned wildland fires within treated areas, and by the reduced risk of loss of remote and developed recreational areas and facilities from wildland fire. The improvement of wildlife habitat and enhancement of recreational opportunities for wildlife viewing and hunting in the long term by improving vegetation communities through fire management would be a long-term, beneficial impact to all user groups. It should be noted that fuels treatments to reduce the risk of wildland fire are similar to those used to improve vegetation communities and to improve or restore ecosystem health (see Section 4.3.10.2.16).

4.3.10.2.4 IMPACTS OF HEALTH AND HUMAN SAFETY DECISIONS ON RECREATION RESOURCES

The impacts on recreation resources and user groups of health and safety prescriptions common to all alternatives (e.g., improving the physical safety around abandoned mine land [AML] sites and mitigation and/or remediation of AML hazards) would be negligible in the short term but potentially beneficial in the long term. Sites within the MPA that are known to contain environmental hazards and that are a direct threat to public safety are incompatible with recreation. Therefore, in the short term the remediation and/or reclamation of these areas would have no impacts on recreation, because these areas would be closed to all recreational activities anyway. In the long term, once the health and safety concerns were addressed, these sites would be considered for recreation management, which could provide additional recreational opportunities (particularly as interpretive AML sites) for all user groups.

4.3.10.2.5 IMPACTS OF LAND AND REALTY DECISIONS ON RECREATION RESOURCES

Under prescriptions common to all of the alternatives, lands along the Colorado, Dolores, and Green Rivers (65,037 acres), along the Westwater (8,096 acres), and in the Black Ridge Wilderness area (5,200 acres) would continue to be withdrawn from mineral entry. The impacts to all recreation groups would be beneficial in both the short and the long term, because recreational opportunities and scenic quality would be preserved from locatable mineral surface disturbances. River runners on the Colorado, Dolores, and Green Rivers would continue to enjoy high scenic-quality views along the undeveloped river corridors. Scenic drivers, hikers, and OHV users on travel routes and trails along the Colorado River would continue to have opportunities to experience the high scenic values along Routes 128 and 279, along hiking trails

(e.g., Negro Bill, Fisher Towers), and on mountain biking and motorized OHV routes and trails within the riverway (e.g., Onion Creek, Wall Street, Poison Spider).

Under prescriptions common to the action alternatives, NSO mineral leasing stipulations would be applied to the withdrawn areas discussed above. This would increase the long-term, beneficial impacts to recreation by also protecting these areas from leasable and salable minerals exploration and development impacts and other potential surface disturbances. These areas would be avoidance areas for ROWs, providing long-term beneficial impacts to recreation users.

4.3.10.2.5.1 Alternative A

Under this alternative, there are no other specific prescriptions and impacts applicable to recreation, except for those discussed above under management common to all alternatives.

4.3.10.2.5.2 Alternatives B–D

Prescriptions and impacts applicable to recreation include those discussed above under actions common to all action alternatives. Compared to Alternative A, these alternatives would preserve more recreational resources and maintain more recreational opportunities for all resource user groups than would Alternative A, because, as discussed above, higher levels of protection from surface disturbances would be stipulated under the NSO leasing category.

4.3.10.2.6 Impacts of Livestock Grazing Decisions on Recreation Resources

The impacts on recreation of livestock grazing prescriptions common to all alternatives would be beneficial in the long term. Under all alternatives, approximately 48,220 acres within existing grazing allotments would be not be authorized for grazing, but would be used to benefit wildlife by reallocating forage for that purpose. This would enhance the recreational opportunities for all user groups for wildlife viewing, sightseeing, and hunting by improving wildlife habitat. The North Sand Flats, South Sand Flats and Between the Creek allotments are not available for grazing; this would benefit recreationists using the Sand Flats and Colorado Riverway SRMAs by eliminating livestock-people conflicts. Narrow strips along Utah Highway 128 (278,000 vehicles per year) and the Kane Creek Road (174,000 vehicles per year) would not be available for grazing, enhancing the safety of visitors

Under actions common to all action alternatives the 96,951-acre Hatch Point Allotment would be changed from sheep to cattle in order to benefit desert bighorn sheep and pronghorn, as these species are susceptible to diseases carried by domestic sheep. As discussed above, these actions would enhance the recreational opportunities for all recreation users by providing the opportunity to view wildlife.

4.3.10.2.6.1 Alternative A

Under this alternative the impacts of livestock grazing actions, through making grazing not available on an additional 78,612 acres (126,907 total acres), would benefit wildlife and have indirect, beneficial impacts on recreational opportunities for wildlife viewing and hunting, as discussed above. Cottonwood, Diamond, Bogart and Pear Park allotments are in prime big game hunting areas; making them not available for grazing would benefit wildlife and hunters/viewers of wildlife by increasing wild game numbers. Beaver Creek would not be available for grazing, enhancing backpacking opportunities in this perennial stream.

Grazing would be excluded within specified riparian areas but allowed in others, which would maintain beneficial, long-term, wildlife-related recreational opportunities for viewing within the protected areas. Grazing allotment vegetation treatments on approximately 67,125 acres to increase forage for wildlife and livestock would have short-term, adverse impacts on recreation but long-term, beneficial impacts to recreation resources and opportunities, as discussed above under Fire Management (Section 4.3.10.2.3).

4.3.10.2.6.2 Alternative B

Under this alternative, grazing could be made not available on an additional 105,497 acres (153,797 total acres). This would benefit wildlife and have indirect, beneficial impacts on recreational opportunities for wildlife viewing and hunting, as discussed above. Cottonwood, Diamond, Bogart and Pear Park allotments are in prime big game hunting areas; making them not available for grazing would benefit wildlife and hunters/viewers of wildlife by increasing wild game numbers. Beaver Creek would not be available for grazing, enhancing backpacking opportunities in this perennial stream. In addition, three allotments along Utah Highway 128 (Professor Valley, Ida Gulch and River) are in very high recreation use areas (over 278,000 vehicles/year); not making grazing available in these allotments would benefit visitors and their safety by reducing cattle-traffic conflicts. Mill Creek, an allotment in a popular hiking location, would not be available for grazing, benefiting visitors by allowing a more lush riparian area to be enjoyed.

In addition, 4,422 acres in riparian areas could be restricted using exclusion fences to protect vegetation and riparian areas in order to benefit wildlife. Vegetation treatments would be conducted on approximately 46,307 acres (69% of the acreage treated under Alternative A) to increase available forage for the benefit of wildlife. These actions would all have beneficial, indirect, and long-term impacts on recreation resources by improving wildlife habitat, thus enhancing the recreational opportunities for wildlife viewing and hunting for all recreational user groups. However, vegetation treatments would result in short-term, direct, adverse impacts on recreational resources and opportunities as discussed above under Fire Management. Compared to Alternative A, Alternative B would have similar impacts on recreation resources and opportunities but to a lesser degree, because fewer acres would be managed that would indirectly enhance opportunities for recreation-related wildlife viewing and hunting.

Closing a portion of Lower Gray Canyon to livestock grazing would also have long-term, beneficial impacts on recreation by creating the conditions and recreational opportunities for wildlife viewing. This decision would also improve the recreational experience for river runners in Lower Gray Canyon by heightening the sense of naturalness and remoteness, allowing them to float the Green River without encountering cattle on the shore.

4.3.10.2.6.3 Proposed Plan

The beneficial impacts to recreation resources and opportunities under this alternative would be similar to those discussed under Alternative B (the Proposed Plan would manage for the same acreage of vegetation treatments as Alternative B), but to a slightly less degree because fewer areas and restrictions would be placed on grazing (an additional 99,827 acres, or 132,047 total acres) as well as restricting 1,169 acres within riparian areas from grazing or 32% of the areas under Alternative B). The impacts of this alternative on recreation would be similar to Alternative B.

Cottonwood, Diamond, Pear Park, and Bogart allotments are in prime big game hunting areas; making them not available for grazing would benefit wildlife and hunters/viewers of wildlife by increasing wild game numbers. Beaver Creek would be available for grazing, detracting from backpacking opportunities in this perennial stream. In addition, three allotments along Utah Highway 128 (Professor Valley, Ida Gulch and River) are in very high recreation use areas (over 278,000 vehicles/year). Ida Gulch would be unavailable for grazing. The portions of Professor Valley and River allotments along Utah 128 would not be available by constructing a fence along the road, thus benefiting visitors and their safety by reducing cattle-traffic conflicts. Mill Creek, an allotment in a popular hiking location, would not be available for grazing, benefiting visitors by allowing a more lush riparian area to be enjoyed.

4.3.10.2.6.4 Alternative D

Alternative D would have impacts similar to those discussed under Alternative B for vegetation treatments, because the number of treated acres would be the same. Grazing would be restricted on an additional 3,921 acres (52,214 total acres), and grazing management in riparian areas would continue current prescriptions, with impacts on recreation similar to those discussed under Alternative A.

Cottonwood, Pear Park, Diamond, and Bogart allotments are in prime big game hunting areas; making them available for grazing would adversely impact wildlife and hunters/viewers of wildlife by reducing wild game numbers. Beaver Creek would be available for grazing, detracting from backpacking opportunities in this perennial stream. In addition, three allotments along Utah Highway 128 (Professor Valley, Ida Gulch and River) are in very high recreation use areas (over 278,000 vehicles/year). These allotments would continue to be available for grazing, adversely impacting visitors and their safety by reducing cattle-traffic conflicts. Mill Creek, an allotment in a popular hiking location, would not be available for grazing, benefiting visitors by allowing a more lush riparian area to be enjoyed.

4.3.10.2.7 Impacts of Minerals Decisions on Recreation Resources

Under all alternatives, the development projected on existing potash leases in the Ten Mile area could have adverse impacts on recreation users, because the surface-disturbing activities would potentially degrade scenic quality within this highly used recreation area.

Under all action alternatives, beneficial impacts through avoiding surface disturbance would result from the withdrawal of lands from locatable mineral entry along the Colorado, Green, and Dolores Rivers and from NSO stipulations imposed to protect these areas from the impacts of leasable minerals development. No surface-disturbing activities, including the disposal of salable minerals, would be allowed within this area. NSO stipulations would also be applied to those areas where minerals development would unreasonably conflict with important natural resource values (see Appendix C for a list of these areas). The application of NSO stipulations in these areas would indirectly benefit recreation through preservation and protection of natural resources, including scenic quality, as surface-disturbing activities would be precluded.

Table 4.78 below shows the proposed MPA acreages that would be open to minerals development by alternatives for leasable, locatable and salable minerals, and also shows the 15-year RFD surface disturbances for fluid minerals (oil and gas) and geophysical exploration.

Table 4.78. Acres Open to Minerals Development and Projected Acres of Surface Disturbance (RFD) Associated with Oil and Gas Development, by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard and Timing and Controlled Surface Use (% of MPA)	1,427,949	808,096	1,234,267	1,387,473
Locatable Minerals	1,389,531 (353,510 open under WSA IMP)	1,389,531 (353,510 open under WSA IMP)	1,389,531 (353,510 open under WSA IMP)	1,389,531 (353,510 open under WSA IMP)
Salable Minerals	1,467,768	808,097	1,234,267	1,387,473
Surface Disturbance from Oil and Gas Development (% of MPA)	6,772 (0.4%)	3,823 (0.2%)	6,483 (0.4%)	6,739 (0.4%)
RFD Geophysical	2,397	1,404	2,072	2,329

Although the impacts of mineral development on recreation are discussed below throughout the MPA, it is important to note that recreation use does not occur equally within the MPA. It is estimated that recreation use occurs with regularity on 976,173 acres of the MPA (53% of the MPA). High use recreation areas are those that are proposed as SRMAs in one or more alternatives. Recreation use is generally highest in areas closer to the City of Moab. The impacts of minerals development on recreation are higher in areas receiving high recreation use, and lower in areas receiving less recreation use. The majority of impacts upon recreation users from mineral development would remain whether or not the area is managed as an SRMA, because SRMAs, for the most part, do not restrict mineral development. Since the projected levels of mineral development are not likely to impact current levels of recreation use, this use would most likely continue to occur (or increase) regardless of management direction.

4.3.10.2.7.1 Alternative A

The MPA acres open to leasable, salable, and locatable minerals development would be subject to surface disturbances that would potentially have direct, short-term, and long-term adverse impacts on recreational opportunities and experiences, because natural resources, including scenic quality could be affected. While all minerals surface disturbances and activities would be required to comply with the impact area's VRM class objectives, adverse impacts would be caused by the following: ground-surface disturbances during the cross-country seismic exploration for fluid minerals (i.e., geophysical exploration disturbances); construction of oil and gas wells and pads, access roads, and pipelines that would potentially intrude upon recreational areas; and noise associated with wells, gas compressor stations, and other infrastructure construction, maintenance, and operation. The development associated with locatable minerals (e.g., copper, vanadium, uranium, placer gold) would also create surface disturbances that would potentially impact recreation resources. Night lighting of oil and gas wells and facilities would also degrade scenic quality related to recreational opportunities and recreational expectations. Indirect, adverse impacts to recreation resources and opportunities would include 1) soil erosion

from surface disturbances, 2) the potential creation of mine tailings piles during locatable mining, 3) potential air quality degradation from hydrocarbon releases during natural gas flaring, and 4) visual quality degradation from fugitive dust.

The majority of the oil and gas wells would be located within the Book Cliffs (104 wells), Greater Cisco (196 wells), Big Flat-Hatch Point (46 wells), and Lisbon Valley (56 wells) RFD areas. Based on the expected level of oil and gas development within the MPA, the impacts to recreation would be adverse in the short and long term from the potential surface disturbance impacts to scenic quality and recreation resources, as discussed above.

Under this alternative, geophysical RFD surface disturbances are estimated to affect approximately 0.1% of the MPA during the life of the RMP, with similar potential, long-term, adverse impacts to scenic quality because exploration activities could be permitted to travel cross-country off designated routes.

Leasable minerals other than oil and gas (e.g., potash, and salt) as well as locatable and salable minerals are estimated under RFD projections to have a total disturbance of approximately 1,015 acres (0.01% of the MPA) during the life of the RMP. The impacts to recreation resources would be adverse but minor, because of the relatively small area of potential surface disturbance.

4.3.10.2.7.2 Alternative B

The impacts of minerals development would be similar to but lesser than those discussed under Alternative A, because some types of activities would occur, the RFD prediction for oil and gas under this alternative would be approximately 56% of the level of disturbance expected under Alternative A, so these impacts would occur across less area. The majority of the oil and gas wells would be located within the Book Cliffs (64 wells), Greater Cisco (85 wells), Eastern Paradox (21 wells), and Lisbon Valley (54 wells) RFD areas.

The geophysical exploration impacts are estimated to affect approximately 1,404 acres of the MPA (58% of the acreage affected under Alternative A), with impacts similar to those discussed under Alternative A. Impacts to recreation from leasable minerals other than oil and gas and from locatable and salable minerals would be similar to those under Alternative A, because the predicted number of impacted acreage would be the same as in Alternative A.

Compared to Alternative A, Alternative B would have similar impacts, but to a lesser degree because fewer acres within the MPA would be potentially impacted by minerals exploration and development.

4.3.10.2.7.3 Proposed Plan

The impacts of minerals development on recreation would be similar to those under Alternative A because the same types of activities would occur, and the RFD for oil and gas under the Proposed Plan predicts a level of disturbance approximately 96% of that predicted under Alternative A. The majority of the oil and natural gas wells would be located within the Book Cliffs (104 wells), Greater Cisco (197 wells), Big Flat-Hatch Point (34 wells), and Lisbon Valley (56 wells) RFD areas. The RFD surface-disturbance acreages of leasable minerals other than oil and gas, locatable minerals, and salable minerals (e.g., sand and gravel, clay, building stone) would be the same as Alternative A. The estimated surface disturbances from geophysical exploration within the MPA would be 86% of the area estimated to be disturbed under

Alternative A. Thus, the impacts to recreation under the Proposed Plan would be similar to those discussed under Alternative A, because the estimated acreages of disturbance are similar.

4.3.10.2.7.4 Alternative D

The minerals impacts to recreation under Alternative D would be similar to those under Alternative A, because the RFD estimate of oil and gas development would be 99% of that under Alternative A, and because approximately 80% of the area proposed under Alternative A would be open to locatable mineral disposal. The majority of the RFD-predicted oil and natural gas wells would be located within the same RFD areas as discussed under Alternative A. The impacts on recreation from leasable minerals other than oil and gas, locatable minerals, and salable minerals, and from geophysical exploration would be similar to those discussed under Alternative A, because the predicted acreages and locations of impacts would be the same or similar to that of Alternative A.

4.3.10.2.8 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Recreation Resources

4.3.10.2.8.1 Alternative A

Under Alternative A, no specific prescriptions for non-WSA areas with wilderness characteristics were proposed. Thus, they would not be managed to retain those characteristics. In addition, Alternative A proposes management of large areas of land for cross country OHV use. This would adversely reduce the non-motorized recreational opportunities and degrade recreation resources in the long term for non-mechanized and other resource users that seek remote, primitive camping and hiking where solitude and natural landscapes are preferred.

4.3.10.2.8.2 Alternative B

Under this alternative, approximately 266,485 acres would be managed to maintain areas with wilderness characteristics in non-WSA lands, with vehicle use limited to designated routes and the preclusion of surface-disturbing activities. This would have beneficial, long-term impacts on recreational resources and on motorized and non-mechanized recreational opportunities because the recreational opportunities for remote OHV use along designated routes, and primitive camping and hiking where naturalness and solitude are the preferred recreational experiences, would be maintained. Compared to Alternative A, this alternative would benefit some types of recreation because remote, wilderness-related non-motorized travel, camping, and hiking opportunities and recreational resources would be preserved.

All of 21 and portions of 7 non-WSA lands with wilderness characteristics would fall within 8 designated SRMAs. These SRMAs would focus recreation opportunities on primitive recreation and solitude. This would preclude new mechanized route construction and limit or restrict motorized special recreation events, as well as cross country motorized use.

4.3.10.2.8.3 Proposed Plan

The Proposed Plan would have similar impacts as Alternative B, but to a much lesser degree, because the prescriptions that affect recreation would be similar and 47,761 acres (or 20% of the area managed for wilderness under Alternative B) would be maintained for areas with wilderness characteristics. Compared to Alternative A, this alternative would be more beneficial because

remote, wilderness-related travel, camping, and hiking opportunities and recreational resources would be preserved, although to a lesser degree than Alternative B.

Beaver Creek, non-WSA lands with wilderness characteristics would fall within the Dolores River Canyons SRMA. Fisher Towers and Mary Jane Canyon would fall within the Colorado Riverway SRMA. SRMAs would focus recreation opportunities on primitive recreation and solitude. This would preclude new motorized route construction and limit or restrict motorized special recreation events, as well as cross country motorized use.

4.3.10.2.8.4 Alternative D

This alternative would have impacts similar to Alternative A because the prescriptions would be the same (no lands would be managed for non-WSA wilderness characteristics protection). However, since OHV use in Alternative D is largely managed as Limited to Designated Routes, adverse impacts on those resource users seeking remote areas would be lessened as compared with Alternative A.

4.3.10.2.9 Impacts of Paleontology Decisions on Recreation Resources

4.3.10.2.9.1 Alternative A

Beyond established BLM policy, there are no specified paleontological prescriptions that would impact recreational resources and user groups under Alternative A. Except where specifically prohibited, fossil collection is an acceptable recreational activity on BLM-administered public lands, and recreational collectors are allowed to collect and retain reasonable quantities of common invertebrates and plant fossils for personal, non-commercial use.

4.3.10.2.9.2 Alternatives B, D, and the Proposed Plan

Under actions common to all action alternatives, paleontological resources would be protected within the Dinosaur Diamond Prehistoric Byway; recreation-related fossil collection would be prohibited within the Colorado Riverway SRMA; and fossil collection would be prohibited near high-use areas (but allowed in other non-high-use areas) of the Labyrinth Rims/Gemini Bridges SRMA. The impacts on paleontology-related recreation resources would be the long-term preservation and protection of paleontological resources and values in areas where the resource is vulnerable to depletion. The preservation of recreational opportunities to enjoy and appreciate this limited resource in high-use recreation areas would have long-term, beneficial impacts on all recreational user groups, who enjoy viewing paleontological resources. Compared to Alternative A, the action alternatives would be more beneficial to recreational resources and recreational opportunities, because they would provide greater protection to paleontological resource values within high-use areas of the existing and proposed SRMAs and Scenic Byways, and because recreational viewing and interpretive opportunities of paleontological resources would be maintained.

4.3.10.2.10 Impacts of Recreation Decisions on Recreation Resources

A summary of the recreation management actions by alternative is shown below in Table 4.79. An analysis of the impacts of the proposed recreation prescriptions follows the table.

Table 4.79. Summary of SRMA Recreation Analysis Data by Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Book Cliffs				
SRMA Acres (non-motorized focus)	None	348,140	None	None
Designated Routes in SRMA (miles of D-Class Roads)	N/A	18	N/A	N/A
Cameo Cliffs				
SRMA Acres	15,597	15,597	15,597	15,597
Designated Routes in SRMA (miles of D Roads)	62	61	61	61
Canyon Rims				
SRMA Acres	101,531	101,531	101,531	101,531
Designated Routes in SRMA (miles of D Roads)	291	222	276	289
Non-Mechanized Focus Area (acres)	N/A	3,642	3,642	N/A
Colorado Riverway				
SRMA Acres	17,983	103,467	89,936	79,126
Designated Routes in SRMA (miles of D Roads)	45	84	77	66
Non-Mechanized Focus Area (acres)	N/A	37,277	33,451	1,287
Specialized Non-motorized Focus Area (acres)	N/A	N/A	42	42
Scenic Driving Focus Areas (corridor width)	N/A	1-mile width	1/2-mile width	1/4-mile width
Boating – Commercial	30 commercial outfitters permitted	19 Unallocated, 2 Allocated Permits (100 user-days each)	21 Unallocated Permits	25 Unallocated Permits
Dolores River				
SRMA Acres	N/A	31,661	31,661	N/A
Designated Routes in SRMA (miles of D Roads)	N/A	14	30	N/A
Labyrinth Rims/Gemini Bridges				
SRMA Acres	N/A	300,650	300,650	60,939 (Dee Pass SRMA only)

Table 4.79. Summary of SRMA Recreation Analysis Data by Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Designated Routes in SRMA (miles of D Roads and motorized single track)	N/A	813	881 D road; 94 single track	140 D road; 83 single track
Non-Mechanized Focus Area (acres)	N/A	26,031	13,383	N/A
Mountain Bike Backcountry Touring Focus Area (acres)	N/A	17,530	23,702	N/A
Motorized Backcountry Touring Focus Area (acres)	N/A	N/A	16,299	N/A
Scenic Driving Focus Areas (corridor width)	N/A	1-mile width	1/2-mile width	1/4-mile width
Specialized Non-Motorized Focus Area (acres)	N/A	N/A	928	N/A
Specialized Motorized Focus Area acres	N/A	N/A	35,575	57,875
Open OHV Focus Area (acres)	N/A	N/A	1,866	3,064
Lower Gray Canyon				
SRMA Acres	N/A	3,759	3,759	N/A
Designated Routes in SRMA (miles of D Roads)	N/A	0	0	N/A
Boating	35,000 passenger-days/year; limit of 6 groups/day with group limits of up to 25 persons.	35,000 passenger-days/year; limit of 6 groups/day with group limits of up to 25 persons.	35,000 passenger-days/year; limit of 6 groups/day with group limits of up to 25 persons.	35,000 passenger-days/year; limit of 6 groups/day with group limits of up to 25 persons.
Sand Flats				
SRMA Acres	N/A	6,246	6,246	6,246
Designated Routes in SRMA (miles of D Roads)	N/A	20	23	25
South Moab				
SRMA Acres	N/A	63,999	63,999	N/A
Designated Routes in SRMA (miles of D Roads)	N/A	137	164	N/A

Table 4.79. Summary of SRMA Recreation Analysis Data by Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Non-Mechanized Focus Area (acres)	N/A	34,486	34,486	N/A
Mountain bike Backcountry Touring Focus Area (acres)	N/A	2,255	2,255	N/A
Scenic Driving Focus Areas (corridor width)	N/A	1-mile width	1/2-mile width	NA
Specialized Non-Motorized Focus Area (acres)	N/A	2,905	2,905	N/A
Specialized Motorized Focus Area (acres)	N/A	N/A	41	N/A
Two Rivers				
SRMA Acres	N/A	29,839	29,839	14,056
Designated Routes in SRMA (miles of D Roads)	N/A	5	12	18
Boating Management				
Westwater Canyon	30 commercial outfitters permitted. Maximum 24,000 passenger-days/year.	Daily launch limit of 48 people for each sector. Maximum group size of 16 (including guides on commercial trips).	Commercial and private permits required. Daily launch limit of 75 people per sector for both commercial and private. Maximum commercial trip size of 25 passengers plus one guide/craft and two additional crew members. Permit 18 commercial outfitters. Use levels distributed equally between commercial and private use.	Maximum group size of 32 (including guides on commercial trips). Daily launch limit of 128 people for each sector (commercial and private).
Cisco Landing to Dewey Bridge		No restrictions on private use. 20 unallocated and 2 allocated (100 users/day each) permits for commercial use.	No restrictions on private use. 22 unallocated permits for commercial use.	25 unallocated permits for commercial use.

Table 4.79. Summary of SRMA Recreation Analysis Data by Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Dolores River to Colorado River Confluence		Bridge Canyon to Dolores/Colorado River confluence–Maximum group size of 16 (including guides on commercial trips).	Bridge Canyon to Dolores/Colorado River confluence–Commercial and private permits required. Maximum group size of 25 (including guides on commercial trips). No daily launch limits. Permit 14 unallocated commercial outfitters.	Colorado State Line to Colorado River confluence–Maximum group size of 32 (including guides on commercial trips).
Non-Mechanized Focus Area (acres)	N/A	23,479	23,479	N/A
Utah Rims				
SRMA Acres	N/A	15,424	15,424	N/A
Designated routes (miles of D roads and single track routes)	N/A	28	28 D road; 34 single track	N/A

4.3.10.2.10.1 Book Cliffs SRMA

Alternative A

Under Alternative A the Book Cliffs would not be designated as a SRMA; instead, the area would continue to be managed for general recreational use and impacted by conditions that currently affect the area. As discussed in Section 3.10.1.2.12, the Book Cliffs area is remote, containing five WSAs whose natural, undeveloped settings would be maintained. It is not heavily used for recreation nor do recreational trends indicate an increasing use of the area. Conflicts between user groups would be minor because of its light use, remoteness, and size. Thus, the impacts on recreation resources and users would be minor.

Alternative B

Under Alternative B, the 348,140-acre Book Cliffs Undeveloped SRMA would be established as a focus area for non-mechanized recreational opportunities. Prescriptions would focus on promoting low-frequency visitor use and limiting OHV travel to 18 miles of designated routes, resulting in long-term, beneficial, protection-related impacts on recreation resources by limiting surface disturbances within the SRMA. Non-mechanized users would benefit in the long term from the focus on opportunities for remoteness, solitude, and naturalness, and from the reduced likelihood of recreational resource use conflicts with mountain biking or motorized users. Other user groups (e.g., motorized OHV users and mountain bikers), while limited to the designated

OHV routes, would benefit in the long term from opportunities to access and recreate in the SRMA. Under this alternative, the long-term outcome of reducing resource use conflicts and increasing the likelihood of having satisfying recreational experiences in a remote setting would have individual benefits that include improvements in outdoor skills and knowledge, improved outdoor-recreation self-confidence, and a greater sense of closeness with the natural world.

Compared to Alternative A, Alternative B would have greater beneficial impacts on recreation, because recreational resources would receive more protection from surface disturbances and because the potential for resource use conflicts between non-mechanized and mechanized user groups would be reduced. However, managing for non-mechanized use would adversely impose greater limits on recreational opportunities for other recreational user groups than the limits under Alternative A.

Alternative D and the Proposed Plan

Because the Book Cliffs SRMA would not be established under these alternatives and, therefore, additional prescriptions would not be proposed, the impacts of Alternative D and the Proposed Plan on recreation resources and resource user groups would be similar to those discussed under Alternative A.

4.3.10.2.10.2 Cameo Cliffs SRMA

Alternative A

Under Alternative A, the 15,597-acre Cameo Cliffs SRMA would be managed as a focus area for OHV (motorized) trail use, with use limited to designated trails. The impacts on recreation resources would be minor in the long term, because the area is currently managed for OHV motorized trail use with surface disturbances limited to designated routes. Management that promotes this kind of activity would result in long-term beneficial impacts on motorized and specialized-motorized users.

Alternatives B, D, and the Proposed Plan

Under the action alternatives, Cameo Cliffs would be managed as a 15,597-acre SRMA, providing recreational opportunities for motorized and mountain biking use on designated trails, and non-mechanized hiking and equestrian opportunities. The SRMA would not be managed with user focus areas. Specific management goals would include providing opportunities for 1) ATV and other OHV motorized use on old mining exploration roads, 2) horseback riding on the Old Spanish Trail, and 3) hiking in Hook and Ladder Gulch. Prescriptions would include coordination with San Juan County to implement an ATV plan and protection of scenic, cultural, wildlife, and vegetation resources. Under this alternative, camping restrictions would be imposed as needed, and an OHV trailhead facility would be constructed. The impacts on recreation resources would be beneficial in the long term, because prescriptions would protect recreation resource values. The impacts on non-mechanized, OHV (motorized), and mountain biking user groups would also be beneficial in the long term, because 1) recreational opportunities would be enhanced and expanded by the construction of SRMA recreational facilities and the development of mountain biking and non-mechanized routes, and 2) the proposed ATV plan would reduce the potential for user conflicts between motorized users, mountain bikers, and non-mechanized users. The anticipated long-term, benefits-based management outcome for this area would

include an increased sense of adventure, an appreciation for the region's history, and increased local, tourist-related revenue.

Compared to Alternative A, the impacts to recreation under these alternatives would be more beneficial in the long term, because prescriptions would 1) provide more recreational opportunities for mountain biking and non-mechanized forms of recreation, 2) provide additional facilities for users; and 3) protect and maintain recreation resource values within the SRMA through RMP prescriptions and coordination with San Juan County.

4.3.10.2.10.3 Canyon Rims SRMA

Alternative A

Under Alternative A, the current 101,531-acre SRMA would maintain recreational opportunities for scenic driver, motorized OHV, mountain biking, specialized, and non-mechanized user groups. Also, the Hatch Wash and the lower section of West Coyote Creek would be managed for primitive, non-motorized recreation. The SRMA would be 1) open to mineral leasing under controlled surface-use stipulations except for developed recreational sites that would be managed as open with NSO stipulations; 2) managed for OHV use limited to existing routes but restricting motorized events and special events to the existing Jeep Safari route; 3) designated as VRM Class III except for VRM Class II designation of western rim lands at Hatch Point; 4) managed to improve developed recreation sites and to restrict camping near developed recreation areas; and 5) closed to woodcutting and gathering.

Prescriptions 1 and 3 would have long-term, direct, adverse impacts on recreation resources by permitting potential mineral leasing activities within the eastern portion of the SRMA that would degrade scenic quality. Managing the SRMA under prescriptions 2, 4, and 5 would reduce surface disturbances and have long-term, beneficial impacts on recreation resources by preserving and/or protecting recreation-related scenic quality.

As the number of visitors to the SRMA increases and levels of recreational activity and demand also increase, there is the likelihood for increased recreational resource user conflicts between motorized and non-motorized user groups, with subsequently diminishing opportunities for satisfactory recreational experiences. As discussed in Section 3.10.2.6, the potential for displacement of non-mechanized users would likely increase as motorized OHV use increases along existing travel routes.

Alternative B

Alternative B would have the same prescriptions as Alternative A except that: 1) a 3,642-acre, non-mechanized focus area would be managed at Hatch Wash, and 2) two scenic driving corridor focus areas would be designated along the Needles and Anticline Roads (with widths of one mile or to the border of the adjoining focus area). The Windwhistle Nature Trail, Anticline Trail, Needles Trail, and Trough Springs Canyon Trail would be designated for non-mechanized (hiking) use only. The SRMA management goals would be to 1) provide scenic driving opportunities along the scenic byway and along the backcountry road system, 2) provide scenic overlook facilities to enhance the visitor experience, 3) provide quality camping in developed campgrounds, and 4) provide hiking and backpacking opportunities. The long-term impacts to recreational users under this alternative would be a reduced likelihood of resource use conflicts and an increased likelihood of satisfying experiences for scenic driver and non-mechanized user

groups within the SRMA, because of the management of focus areas that would emphasize activity areas and opportunities for each group. The beneficial impacts on recreational opportunities under this alternative would increase the likelihood that the benefits-based, targeted, recreational outcomes for the area would be achieved; these outcomes include 1) opportunities to escape from crowds to enjoy and appreciate nature; 2) easy access to natural landscapes for exercise and an improved capacity for outdoor physical activity; 3) increased tourism revenues; and 4) greater family bonding through a shared experience of the natural landscape. Compared to Alternative A, this alternative would have more beneficial impacts on recreational opportunities and experiences, because the potential for resource use conflicts would be reduced. However, the potential for degradation of scenic quality from minerals development would be similar to that under Alternative A.

Proposed Plan

Under the Proposed Plan, prescriptions would be the similar to those under Alternative B, except that the width of the proposed Needles and Anticline Roads scenic driving corridors would be 1/2 mile (or to the border of the adjoining focus area), which would reduce the beneficial impacts to the scenic quality viewing experience within the scenic driving corridors by decreasing the width of the protected viewshed. The impacts on recreation resources under this alternative would be similar to those discussed under Alternative B, because the prescriptions are similar.

Alternative D

Alternative D prescriptions would be similar to those under Alternative B, except that the width of the proposed Needles and Anticline Roads scenic driving corridors would be 1/4 mile (or to the border of the adjoining focus area), and there would be no management of a non-mechanized user focus area. While the Windwhistle Nature Trail, Anticline Trail, Needles Trail, and Trough Springs Canyon Trail would be designated for non-mechanized (hiking) use only under this alternative, the lack of a 3,642-acre, non-mechanized recreation focus area would maintain conditions for resource use conflicts between non-mechanized, mountain biking, and motorized resource user groups, as discussed under Alternative A. Managing the scenic driving corridors at 1/4 mile width would have similar beneficial impacts as discussed under Alternative B, but to a lesser degree, because the reduced width of the protected viewshed corridor would reduce the scenic quality of the viewing experience. Compared to Alternative A, opportunities for scenic driving users and hikers would be more beneficially enhanced by designation of scenic driving corridors and hiking-only trails; however, the impacts on other recreation resources and user groups under this alternative would be similar to those discussed under Alternative A, because the prescriptions would be similar.

4.3.10.2.10.4 Colorado Riverway SRMA

Alternative A

Prescriptions under Alternative A for the existing 17,983-acre Colorado Riverway SRMA would include actions authorized under the current Colorado Riverway Plan that are focused on improving and constructing sites and facilities along the riverway to enhance the range of recreational opportunities, and to protect its scenic quality and other resource values. Prescriptions under this alternative would 1) include acquiring scenic easements on state and private lands, 2) restrict motorized and mountain biking travel to designated routes, 3) limit camping and campfires to designated sites, 4) close the area to woodcutting and limit wood

gathering. The Colorado River shoreline within the Riverway is currently withdrawn from mineral entry. The Riverway plan would limit Fisher Towers, Negro Bill Canyon, Hunter Canyon, and Corona Arch trails to non-mechanized (hiking) use only. Recreational boating management within the Riverway (including the Colorado and Dolores Rivers) would continue as under current prescriptions, allowing 30 commercial operators and 24,000 passenger-days per year.

Under this alternative, improving recreational facilities, maintaining the separation of recreational user groups and limiting surface disturbances would result in managing the SRMA to provide for satisfactory recreation opportunities and experiences by limiting user conflicts and maintaining the visual and resource setting.

Alternative B

Alternative B would establish the Colorado Riverway SRMA as a Destination SRMA and would expand its boundary to 103,467 acres under the same prescriptions as discussed under Alternative A. The SRMA would be managed to provide opportunities for scenic driving, quality camping experiences in the developed campgrounds, river floating, hiking, and horseback riding. Camping would be prohibited on the north side of the river along Highway 128 and in the Kane Creek Crossing area. Boating activities would be managed to provide recreational opportunities for scenic whitewater river running. No focus area would be managed for specialized recreation activities, but 37,277 acres would be managed as non-mechanized focus areas in Negro Bill Canyon and the Richardson Amphitheater/Castle Rock area. Prescriptions would manage one-mile-wide scenic driving focus areas along Highways 128 and 279 and along portions of the Lockhart Basin Scenic Byway and portions of the LaSal Mountain Loop Road. The prescriptions under this alternative would have long-term, beneficial impacts on recreation resources by 1) proposing an increased recreational area and additional recreational facilities for camping, information and education, trails and trail access, and sanitation; 2) managing focus areas for non-mechanized and scenic driving user groups; and 3) restricting camping to designated areas. The actions would have beneficial impacts on non-mechanized and scenic driving recreation because they would increase opportunities while reducing the potential for recreational user conflicts within the SRMA and would reduce or eliminate the adverse impacts currently caused by unmanaged camping within the SRMA (see Section 3.10.1.2.1). However, Alternative B would have no long term beneficial impacts on BASE jumping and rock climbing opportunities, because no specialized focus area would be established in the Kane Creek and Wall Street areas. River floating users would be adversely impacted in the long term by the elimination of camping opportunities along the north side of the Colorado River. The overall potential outcome would be a greater likelihood that the area's benefits-based, targeted outcomes would be achieved; these outcomes include increased tourism revenue and individual benefits such as an improved appreciation of nature's splendor, a greater sense of adventure, an enhanced awareness and understanding of nature, and improved outdoor skills.

When compared to Alternative A, Alternative B would be more beneficial, because it would 1) increase the size of the SRMA by 85,484 acres 2) expand recreational opportunities for all user groups; 3) further reduce the potential for resource-use conflicts through recreation focus areas; 4) further improve the likelihood of satisfactory recreational experience for all recreational resource users by proposing to construct or permit more recreational facilities within the SRMA; 5) eliminate potential resource degradation caused by unmanaged, boating-related shoreline

camping within the SRMA; and 6) designate more miles of OHV routes (84 miles under Alternative B compared to 45 miles under Alternative A).

Proposed Plan

The Proposed Plan would establish the Colorado Riverway SRMA as an 89,936-acre Destination SRMA under the same prescriptions as discussed under Alternative A. The SRMA would be managed with prescriptions similar to those discussed under Alternative B, except that 1) the north shore of the Colorado River would be open to undeveloped camping and hiking opportunities (with prescriptions to protect wildlife habitat and other resource values); 2) the Kane Creek Crossing area would be open to designated camping; 3) two more facilities would be proposed than under Alternative B; 4) the focus areas for non-mechanized recreation would be managed on 33,451 acres in the same areas as Alternative B; 5) scenic driving focus areas would be managed along the same corridors as in Alternative B but with a 1/2-mile protected viewshed width; and 6) focus areas for specialized, non-motorized activities (e.g., BASE jumping and rock climbing) would be managed. The impacts on recreation would be similar to those discussed under Alternative B, except that there would be more beneficial impacts to non-mechanized and motorized OHV user groups from increased opportunities for camping, hiking, touring, and specialized recreation. The beneficial impacts to scenic drivers would be similar to those under Alternative B but reduced, because of the narrower corridors of protected viewsheds.

Compared to Alternative A, this alternative would be more beneficial for reasons similar to those discussed under Alternative B. The SRMA would be increased in size by 71,953 acres as compared to Alternative A; it would be managed for focus areas that would reduce user conflicts; and it would have an increase of 32 miles in the number of miles designated for OHV travel routes.

Alternative D

Alternative D would establish the Colorado Riverway SRMA as a 79,126-acre SRMA, with prescriptions similar to those in the Proposed Plan except that 1) four fewer camping sites and facilities would be designated or proposed; 2) the non-mechanized focus area in Negro Bill Canyon would be reduced from 8,684 acres to 1,287 acres, and there would be no management of a non-mechanized focus area within the Richardson Amphitheater/Castle Rock area; and 3) the scenic driving corridors would have protected viewshed widths of 1/4 mile. This alternative would have long-term beneficial impacts on recreational resources and uses similar to those described for the Proposed Plan, but to a lesser degree than the Proposed Plan, because fewer recreational opportunities would be available within the smaller (and fewer) focus areas. There would be a greater likelihood for long-term adverse impacts from recreation user group conflicts between non-mechanized, specialized, mountain biking, and motorized users in the Richardson Amphitheater/Castle Rock area, because a focus area would not be established to manage the diversity and intensity of recreational use in this highly popular area (see Section 3.10.1.2.1). The reduction in size of the Negro Bill Canyon focus area under this alternative, when compared to the other action alternatives (an 11,223-acre reduction compared to Alternative B; a 7,397-acre reduction compared to the Proposed Plan), would increase the likelihood for resource use conflicts in the SRMA. This alternative would not propose camping sites at Entrada Bluffs, Hittle Bottom, and Kane Creek Crossing, nor would it propose constructing sanitary facilities at the Wall Street climbing area, which would adversely diminish the recreational experience of

recreation users in the long-term by not managing the proposed SRMA to meet the current or projected future need and demand for these facilities (see Section 3.10.2.5).

Compared to Alternative A, this alternative would be more beneficial in the long-term for recreation resources and users for reasons as discussed under the Proposed Plan, because the prescriptions are similar. Under Alternative D, the SRMA would be beneficially increased in size by 61,143 acres (a four-fold increase in area over Alternative A) with 21 more miles of designated OHV routes. These increases would provide more managed recreational opportunities for all resource users than would Alternative A.

4.3.10.2.10.5 Dolores River Canyons SRMA

Alternative A

Under this alternative, a portion of the Dolores River Canyons area would be managed for general recreational use under the current Colorado Riverway management plan. The potential impacts of this alternative on recreational resources in the Dolores River Canyons area would be adverse in the long-term, because no specific recreation management prescriptions or programs are proposed for this area, except for the current boating management limits discussed above under the Colorado River SRMA for Alternative A. The lack of specific recreation management prescriptions for this area would increase the likelihood of long-term degradation of recreation resources from lack of intensive management of shoreline use (e.g., overnight camping, campfires, and unrestricted wood gathering).

Alternative B

This alternative would manage the Dolores River Canyons as a 31,661-acre Undeveloped SRMA, separate from the proposed Colorado Riverway SRMA. Prescriptions for the Dolores River Canyons SRMA would prohibit motorized and mountain biking recreation within the Dolores River tributary canyons, consistent with the proposed Moab Travel Plan. The SRMA would be managed for recreational opportunities that include non-motorized boating, backpacking, and day hiking, with facilities that support primitive, non-motorized use of the SRMA. There would be no focus area management within the SRMA.

The prescriptions under this alternative would have beneficial impacts on recreational resources, as well as on river floating and non-mechanized resource user groups, because boating group size limits would be imposed to ensure high-quality boating opportunities with an emphasis on primitive, non-motorized uses. There would be adverse impacts on motorized and mountain biking user groups, because no new motorized routes would be proposed within the SRMA, and OHV opportunities would be limited to 14 miles of designated routes. Beneficial, long-term impacts would include a reduction in potential recreational resource use conflicts by promoting remote, non-mechanized recreational opportunities. These beneficial impacts would increase the likelihood of achieving the MFO's targeted individual outcomes for the area, including 1) opportunities for solitary exploration of the area to gain a sense of adventure, 2) improvements in outdoor knowledge and increased self-confidence, and 3) enjoying the natural landscape to develop a closer relationship with the natural world.

Compared to Alternative A, Alternative B would be more beneficial for non-mechanized and river-floating users, because there would be an emphasis on these recreational activities, and more recreational facilities would be proposed than under Alternative A. There would be more

adverse impacts under Alternative B for mountain biking and motorized forms of recreation because of limitations and restrictions on these recreational activities.

Proposed Plan

The impacts on recreation under this alternative would be similar to those discussed under Alternative B, because the prescriptions would be similar, except that 30 miles of designated routes would be open to OHV use within the SRMA, providing more opportunities for motorized use of the area.

Alternative D

The impacts of Alternative D on the Dolores River Canyons SRMA would be similar to those discussed under Alternative A, because the SRMA would not be established under this alternative.

4.3.10.2.10.6 Labyrinth Rims/Gemini Bridges SRMA and Dee Pass SRMA

Alternative A

This alternative would not establish a Labyrinth Rims/Gemini Bridges SRMA, and recreation-related prescriptions for the current RMP are not specified. Currently, under an interagency cooperative agreement with the State of Utah, the BLM manages a permit system for in-river and shoreline use, and river resources protection along the Green River. A one-mile-wide scenic corridor along SR 313 and the Island in the Sky entrance road is managed by the MFO for camping at designated campgrounds and for protection of scenic quality. The Gemini Bridges Road is similarly managed to protect resource values. The White Wash Sand Dunes area is managed for open (cross-country) OHV travel, and OHV use is limited to existing routes in an area south of Ten Mile Point Road. Current management and maintenance would continue for river takeouts, facilities, interpretive sites, and trails in the Labyrinth Rims/Gemini Bridges area. The 3-D, Crystal Geyser, Hellroaring Rim, Secret Spire, and Wipeout Hill areas would continue to be authorized for Jeep Safari and other uses.

Under this alternative, the impacts on recreation resources would be beneficial in the short term by continuing to provide recreational opportunities and facilities for resource user groups. In the short term, maintaining the existing management practices would adequately address the present level of river use through the river permitting system, and limitations and restrictions on camping and OHV use would continue to protect resource values in those areas where camping and OHV use restrictions are in place.

Resource use conflicts and user displacement in the Gemini Bridges area are presently occurring between motorized and mountain biking user groups (see recreation section 3.10.2 for a discussion of the area's current recreation conditions and trends). In the long term, the impacts on recreation resources in the area would be adverse because the lack of specific recreation-related prescriptions under this alternative would not address nor would be capable of adequately responding to the anticipated increase in visitor use of the area, the demand for recreational opportunities in the area, and the intensifying impacts of visitation on recreation resources. Long-term, adverse impacts on recreation would result in a degraded quality of recreational experiences, unsatisfied user expectations, and diminishing recreational opportunities for all user groups.

Alternative B

Alternative B would establish the Labyrinth Rims/Gemini Bridges area as a 300,650-acre SRMA with 813 miles of designated D-Class roads/routes. The SRMA would have the same prescriptions as Alternative A but with the following additions: 1) the White Wash Sand Dunes would be managed for ecological restoration and scenic quality, and travel would be limited to designated routes; 2) camping would be prohibited within the Bartlett/Tusher/ Courthouse/Ten Mile Areas to protect resource values; 3) the river permit system would be expanded to further protect river resources; 4) camping would be limited to designated sites in high-use areas; and 5) backcountry areas would be managed for scenic motorized touring, and the Mill Creek Dinosaur Trailhead would be improved to accommodate passenger vehicles. Under this alternative, the SRMA recreational facilities and campgrounds would be increased by two campgrounds. The SRMA would manage focus areas for scenic drivers with one-mile protected viewshed corridors, for non-mechanized users (26,031 acres), and for mountain biking groups (17,530 acres), providing visitors with the opportunities to have quality river recreation, camping, on- and off-trail hiking, mountain biking, motorized backcountry, and scenic driving experiences. Under this alternative there would be no specific, intensive management for several mountain biking recreation focus areas (Tusher, Slickrock, Mill Canyon/Upper Courthouse, Bartlett Slickrock); there would be no specific, intensive management of the motorized backcountry touring focus area (Gemini Bridges/Poison Spider Mesa); there would be no specific, intensive management of the specialized (motorized) sport focus areas (Dee Pass, Airport Hills); and there would be no specific, intensive management of the specialized (non-motorized) BASE-jumping focus area at Mineral Canyon/Horsethief Point. By not specifically managing these potential focus areas, there would be the likelihood for increasing resource user conflicts and adverse and diminishing quality of experiences for motorized, mountain biking, and specialized groups in these areas.

Alternative B prescriptions would have long-term beneficial impacts on recreation through the management of focus areas for some specific recreational uses (including non-mechanized and mountain biking) that would reduce or eliminate the potential for use conflicts in the managed focus areas. Under this alternative the proposed increase in the number of recreational facilities would ease user demands for these facilities and increase the likelihood of recreation users having satisfying experiences. The proposal to extend the existing cooperative permitting agreement with the State of Utah to commercial river use would beneficially maintain satisfying river recreational experiences and opportunities by reducing crowding and adverse impacts. Limiting camping to designated sites in high-use areas would reduce recreation-related surface disturbance impacts to the area and would have long-term, beneficial impacts on recreation resources by preserving visual quality. Managing the SRMA to maintain quality recreational opportunities and to preserve recreation resources would increase the likelihood for beneficial recreational outcomes that include 1) a greater sense of adventure and heightened outdoor self-confidence from opportunities for individual exploration and enjoyment, 2) improved outdoor skills, and 3) opportunities to escape from crowds to gain a sense of freedom and to maintain mental health.

Compared to Alternative A, Alternative B would be more beneficial to recreation because more areas would be managed to reduce resource use conflicts; the area would be managed to preserve recreation resources; more facilities would be proposed to accommodate the anticipated increase in recreational use and demand; and more routes would be managed for mountain biking and non-mechanized recreation to meet the anticipated demand for these activities.

Proposed Plan

The Proposed Plan would establish the Labyrinth Rims/Gemini Bridges area as a 300,650-acre SRMA with 881 miles of designated routes. The SRMA would have the same prescriptions as discussed under Alternative A, with the following additions: 1) expand the BLM/State of Utah river permit system to further protect river resources; 2) limit camping to designated sites in high-use areas; 3) manage backcountry areas for scenic motorized touring; 4) improve the Mill Creek Dinosaur Trailhead to accommodate passenger vehicles; and 5) consider development of an alternative mountain biking route on Poison Spider Mesa. Under this alternative, the SRMA would be managed to provide visitors with the opportunities to have quality river recreation, camping, on-trail and off-trail hiking, mountain biking, and backcountry motorized and scenic driving experiences.

The Proposed Plan prescriptions would have long-term, beneficial impacts on all recreation user groups through expansion of facilities and the management of focus areas for non-mechanized (13,383 acres), motorized (18,165 acres), mountain biking (23,702 acres), and specialized (36,503 acres) user groups. Scenic driving corridor focus areas with 1/2-mile protected viewshed widths along Highway 313 and the Island in the Sky road would be managed for this user group. These prescriptions would beneficially reduce the potential for resource-use conflicts, similar to the discussion of impacts under Alternative B but with more beneficial impacts on resource users than Alternative B offers, because the SRMA would be managed with more focus areas for a broader range of recreational activities. The proposal to extend the existing cooperative river permitting agreement would have similar impacts as discussed under Alternative B.

Compared to Alternative A, the Proposed Plan would be more beneficial to recreation for the reasons discussed under Alternative B: 1) more areas would be managed to reduce resource use conflicts, 2) more facilities would be proposed to accommodate the anticipated increase in recreational use and demand, and 3) more routes would be designated for motorized and mountain biking recreational use to meet the anticipated demand for these activities.

Alternative D

Alternative D would establish the 60,939-acre Dee Pass SRMA with a motorized trail-riding system at Dee Pass and the White Wash Open OHV-riding Focus Area. The proposed SRMA recreational facilities would be similar to those proposed under the Proposed Plan but with additional facilities to enhance motorized use of the White Wash Sand Dunes. No recreational focus areas would be managed except for the above-mentioned 57,875-acre specialized (motorized) area at Dee Pass and a 3,064-acre Open OHV area at White Wash Sand Dunes.

The impacts on recreation under this alternative would be similar to those discussed under Alternative A. While designating an SRMA for motorized recreation and managing motorized recreational use focus areas would reduce potential recreational resource use conflicts to some degree, the current conditions and trends toward adverse, long-term resource use conflicts between other recreational activities and user groups within the area would remain as cross country OHV use would continue in this area. Managing for motorized OHV use on designated trails and open OHV riding on the sand dunes would create opportunities for a sense of adventure, exploration, and excitement, with the likelihood of improvements in ATV-riding skills, a sense of freedom from urban living, and group enjoyment of the outdoors. Compared to

Alternative A, the increased number of proposed recreational facilities under this alternative would provide a greater degree of resource protection and preservation.

4.3.10.2.10.7 Lower Gray Canyon SRMA

Alternative A

Under this alternative prescriptions from the Desolation-Gray Canyons Management Plan would be brought forward. Current conditions and trends would continue, which include heavy recreational river use along Lower Gray Canyon. The area would continue to be managed for recreational river use with commercial and private river use stipulations. River use would remain set at a maximum carrying capacity of a total of 35,000 passenger-days per year, which balances recreational use of the river with resource protection. Minerals development would not be allowed within the river corridor, and motorized travel on the river would be regulated to preserve river resources. These prescriptions would continue to have a long-term, beneficial impact on non-motorized recreation within the Lower Gray Canyon area, because the current Desolation-Gray Plan would continue to protect recreation resources and river use by limiting or prohibiting motorized boat travel; seeking to acquire private land within the river corridor in order to protect the river corridor; establishing daily launch limits of 6 groups/day and group size limits of 25 persons; and managing waste within the river and along the river corridor (BLM 1979).

Alternative B

Alternative B prescriptions would establish the Lower Gray Canyon as a 3,759-acre SRMA in coordination with the Price FO. The SRMA would be managed in accordance with the Desolation-Gray Canyons Management Plan, with the same group size and number limitations, and with the same resource protection prescriptions as discussed under Alternative A. The Desolation-Gray Plan would maintain opportunities for scenic river recreation on the Green River and opportunities for quality camping, hiking, and horseback riding within the river corridor. Prescriptions proposed under Alternative B would manage the existing riverside trails for non-mechanized recreational use, and vehicle camping would be limited to designated sites.

The impacts of these management decisions would be beneficial in the long-term on recreation resources within the proposed SRMA, because the area would continue to be managed under the protection of the Desolation-Gray Plan prescriptions with additional beneficial prescriptions to provide riverside recreational opportunities. By maintaining recreation resources and opportunities within the SRMA, the MFO's targeted outcomes of beneficial visitor experiences would likely be met. These individual experiences would potentially include improvements in outdoor recreation skills from easy access to natural landscapes, strengthened family ties and friendships from group activities such as river floating and camping, and maintenance of mental health and reduction of mental stress from enjoyment of an uncrowded natural environment. Compared to Alternative A, Alternative B would have more beneficial impacts on recreation, because the alternative would expand the recreational opportunities within the proposed SRMA while continuing to protect resource values and current recreational opportunities.

Proposed Plan

The impacts of the prescriptions under this alternative would be similar to those discussed under Alternative B, because the prescriptions would be the same.

Alternative D

Under Alternative D the Lower Gray Canyon SRMA would not be established, but the Desolation-Gray Plan would be used to manage river use. The impacts to recreation would be similar to, but more protective of, river resources and opportunities than under Alternative A, because controlled surface-use leasing stipulations would also be applied to limit river corridor surface disturbances, with beneficial impacts for the recreation user.

4.3.10.2.10.8 Sand Flats SRMA

Alternative A

This alternative would apply decisions found in the current Sand Flats Management Plan. These include 1) a cooperative agreement with Grand County in which the county would be authorized to collect fees and participate in the operational management of the area; 2) limiting motorized OHV and mountain biking travel to designated road and trails; 3) provisions for fee uses; 4) campground development; and 5) development of camping, parking, and sanitation facilities. Management of the area would also include prescriptions for visitor protection, development of an entrance station, and information services. Camping would be limited to designated sites, and wood gathering and collecting would be prohibited.

While the prescriptions under the current Plan would, in the short term, beneficially address the need for recreational facilities in the area and control recreation-related surface disturbances, the long-term impacts to recreation resources and user groups would likely be adverse in that the prescriptions in the current RMP would not adequately address the intensifying user conflicts, the rising demand for OHV opportunities, the increasing number of visitors to the MPA, and the potentially adverse impacts that more visitors would have on the area's recreation resources. The lack of an adaptive-management plan for the area would, in the long term, have adverse impacts on the recreational experience and on user satisfaction because of over-crowding and resource use conflicts between mountain biking and motorized OHV user groups that would share the same travel routes.

Alternative B

Alternative B would establish the 6,246-acre Sand Flats SRMA with 20 miles of designated routes. The prescriptions would be the same as those discussed under Alternative A, except that the Slickrock Bike Trail would be closed to all motorized users. The SRMA would be managed for a range of opportunities, including mountain biking on the Slickrock Trail, OHV challenge routes, and camping. No Surface Occupancy leasing stipulations would be applied to protect scenic and recreation values.

Prohibiting motorized OHV use of the Slickrock Trail would reduce the recreational opportunities of this group and would have long-term, adverse impacts on this group. Mountain bikers would enjoy beneficial impacts, including increased safety on the trail and reduced potential for resource-use conflicts and user displacement by motorized OHV users. Mountain bike users would benefit most from prohibitions on motorized use of the trail.

Beneficial impacts would also be produced through preservation and protection of scenic quality and other recreation values within the SRMA. The maintenance of recreational opportunities and resources within the proposed SRMA would also increase the likelihood of visitor-beneficial experiences that include physical challenges that could heighten the sense of adventure while

improving outdoor skills, a greater sense of freedom from urban living, and strengthening family bonds and friendships by sharing outdoor experiences. Compared to Alternative A, this alternative would have more beneficial impacts because surface disturbance would be precluded, providing greater resource protection, a potential reduction in resource-use conflicts, and increased safety within the SRMA.

Proposed Plan

The Proposed Plan would apply similar prescriptions to Sand Flats as does Alternative B, except that while the Slickrock Trail would be closed to ATV and four-wheeled vehicles for safety purposes, OHV motorcycles would be permitted on the trail. This alternative would also designate 23 miles of routes within the SRMA. The prescriptions would have impacts similar to Alternative B except that 1) the long-term, adverse impacts on some motorized users would be reduced because of expanded motorized (OHV motorcycle) opportunities; 2) the benefits to mountain bikers would be reduced by increased potential for user conflicts with and displacement by motorcycles; and 3) the level of safety along the Slickrock Trail would be diminished because of the combined motorized and mountain biking uses. Compared to Alternative A, the impacts of this alternative on recreation resources and user groups would be more beneficial, because the prescriptions would provide greater protection to resource values by precluding surface disturbance and provide higher quality recreational opportunities than Alternative A provides.

Alternative D

Alternative D would have the same prescriptions as in the Proposed Plan except that a Slickrock Trail mountain bike free-ride area would be established. Also, Controlled Surface Use stipulations would be applied to oil and gas leasing and other surface-disturbing activities to limit these kinds of impacts to scenic values. The impacts of this alternative on recreation would be similar to those discussed under the Proposed Plan, except that there would be more recreational opportunities that would benefit mountain bike users than under Alternative A from designation of the Slickrock mountain bike free-ride area.

4.3.10.2.10.9 South Moab SRMA

Alternative A

Under this alternative the Mill Creek Canyon hiking trailhead, the Ken's Lake recreation site, the Hidden Valley trailhead, and the Blue Hill trailhead would be managed as recreation sites. The Mill Creek trail, the Ken's Lake trail system, the Hidden Valley trail, the Steelbender/Flat Pass OHV/mountain bike route, the Behind the Rocks OHV route, the Strike Ravine OHV route, and the Kane Creek Canyon Rim OHV/mountain bike route would be managed as recreation trails. Camping would be limited to designated sites, with camping prohibitions on the west side of Spanish Valley and in Mill Creek.

The impacts to recreation resources and to motorized, mountain biking, and non-mechanized user groups under this alternative would be adverse in the long term, because continuation of current prescriptions under this alternative, without specific prescriptions that respond to resource impacts and recreation needs, would be inadequate. As discussed in Section 3.10.2, current conditions within the area include increasing resource use conflicts and non-motorized user displacement; a demand for more recreation facilities; heightened visitor use and recreation

resource use; adverse impacts to undeveloped camping sites; and increasing resource degradation. These use conflicts, lack of adequate facilities, and resource degradation would continue to occur.

Alternative B

Alternative B would establish the 63,999-acre South Moab Destination SRMA, with the same prescriptions as in Alternative A with the following exceptions:

- Recreation focus areas would be managed to provide opportunities for scenic driving along a one-mile-wide corridor that follows the LaSal Mountain Loop Road.
- Mill Creek Canyon, Behind the Rocks, and Hidden Valley Trail would be managed as non-mechanized focus areas (34,486 acres).
- Upper Spanish Valley would be managed as a mountain biking backcountry touring (2,255 aces) focus area.
- Potato Salad Hill would not be managed as a specialized (motorized) focus area.
- Mountain biking speed-events would be managed in the Twenty Four Hours of Moab specialized (non-motorized) focus area (2,905 acres).
- Additional emphasis would be placed on resource protection in the Ken's Lake area during development of a management plan for the area.
- New mountain biking and non-mechanized trails would be established.
- Existing trails would be extended in cooperation with municipal, state, and county agencies, and with private landowners.

The impacts on recreation from these prescriptions would be beneficial in the long term, because the establishment of the area as an SRMA and the management of recreation focus areas would increase the likelihood for satisfying scenic driving, mountain biking, and non-mechanized recreation by expanding opportunities and reducing the potential for recreation resource-use conflicts and user group displacement. The creation and extension of hiking and equestrian trails and biking lanes would beneficially expand the recreation opportunities for these users. Management plan prescriptions for the SRMA would protect the recreational resources for all users of the area. Specialized recreation (motorized OHV) groups would be adversely impacted in the long term, because the Potato Salad Hill route would be closed to motorized travel, resulting in a loss of opportunities for challenging OHV hill climbing.

Maintaining resource values and expanding recreational opportunities for non-motorized use under this alternative would increase the likelihood that individuals would have beneficial experiences that include enjoyable physical exercise and an improved capacity for recreational activities through easy access to the area's natural landscapes, improved outdoor knowledge and outdoor skills development, heightened self-confidence, and developing a greater sense of outdoor independence. Compared to Alternative A, Alternative B would be more beneficial, because it would more effectively address the recreation resource-use concerns associated with increased visitation, resource-use conflicts, and recreation resource degradation, while also providing more recreational opportunities than Alternative A.

Proposed Plan

The prescriptions under the Proposed Plan would be similar to those discussed under Alternative B, except for the following: 1) additional resource protection in the Ken's Lake area would not be emphasized during recreation plan development; 2) the LaSal scenic driving focus area would have a corridor width of 1/2 mile; and 3) a 41-acre specialized (motorized) hill-climbing focus area would be managed at Potato Salad Hill.

The impacts to recreational opportunities for scenic, mountain biking, non-mechanized, and specialized motorized OHV users would be beneficial in the long term. These include expanded or maintained opportunities for these groups with the reduced potential for user-conflicts and displacement and the protection of recreation resources under the SRMA plan. Compared to Alternative A, this alternative would be more beneficial for the same reasons as discussed under Alternative B.

Alternative D

No South Moab SRMA would be established under this alternative. The prescriptions and impacts to recreation resources and user groups would be similar to those discussed under Alternative A.

4.3.10.2.10.10 Two Rivers SRMA

Alternative A

Alternative A would continue to manage the Colorado and Dolores Rivers under existing river management programs, which focus on providing facilities and regulating commercial and private river use. Under this alternative, boating management would be a continuation of current prescriptions, including promoting safe and enjoyable river use while permitting 30 commercial outfitters and up to 24,000 passenger-days per year. The impacts of this alternative would be beneficial on river recreation and use in the short-term because management would be adequate for current levels of use. However, as demand increases for recreational use of the rivers (as recreational-use trends suggest [see Section 3.10.1.4]), resource-use conflicts and impacts to resources would likely increase, with long-term, adverse impacts on river resources and river running opportunities, particularly along river stretches that lie outside the proposed SRMA.

Alternative B

Alternative B would establish the 29,839-acre Two Rivers Destination SRMA, with the management objective to continue to provide high-quality river-related recreational opportunities on the Colorado and Dolores Rivers for river running and boating, hiking, and camping, and to protect outstanding river resource values. Group-size and daily launch limits would vary, depending on the type of boating recreational opportunities for which a particular river segment would be managed (see Table 4.79, SRMA Recreation Summary Table). The SRMA boating recreational opportunities would range from primitive, remote, and challenging whitewater river-running to scenic whitewater and flat water boating. A non-mechanized recreation focus area (23,479 acres) would be managed for river use and shoreline hiking within Westwater Canyon.

Under this alternative, additional public lands would be acquired for construction of additional facilities that would include river takeouts, parking and launch facilities, additional camping sites and additional access to camping sites. Prescriptions that would expand the number of facilities

for recreational camping and boating would beneficially enhance the river experience for river floating and non-mechanized users. Prescriptions limiting the number of river permits and the size of permitted groups could adversely impact the river floating user group in the short term by potentially denying permits to those seeking to have a river experience. However, these prescriptions would provide long-term opportunities for satisfying recreational boating, shoreline hiking, and river floating experiences by beneficially dispersing river users and thus creating conditions of solitude, quiet, and a sense of naturalness. Managing the area for high-quality river-running, hiking, and camping would allow visitors to develop a closer relationship with the natural world by having satisfying recreational experiences. Being able to escape from crowds and from urban environments would allow visitors to maintain mental health, reduce stress, and encourage the development of a more outdoor-oriented lifestyle.

Compared to Alternative A, Alternative B would be more beneficial to recreation users because of the reduced likelihood for use conflicts under the Alternative B permitting system. More river resource protection prescriptions would be applied, and more recreational facilities would be provided to enhance the river experience.

Proposed Plan

Under the Proposed Plan the boating management prescriptions would be similar to those in Alternative B, except that: 1) a proposed take-out facility at the Westwater Ranger Station would be developed separately from the existing station launch facility in order to reduce congestion at the ranger station and 2) permitted group size and daily launch limits would be greater than under Alternative B (i.e., group sizes would be nine persons greater, and launch limits would allow more individuals per day [see Table 4.79]). The impacts to river floating and non-mechanized groups would be similar to but more beneficial than those discussed under Alternative B, because more opportunities would be available to have a river experience. The Proposed Plan would be more beneficial to recreation users than Alternative A for the same reasons as discussed under Alternative B.

Alternative D

Alternative D would manage the Two Rivers area as a 14,056-acre Destination SRMA to provide opportunities for high-quality boating and camping. Boating prescriptions would be the same as those in the Proposed Plan except that the permitted group size would be increased by seven persons, and daily launch limits would allow more people per day to access each river sector. The number and type of proposed facilities would be the same as discussed under the Proposed Plan, but a non-mechanized river focus area would not be established. The impacts of this alternative on recreation would be both adverse and beneficial in the long term. Adverse impacts to those seeking a quality boating experience would be produced by expanding the maximum group size and number of permits for river segments within the SRMA, which would potentially reduce the river opportunities for those users who seek a less-crowded river experience. Beneficial impacts would be similar to those discussed under the Proposed Plan, but to a lesser degree, because no focus area-related recreation opportunities for river use and hiking would be proposed under this alternative, and, therefore, there would be long-term, adverse impacts on opportunities for a river/shoreline hiking experience. This alternative would be more beneficial than Alternative A for the reasons discussed under the Proposed Plan.

4.3.10.2.10.11 Utah Rims SRMA

Alternative A

Under Alternative A the Utah Rims area would continue to be managed under the current, and limited, recreation management program for the area. Prescriptions would include limiting travel to existing routes, managing Kokopelli's Trail for recreational use, managing the Bitter Creek campsite for camping, and managing Utah Rims for general recreation. The impacts of this alternative on the Utah Rims area would be adverse in the long term from the limited prescriptions that would not adequately address the adverse impacts to recreation resources from OHV use (e.g., surface disturbances to wildlife and range habitat, cultural resources, noise impacts to non-motorized users). The Alternative A prescriptions would not address resource use conflicts between OHV, mountain biking users, and non-mechanized groups, which would have adverse impacts on non-mechanized and mountain biking group recreational opportunities from OHV noise, incompatible trail use, and from user displacement by motorized users.

Alternative B

Under Alternative B Utah Rims would be managed as a 15,424-acre Community SRMA, with management goals to protect resource values while providing sustainable recreational opportunities for motorized and mountain biking scenic trail use, designated camping, and equestrian opportunities. Motorized and mountain biking travel would be limited to designated routes; a staging area would be developed for OHV group access to the trail system; limited camping facilities would be provided; and competitive, motorized events would be prohibited in order to maintain the area's single-track character. A separation of single-track use by time period would be considered. No new recreational routes would be established under this alternative.

The impacts of this alternative on recreation would be beneficial in the long term for several reasons: 1) OHV-caused impacts to recreation resources would be reduced by limiting travel to designated routes; 2) the addition of facilities such as OHV staging areas and campsites would beneficially enhance the recreational experiences for motorized users by responding to this group's demand for more facilities; and 3) separating types of single-track use by time period would potentially reduce resource use conflicts. Managing the SRMA to enhance recreational experiences and expand the opportunities for motorized and non-motorized groups would have individual benefits for the area's visitors, including opportunities to enjoy strenuous physical exercise, improve outdoor skills and abilities, reduce physical and mental stress through escape from crowds and urban environments, and gain a greater sense of adventure by participating in challenging and enjoyable mechanized and non-mechanized recreational activities.

Compared to Alternative A, this alternative would have more long-term, beneficial impacts on recreation for several reasons: 1) it proposes a greater expansion of recreational opportunities for motorized and mountain biking resource users; 2) it proposes more recreational facilities to support the proposed SRMA trail system; 3) it would address OHV-caused impacts to recreation resources by controlling cross country travel; and 4) it would address resource-use conflicts and displacement concerns.

Proposed Plan

The Proposed Plan prescriptions would be similar to those discussed under Alternative B; except that 1) the trail system would be expanded through acquisition of trail access across non-Federal lands; and 2) single-track routes would be added to the trail system upon adoption of the Travel Plan accompanying this RMP.

The impacts on recreation resources and user groups would be similar to, but more beneficial than, those discussed under Alternative B, because more opportunities for trail riding would be available from expansion of the trail system within the SRMA. The impacts of this alternative, when compared to Alternative A, would be similar to those discussed under Alternative B, because the prescriptions are similar (although no new motorized routes would be established in Alternative B).

Alternative D

Alternative D would not establish a Utah Rims SRMA, so the impacts would be similar to those discussed under Alternative A, but to a great degree, because user conflict could increase.

4.3.10.2.10.12 Moab ERMA

Under management common to the action alternatives, a management plan would be developed for the Moab ERMA to provide recreational management guidance for addressing changes in user demand and conditions. Facilities would be constructed, as needed, within the ERMA to ensure visitor safety, reduce user group conflicts, and protect resources. These prescriptions would be beneficial to all user groups and to ERMA recreational resources by protecting the areas' recreational resources, maintaining recreational opportunities, and managing the area to meet visitor demands.

Alternative A

Consistent with the current RMP, Alternative A would continue current prescriptions to improve recreation sites and areas within the ERMA to balance the demand for recreational opportunities with protection of resources. The Kokopelli's Trail would be managed as a multi-day mountain bike and vehicle route with associated camping areas. The impacts of this alternative on motorized OHV and mountain biking groups would be adverse in the long term because current user conflicts along the Kokopelli's Trail would continue and most likely would intensify as increasing numbers of visitors use the trail for mountain biking and motorized use.

Alternative B

The MFO's targeted recreation management goals for the ERMA would be backcountry touring, and primitive hiking, backpacking, and equestrian use. Alternative B would manage 335,457 acres within the Bookcliffs area as an SRMA for non-mechanized recreation; the Sego Rock Art area would be managed for day-use (and provide a recreational opportunity to scenic drivers) and additional acquisition of adjacent land would be considered to expand this cultural/recreational interpretive site. Kokopelli's Trail would continue to be managed as a mountain biking and vehicle route with camping areas, and facilities would be developed at Lost Spring Canyon. Information boards would be installed along Interstate 70 main exits to inform visitors of such amenities. Current prescriptions would be followed to make improvements to sites and areas as

necessary, and to manage the ERMA for very low visitation and provide a custodial-level of management for recreational use.

Except for the long-term, adverse impacts to the Kokopelli's Trail from use conflicts (the prescriptions for the trail would be the same as Alternative A), the impacts of prescriptions under this alternative would be beneficial in the long term because developing additional recreational facilities and additional recreational opportunities for motorized and non-motorized recreation would alleviate potential resource-use conflicts and demands within the proposed SRMAs.

Compared to Alternative A, this alternative would be more beneficial to recreation users because it would continue to follow current prescriptions for the ERMA, as well as expand recreational opportunities and potentially enhance recreation experiences through informal recreation focus areas and facilities development. Visitor benefits from recreation in the ERMA would include opportunities to improve outdoor skills, maintain mental and physical health, and explore and experience a sense of adventure in remote, backcountry locales.

Proposed Plan

The Proposed Plan would have prescriptions similar to Alternative B, except that the Upper Fisher Mesa would be managed as a 1,365-acre area emphasizing mountain biking. The impacts on recreation resources and user groups would be similar to Alternative B, but more beneficial, as there would be more opportunities for mountain bikers under this alternative than under Alternative B.

Compared to Alternative A, the Proposed Plan would have impacts similar to Alternative B because the prescriptions are similar. However, the acreage of ERMA in the Proposed Plan is greater than that in Alternative B, so recreation management in the Proposed Plan is lessened.

Alternative D

Alternative D would have the same prescriptions as the Proposed Plan. The impacts would be similar to those discussed under the Proposed Plan except to a lesser degree because of the decreased number of acres within SRMAs. The impacts of this alternative, when compared to Alternative A, would be similar to those discussed under the Proposed Plan, but to a lesser degree.

4.3.10.2.10.13 Special Recreation Permits

Alternative A

Alternative A would continue current management for special recreation permits, including competitive and non-competitive OHV events. The prescriptions under this alternative would have beneficial long-term impacts on recreation by protecting recreation resources through permit stipulations while providing recreational opportunities for motorized tour groups, non-mechanized (horseback) groups, hunters, commercial outdoor education (survival school) groups, and other commercial and private enterprises, and managing and protecting recreation resources. These stipulations protect resources and help provide a quality recreation experience.

Alternative B

The prescriptions under this alternative would be similar to those discussed under Alternative A, but with more specific stipulations for protecting natural and cultural resources. For example,

permits would be required for all groups with 15 or more vehicles. Alternative B would have beneficial impacts similar to those discussed under Alternative A, but to a greater degree, because of the resource protection and preservation-related stipulations that would be associated with the issuance of special recreation permits. The stipulation that mandates a special recreation permit at 15 vehicles would beneficially impact user experiences because group size encounters would be smaller.

Proposed Plan

The prescriptions under this alternative would be similar to those discussed under Alternative B, except that permits would be required for all groups with 25 or more vehicles. The Proposed Plan impacts, when compared to Alternative A, would be similar to Alternative B because the group size of 25 is closer to the group size of 15 (Alternative B) than that of Alternative A (group size of 50).

Alternative D

Alternative D would have the same prescriptions as Alternative B, except that permits would be required for groups with 50 or more vehicles. This alternative would have similar impacts on recreation as discussed under the Proposed Plan, but to a lesser beneficial degree, because recreation and other resources would receive less protection (given the larger group size) under the special recreation permit process. In the short-term, this alternative's emphasis on providing more recreational opportunities to larger groups would have beneficial impacts (because permits would not be required until the threshold of 50 vehicles is reached) on all private user groups that require permits; however, the long-term impacts would be adverse because of the increased likelihood for recreation resource degradation and loss of recreation values. Compared to Alternative A, this alternative would be more beneficial in terms of reducing user conflict and protecting resources because there would be more protection and preservation-related stipulations on cultural and natural resources while still managing for support of the local economy.

4.3.10.2.11 Impacts of Riparian Decisions on Recreation Resources

Under all of the alternatives, riparian resource prescriptions would control recreational use, where necessary, and manage camping in riparian areas to reduce vegetation disturbances, in compliance with the MFO's Recreation Rules regarding dispersed camping (Appendix E) and The Guidelines for Recreation Management for BLM Lands in Utah (Appendix R). The recreation rules and guidelines stipulate that camping within riparian areas would be restricted if it was determined that the camping areas were becoming degraded, or camping would be reduced in order to minimize vegetation and sedimentation impacts. Restricting riparian dispersed camping areas would reduce recreational opportunities and have short-term, adverse impacts on users seeking this recreational activity, but the impacts would be beneficial in the long term as these areas would be managed to preserve the recreational resources within riparian areas for wildlife viewing, hiking, and sightseeing.

4.3.10.2.11.1 Alternative A

Under Alternative A, the riparian prescriptions discussed for management common to all alternatives would impact recreational opportunities while preserving the riparian resource. Additionally, current trends and conditions under this alternative would have indirect impacts on

recreational opportunities: the current adverse impacts on riparian resources from OHV use, camping, trail erosion, livestock grazing, and exotic species encroachment (see Section 3.11.5.1) would continue to degrade riparian resources and would, in time, degrade recreational opportunities for wildlife viewing and sightseeing from the loss of riparian habitat. Scenic quality would be degraded and the risks of wildland fire in riparian areas would increase (with an associated increased risk of scenic quality degradation) from the invasion and establishment of exotic species. Livestock grazing in riparian areas could degrade such areas, reducing recreational opportunities for wildlife viewing, sightseeing, photography, day hiking, and camping for motorized OHV, mountain biking, and non-motorized recreational users.

4.3.10.2.11.2 Alternative B

Grazing prescriptions under Alternative B and riparian management common to all action alternatives would, where necessary, control livestock access to riparian habitat, restrict surface-disturbing activities within riparian areas and floodplains, and restore at-risk or non-functioning riparian areas, which would improve riparian conditions and beneficially enhance riparian recreational opportunities in the long term by improving recreation resources. Control of recreation in riparian habitat would be adverse in the long term for some potential surface-disturbing recreational opportunities, such as OHV use, because these activities would be reduced. However, prescriptions to reduce impacts to riparian resources would have long-term, beneficial impacts on other recreational opportunities and experiences (e.g., day hiking, equestrian, wildlife viewing, photography, and day camping) because of improvements to riparian resources. Compared to Alternative A, this alternative would be more beneficial to recreation users because it would apply more prescriptions to preserve and improve riparian recreational resources.

4.3.10.2.11.3 Proposed Plan

The impacts on recreation under this alternative would be similar to those discussed under Alternative B because the prescriptions concerning recreation use would be similar.

4.3.10.2.11.4 Alternative D

Impacts on recreation resources and opportunities under this alternative would be similar to Alternative B because prescriptions under management common to all action alternatives would manage riparian recreation resources for preservation, enhancement, and restoration.

4.3.10.2.12 Impacts of Soils/Watershed Decisions on Recreation Resources

4.3.10.2.12.1 Alternative A

The impacts of Alternative A on recreation would be negligible because either there are no specific soils prescriptions or they address grazing/saline soil concerns that would not impact recreational opportunities or resource uses.

4.3.10.2.12.2 Alternative B

Alternative B would have long-term, beneficial impacts on recreation from the closing of the Castle Valley and Mill Creek-Spanish Valley watersheds to all surface-disturbing activities, including oil and gas leasing and development. This would maintain recreation-related scenic

quality in Castle Valley for sightseers and those touring the valley on the LaSal Mountain Scenic Byway, and for those participating in recreational activities in areas that have views of the valley. Steep slope areas (>30%) would also be restricted, with no surface-disturbing activities allowed, with resultant decreases in soil erosion and scenic quality degradation. Compared to Alternative A, this alternative would be more beneficial to recreation because prescriptions would maintain recreation-related scenic quality.

4.3.10.2.12.3 Proposed Plan

The impacts would be similar to those discussed under Alternative B because the prescriptions are similar, except that the Castle Valley and Mill Creek-Spanish Valley watersheds would be no surface occupancy.

Soils and riparian decisions reduce motorized access to sensitive soil and riparian areas, impacting motorized users, but to a lesser degree than Alternative B (see Appendix G.)

4.3.10.2.12.4 Alternative D

The impacts would be similar to those discussed under Alternative B, except that surface-disturbance stipulations would not be applied to the Castle Valley and Mill Creek-Spanish Valley watersheds. This would result in possible degradation to the recreation-related scenic quality.

Soils and riparian decisions reduce motorized access to sensitive soil and riparian areas, impacting motorized users, but to a lesser degree than Alternative B and the Proposed Plan (see Appendix G.)

4.3.10.2.13 Impacts of Special Designation Decisions on Recreation Resources

4.3.10.2.13.1 ACECs

Alternative A

Under Alternative A, no ACECs would be designated within the MPA. Thus, restrictions to protect recreation-related values would not be applied in this alternative. Therefore, these areas would be available for development, which would have adverse impacts on recreation resources as scenic quality could be diminished.

Under this alternative, the Ten Mile Wash area would be open to competitive motorized events, and the White Wash area would be open to competitive motorized events and cross-country OHV travel. This would continue to benefit motorized recreation users because the recreational opportunities for specialized and motorized OHV recreation groups would be maintained. The impacts on non-motorized users would continue to be adverse, because of the impacts of cross country travel on scenic resources (see Section 3.10.1.2.7).

Alternative B

Under Alternative B, approximately 610,086 acres would be designated as ACECs within the MPA for protection of relevant and important values that include cultural resources, paleontological resources, scenic quality, fish and wildlife, sensitive or endangered species, riparian resources and watersheds, and/or mitigation of wildland fire hazards.

Under this alternative, NSO minerals leasing stipulations would be applied to all ACECs, which would limit or prohibit surface-disturbance impacts to recreation resources, and have long-term, beneficial impacts on recreation because resources and opportunities would be preserved.

Vehicle-based, designated camping restrictions would be applied to the Behind the Rocks, Highway 279/Shafer Basin/Long Canyon, Colorado River Corridor, Upper Courthouse, Ten Mile Wash, and White Wash ACECs. Management of Canyon Rims would be consistent with the Canyon Rims Recreation Area Plan, and the Colorado River Corridor, Mill Creek, and Upper Courthouse Wash ACECs would be managed consistent with the SRMA prescriptions proposed for these areas. These actions, by managing ACECs through recreation plans and limiting vehicle surface disturbances, would tend to preserve recreation resources and provide a range of long-term recreational opportunities that would benefit recreation.

In the proposed Ten Mile Wash ACEC, no vehicular travel would be allowed from Dripping Springs to Green River, OHV competitive events would be prohibited in the White Wash and the Cottonwood-Diamond Watershed Potential ACECs. Also, commercial guiding or special group permits would be suspended within the Cottonwood-Diamond Watershed Potential ACEC. These prescriptions would restrict and/or prohibit motorized OHV, mountain biking, and specialized recreational use, which would have long-term, adverse impacts on opportunities for these recreational user groups. However, the emphasis on cultural resource interpretive rock art viewing along Wall Street in the Highway 279/Shafer Basin/Long Canyon ACEC, and proposed hiking trail construction in the Wilson Arch ACEC would beneficially expand the recreational opportunities for scenic driving, mountain biking, and non-mechanized recreational user groups in these areas.

Compared to Alternative A, Alternative B would be more beneficial for recreation because ACEC prescriptions would maintain recreation resources, limit surface disturbances, and, through SRMA-related management of these areas, provide a greater range of recreational opportunities for all resource user groups.

Proposed Plan

Under the Proposed Plan, approximately 63,232 acres would be designated as ACECs for preservation of relevant and important values (11% of the area proposed under Alternative B). More area would be open to oil and gas leasing, geophysical exploration, and salable minerals disposal than Alternative B, but less than Alternative A (see 4.3.10.2.7 above).

In areas proposed for ACEC designation under this alternative, and in non-ACEC proposed areas, recreation-related prescriptions would be similar to those discussed under Alternative B. Prescriptions that differ from Alternative B, because these areas are not proposed for ACEC designation under this alternative, and would affect recreation under this alternative include the following:

Bookcliffs – Standard and timing and controlled surface use minerals leasing stipulations would be applied on approximately 54,174 acres within the Bookcliffs area (there would be no proposed ACEC designation under this alternative) with permitted minerals-related surface-disturbances that could impact recreation-related scenic quality in the long term. The impacts on recreation resource users would be adverse, as approximately 1,563 acres of surface disturbances from oil and gas development are predicted within the Bookcliffs RFD Area during the 15-year life of the Plan.

Canyon Rims – Standard and timing and controlled surface use leasing stipulations would be applied to approximately 23,400 acres (the area proposed as an ACEC under Alternative B). Permits would be required for motorized recreational use, if monitoring indicates long-term damage to resources, and permits would be required for groups using more than 25 vehicles. Competitive events would be prohibited. Prescriptions for the Canyon Rims area would permit minerals-related surface disturbances within the area, with subsequent long-term, adverse impacts on recreation resources and on the recreational experiences and opportunities for all user groups that recreate in the area. Adaptive-management monitoring and permitting of motorized recreational use would reduce these potentially adverse impacts to non-motorized recreational user groups by limiting user conflicts. Prohibitions on competitive events would limit the opportunities for specialized recreational use, with long-term, adverse impacts on the specialized, motorized, and mountain biking user groups.

White Wash – Competitive motorized events would be allowed. This prescription would expand the recreational opportunities for specialized recreation in this OHV recreational focus area, with beneficial long-term impacts on specialized and motorized users.

Compared to Alternative A, the Proposed Plan would be more beneficial for recreation resources and users because the area open to oil and gas development surface disturbances would be less than Alternative A, and the range of recreational opportunities would be maintained or expanded.

Alternative D

Alternative D would not designate any ACECs for the protection of relevant and important resources values. Thus, restrictions to protect these values would not be applied in this alternative. Therefore, these areas would be available for development; this would have adverse impacts on recreation resources, similar to Alternative A.

4.3.10.2.13.2 Wild and Scenic Rivers

Alternative A

Under this alternative, no suitability determinations would be made for any eligible river segment within the MPA. Under the 1985 RMP, segments 1, 2, and 3 along the Colorado River and all Dolores River segments, with a total length of 46 river miles, were determined to possess ORVs and be eligible for suitability determinations. The impacts to recreation resources and users along the eligible Colorado and Dolores river segments would be negligible because they have been and would continue to be managed to prevent changes to their character (up to 1/4 mile on each side of the eligible river segments) until suitability determinations were made by the MFO. The impacts to recreation resources along the remaining river corridors within the MPA could be minimal because these river corridors would be protected from surface disturbances on a case-by-case basis until a suitability determination is made.

Alternative B

Under Alternative B, 28 river segments (totaling 287.5 river miles) would be recommended as suitable for Wild, Scenic, or Recreational classification under the National Wild and Scenic Rivers System (NWSRS). Those segments recommended as suitable for Wild classification would be managed under VRM Class I objectives; Scenic and Recreational-recommended segments would be managed under VRM Class II objectives. These VRM classes would protect scenic values. The impacts to recreation would be beneficial in the long term because recreation

resources would be preserved along these river corridors, surface disturbances would be limited to VRM Class II objectives, and recreational opportunities would be available to all user groups along the river corridors. Compared to Alternative A, this alternative would be more beneficial to recreation because more river miles would be preserved for their scenic, recreational, and wild qualities (6 times more river miles than Alternative A) while managing for a range of recreational opportunities, including boating and sightseeing, within these Wild and Scenic River corridors.

Proposed Plan

This alternative would recommend 127.3 river miles (10 river segments) as suitable for Wild, Scenic, or Recreational classification. The impacts on recreation within river segments recommended as suitable would be beneficial, because VRM Class I and Class II objectives would be applied as discussed under Alternative B. Compared to Alternative D, this alternative would be more beneficial to recreation for similar reasons as discussed under Alternative B. However, because Alternative A would continue to protect all of the eligible rivers on a case-by-case basis, it may not be as protective as A.

Alternative D

Alternative D would not recommend any eligible river segments as suitable. The river segments would not be managed to protect ORVs or their free-flowing conditions, with impacts similar to those discussed under Alternative A. Compared to Alternative A, this alternative would have more long-term, adverse impacts on river-related recreational opportunities and experiences because the recreation resource would receive less protection, be potentially open to more surface disturbances, and be less likely to satisfy the recreational expectations of river users.

4.3.10.2.13.3 Wilderness Study Areas (WSAs)

BLM has no discretion to manage WSAs through planning, with the exception of decisions relating to VRM designation and motorized vehicle use (closing ways or limiting use to ways that were identified in the WSA). Under management common to all alternatives, Wilderness Study Areas (WSAs) would continue to be managed consistent with the Interim Management Policy for Lands Under Wilderness Review (IMP).

Alternative A

The MFO currently manages WSAs to preserve their wilderness values under VRM Class I objectives. The impacts on recreation resources and on opportunities for all resource user groups from continuing to manage these areas to preserve their wilderness characteristics would continue to be beneficial in the long term because the areas have been and would continue to be managed so that their wilderness suitability would not be impaired, but would still allow all recreational activities that would not degrade existing wilderness character. All inventoried routes within WSAs would be open to OHV use under Alternative A (except those in the Behind the Rocks WSA, which was closed to OHV in the Grand RMP), but the numbers of miles of routes designated in WSAs would be fewer under the action alternatives.

Alternatives B, D, and the Proposed Plan

The impacts on recreation resources within the WSAs under the action alternatives would be similar to those under Alternative A because the IMP would be applicable. However, managing

OHV vehicle use as either closed or limited to designated routes in WSAs under the action alternatives would reduce the opportunities for motorized recreation, with adverse impacts on this user group. The impacts on other user groups would be negligible because the range of opportunities would not change from current conditions. Compared to Alternative A, the action alternatives would have adverse, but minor, impacts on motorized recreational opportunities. because all inventoried routes within WSAs would be open to OHV use under Alternative A, but the numbers of miles of routes designated in WSAs would be fewer under the action alternatives. In Alternative B, no inventoried routes would be open to motorized or mechanized travel. In the Proposed Plan, 3.1 miles of route would be designated, and in Alternative D, 16 miles of route would be designated.

4.3.10.2.14 Impacts of Special Status Species Decisions on Recreation Resources

Actions common to all of the alternatives for managing special status species would have long-term, beneficial impacts on recreational opportunities and experiences for all user groups by continuing to protect special status wildlife and plant species for sightseeing and nature study. Restrictions due to special status species management could impact the ability of recreationists to engage in permitted activities, as routes or areas could be temporarily prohibited to protect special status species.

4.3.10.2.15 Impacts of Travel Management Decisions on Recreation Resources

4.3.10.2.15.1 OHV Travel

Alternative A

Under Alternative A, 620,212 acres would be open to cross-country OHV travel, 1,196,920 acres would continue to be designated as limited to designated and inventoried routes, and 24,454 acres would be closed to OHV travel. Managing OHV use under the current open designation would be beneficial for motorized OHV recreational users because cross-country OHV use would continue to provide long-term recreational opportunities for this resource user group. However, the surface disturbance impacts to soils, water quality, scenic quality, cultural resources, wildlife, and vegetation (all components of the recreational experience) would continue to adversely impact recreation in the long term in the area designated as open to OHV use. Other OHV impacts to recreation would include the impacts associated with OHV noise and the potential user conflicts and user displacement associated with OHV use. The long-term impacts of OHV prescriptions under this alternative on natural and cultural resources, and on hikers, backpackers, mountain bikers, and equestrians, would be adverse because, as discussed in Sections 3.10.2.6 and 3.10.2.7, OHV use within the MPA is increasing, with the likelihood that OHV-related resource and recreation user conflicts with non-motorized users would continue to intensify.

Under this alternative, 6,199 miles of maintained and un-maintained routes (B- and D-Class roads, respectively) would be designated for travel, but no miles would be designated for motorized, single-track use (i.e., motorcycles). The impacts on recreation would be negligible, as B- and D-Class routes are currently being used for recreation access. The impacts on motorcycle

recreation would also be negligible, as 99% of the MPA would remain either open or limited to designated and inventoried-route recreation and access.

There are 178.2 miles of route identified as having possible recreation conflicts.

Alternative B

Under Alternative B, no acres would be designated as open to cross-country OHV use, with all OHV travel (1,475,074 acres) limited to designated routes and 347,424 acres designated as closed to OHV travel. Site-specific route adjustments would be allowed, based on access needs and resource constraints, and routes would be closed or restricted if monitoring determines that OHV use was adversely impacting an area's natural character. The long-term impacts on recreation resources from these travel actions would be beneficial because the potentially adverse impacts to natural and cultural resources from cross-country OHV use would be eliminated by restricting this form of travel to designated routes (see Section 3.10.2.7 for a discussion of OHV impacts). The effects of OHV route designations on recreation resource users would be variable: scenic drivers, mountain biking, and specialized motorized recreation users would not be impacted as these user groups typically follow designated routes; motorized OHV users would be adversely impacted because the recreation-related travel opportunities for motorized users would be reduced; non-mechanized users would be beneficially impacted because restricting motorized users to designated routes and closing routes would reduce the likelihood of resource use conflicts between the two user groups.

Under this alternative, no miles would be designated for motorized, single-track use, with adverse impacts on this user group because no recreational opportunities would be available. Approximately 3,278 miles of B- and D-Class roads (56% of the miles of designated routes proposed under Alternative A) would be designated as travel routes.

Compared to Alternative A, this alternative would have more adverse impacts on those recreational opportunities associated with cross-country OHV and motorcycle use because these opportunities would be eliminated. However, this alternative would also have more beneficial impacts on recreation resources and on recreational user groups than Alternative A because: 1) resource use conflicts would more likely be reduced through management of OHV route designation and use, and 2) surface disturbance-related impacts to natural and cultural resources from cross-country OHV use would be greatly reduced.

There are 178.2 miles of designated routes with possible recreation conflicts. In Alternative B, 120.6 miles of these routes are not identified for travel.

Proposed Plan

The Proposed Plan would designate 1,866 acres as open for cross-country OHV use, 1,481,334 acres as limited to designated routes, and 339,298 acres as closed to OHV use. The impacts on recreation resources and user groups would be similar to those discussed under Alternative B because 1) the acreage designations are similar, with similar prescriptions, and 2) the open OHV area lies within a proposed Open OHV recreation focus area (1,866 acres within White Wash Sand Dunes) that would be managed for that activity.

This alternative would designate 123 miles of motorized (motorcycle), single-track routes. Approximately 3,653 miles of B- and D-Class roads (63% of route-miles designated under Alternative A) would be designated as travel routes. Single-track route designation would be

beneficial, in the long term, to motorized users as opportunities for this form of recreation would be available. The impacts to recreation-related travel along B- and D-Class roads would be similar to the impacts under Alternative B because the limitations on travel opportunities would be similar.

The impacts comparison between Alternative A and the Proposed Plan would be similar to the discussion under Alternative B, except that the adverse impacts to OHV recreation users would be reduced because the opportunities for cross-country OHV use, though limited, would be available. The impacts on motorcycle users would be more adverse because fewer opportunities would be available than under Alternative A.

There are 178.2 miles of designated routes with possible recreation conflicts. In the Proposed Plan, 59.8 miles of these routes are not identified for travel.

Alternative D

This alternative would manage 3,064 acres as open to cross-country OHV travel, 1,762,083 acres as limited to designated OHV routes, and 57,351 acres as closed to OHV travel. Under this alternative, the impacts on OHV recreation users would be beneficial because OHV recreational travel opportunities along designated routes would be available on approximately 97% of the MPA. The open OHV areas would have negligible impacts on recreation resources because the cross-country OHV areas would be within Open OHV and Specialized Motorized focus areas (the Dee Pass motorized trail area and White Wash Sand Dunes) that are currently being used as OHV play areas.

Alternative D would designate approximately 3,805 miles of B- and D-Class roads (66% of Alternative A), and 219 miles of motorized (motorcycle), single-track routes. The impacts would be similar to those discussed under the Proposed Plan, though to a more beneficial degree for motorized users, because more miles of single-track use (and opportunities for motorized recreation) would be available.

Compared to Alternative A, this alternative would have more beneficial recreational resource protection because less area would be open to cross-country OHV use. Because Alternative D would provide fewer opportunities for cross-country travel, the impacts on motorized OHV and motorcycle use would be more adverse than Alternative A, but more beneficial to non-motorized users by preserving scenic resources due to the lack of cross country OHV travel.

There are 178.2 miles of designated routes with possible recreation conflicts. In Alternative D, 29.7 miles of these routes are not identified for travel.

4.3.10.2.15.2 Mountain Biking

Alternative A

Under Alternative A, mountain biking would be allowed along the same OHV routes as motorized travel, with 4 miles of routes along the Jackson and Portal trails managed specifically for mountain biking travel. The impacts of these prescriptions on recreational mountain biking travel would be adverse in the long term because the actions do not address the current conditions within the MPA that indicate increasing recreation user conflicts, mountain biking user displacement, and recreational demand for mountain biking opportunities (see Sections 3.10.2.6 and 3.10.2.7). Without addressing these recreational concerns, recreational opportunities

and the likelihood of satisfying mountain biking experiences would be diminished in the long term.

Alternatives B, D, and the Proposed Plan

Under the action alternatives, additional miles of routes would be designed and managed for mountain biking trail use. The miles of proposed routes range from 75 miles under Alternative B and 150 miles under the Proposed Plan, to 300 miles under Alternative D. All of these alternatives would increase recreational opportunities for this user group and reduce resource user conflicts and user displacement by motorized OHV users from designating additional routes for mountain bikers, which would have long-term, beneficial impacts on this form of travel. Compared to Alternative A, these alternatives would be more beneficial to mountain biking recreation because they would address the user conflicts between motorized recreation and mountain biking.

4.3.10.2.15.3 Non-Mechanized Travel

Alternative A

Under Alternative A, non-mechanized travel (i.e., hiking, backpacking, and equestrian use) would be allowed along the same OHV routes as motorized and mountain biking travel, with similar adverse impacts to this form of travel for reasons as discussed above under Alternative A in Section 4.3.10.2.15.2: increasing numbers of users, user demand, and user conflicts. It should be noted that hikers and equestrian users are not restricted to designated routes.

Alternatives B, D, and the Proposed Plan

Under the action alternatives, additional miles of trails would be designed and managed for non-mechanized travel. The miles of proposed routes range from 25 miles under Alternative B and 50 miles under the Proposed Plan, to 100 miles under Alternative D. The impacts of these prescriptions would be similar to those discussed above for Alternatives B through D for non-motorized/mechanized travel, except that the impacts would be applicable to non-mechanized users, with a similar comparison to Alternative A, except that the impacts would be applicable to non-mechanized recreation.

4.3.10.2.16 Impacts of Vegetation Decisions on Recreation Resources

4.3.10.2.16.1 Alternative A

No prescriptions for vegetation management are specified under Alternative A. However, prescriptions for Fire Management would have similar impacts on recreation resources, as discussed in Section 4.3.10.2.3.

4.3.10.2.16.2 Alternatives B, D, and the Proposed Plan

The impacts on recreation of vegetation prescriptions common to all of the action alternatives would be similar to those discussed under Fire Management because the vegetation prescriptions would be similar. Vegetation communities would be managed for fire suppression, stabilization, and fuel reductions; vegetation treatments would be applied to control exotic and invasive species using methods similar to those for fire management; re-seeding, restoration, and rehabilitation of disturbed areas would use techniques similar to those used for areas impacted by

prescribed and wildland fire. Potentially adverse short-term impacts to recreation would be produced by the drought management prescriptions for Extreme or Exceptional conditions if OHV use was restricted and if areas were closed to public entry during the time that these prescriptions were in effect. Under extreme drought conditions, specialized, motorized, and mountain biking recreational opportunities would be adversely reduced in the short term as access could be restricted; under exceptional drought conditions, recreational opportunities for the aforementioned user groups and non-mechanized users would be adversely impacted because areas could be closed to public entry to protect sensitive soils and reduce the risk of wildland fire. Compared to Alternative A, the action alternatives would be more beneficial to recreation because there are no specified prescriptions under Alternative A to enhance vegetation-related recreation resources, while the action alternatives would apply adaptive management, erosion control, fuel reductions, and vegetation treatments to reclaim and restore vegetation resources.

4.3.10.2.17 Impacts of Visual Resource Decisions on Recreation Resources

Prescriptions common to all alternatives would have long-term, beneficial impacts on visual/scenic quality recreation resources on 354,015 acres through the management of WSAs and designated wilderness areas as VRM Class I areas. The scenery in the WSAs would be preserved for public enjoyment.

Under all of the action alternatives, recreational development (e.g., facility construction) would be required to meet both recreational and VRM management objectives if that development was sited within the foreground of sensitive viewing areas, in order to reduce visual contrasts that would detract from recreational scenic quality. This prescription would be beneficial to recreational resource users in the long term because it would require mitigation of potential impacts to visual/scenic quality in order to maintain recreational opportunities that include high scenic quality. No surface occupancy leasing stipulations (or closed to oil and gas leasing) would be applied to all VRM Class I areas for oil and gas development and other surface-disturbing activities, with long-term, beneficial, preservation-related impacts on recreation scenic quality.

VRM Class II areas would be managed with a controlled surface use stipulation for oil and gas leasing and other surface-disturbing activities. (Note that acreages in Alternative A are inventory class, while acreages in Alternatives B, D, and the Proposed Plan are management class). This stipulation would mitigate impacts to scenic quality by requiring screening and other actions, and thus, to recreation users. Table 4.80 displays VRM Class I and VRM Class II acreage, by alternative.

Table 4.80. VRM Management Classes I and II Acreage, by Alternative

VRM Class	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
I	349,110	453,462	358,911	349,617
II	401,015	373,647	365,566	245,773

4.3.10.2.17.1 Alternative A

Under the Alternative A/VRM inventory, the impacts on recreation-related visual resources would be beneficial because Alternative A would attempt to manage recreation-related scenic quality as determined by the MFO's VRM inventory for scenic quality and viewer sensitivity

(see Section 4.3.18 for a description of VRM Class acreages designated under each alternative and the VRM inventory process). As discussed above, WSAs, designated wilderness areas, and other VRM Class I areas (including the Negro Bill Outstanding Natural Area) would be managed to preserve their natural and scenic qualities, with long-term, beneficial impacts to recreation resources and to all user groups as scenery is preserved for their enjoyment. As mentioned in Section 4.3.18, under this alternative, the VRM inventory classes would become VRM management classes.

4.3.10.2.17.2 Alternative B

Under Alternative B, 453,462 acres would be managed to prevent or mitigate potential surface disturbances to visual/scenic quality under VRM Class I visual objectives, which would have more long-term, beneficial impacts on all recreational resource user groups as more scenery would be protected. Therefore, the impacts to recreation under this alternative would be more beneficial in the long term than Alternative A/VRM inventory.

4.3.10.2.17.3 Proposed Plan

Compared to Alternative A, the Proposed Plan would manage 9,910 more acres under VRM Class I objectives for visual resource protection than was determined by the inventory, with long-term, beneficial impacts to all user groups as more scenery would be protected. This would reduce surface-disturbing impacts to recreational scenic resources and resource users that expect high scenic quality. When compared to Alternative A, fewer acres within the MPA under this alternative would be managed to preserve high-quality scenic landscapes under VRM Class II management, and more acres would be managed to allow surface disturbances, development, and man-made alterations of the existing landscape. These surface disturbances could degrade the scenic qualities that recreation users value.

4.3.10.2.17.4 Alternative D

Compared to the Alternative A, this alternative would manage 507 more acres under VRM Class I objectives for the highest level of scenic quality protection. However, impacts to recreation-related scenic resources under this alternative would be more adverse in the long term because less of the MPA would be managed for the preservation of high scenic quality, and more of the MPA would be managed for permitted surface-disturbances and resources development. The impacts on recreation resources and user groups would be adverse in the long term because fewer areas, when compared to Alternative A, would be managed to maintain high scenic quality, which would diminish the recreational experiences and reduce recreation opportunities for all recreation resource user groups.

4.3.10.2.18 Impacts of Wildlife and Fisheries Decisions on Recreation Resources

Continuing to implement the Hatch Point, Potash-Confluence, and Dolores Triangle habitat management plans (HMPs) and conducting migratory bird conservation projects would benefit recreational wildlife viewing in the long term by maintaining deer, elk, bighorn sheep, raptor, game bird, and migratory bird populations under all of the alternatives.

Under prescriptions common to all action alternatives, 9,278 acres would be managed along the rim of Hatch Point as part of the Lockhart bighorn sheep habitat area and 317,523 acres on

grazing allotments would be managed as bighorn sheep habitat. In order to benefit wildlife populations, forage in specified grazing allotments would be reallocated to wildlife, native and naturalized fish and wildlife species would be re-introduced into suitable and/or historic ranges, and dispersed camping would be restricted in riparian areas (see Section 4.3.10.2.11) to protect riparian wildlife habitat. All of the prescriptions would be beneficial to recreation resources and to all recreation users in the long term by enhancing the opportunities for wildlife viewing and sightseeing.

4.3.10.2.18.1 Alternative A

Prescriptions to protect desert bighorn sheep habitat on 42,500 acres within the Potash-Confluence HMP by preventing major human disturbances during lambing and breeding seasons would have adverse impacts on recreational opportunities by limiting, in the short-term, those activities that produce noise or that tend to have concentrated group use that could disturb wildlife. Recreational user groups that would be affected in the short term would include motorized, mountain biking, and specialized groups. The long-term impacts would be beneficial for all recreation user groups by improving the opportunities for wildlife viewing.

4.3.10.2.18.2 Alternative B

Under this alternative, dispersed camping in riparian areas would be restricted or prohibited, except in designated campsites, and camping would be prohibited in Shafer Basin and Long Canyon (encompassing approximately 13,500 acres) to protect bighorn sheep habitat. These prescriptions would adversely reduce recreational opportunities for long-term, dispersed camping in these areas. Compared to Alternative A, this alternative would be more adverse to recreational users because more restrictions would be placed on dispersed camping opportunities than under Alternative A.

4.3.10.2.18.3 Proposed Plan

The impacts to recreation would be similar to those discussed under Alternative B because the prescriptions would be similar, although the acreage protected would be somewhat less.

4.3.10.2.18.4 Alternative D

Under this alternative, prescriptions would be the same as under Alternative B, except that camping would not be restricted to designated camping sites in lambing areas, benefiting those who value this experience. The impacts to dispersed camping recreational opportunities would be similar to those discussed under Alternative B, but to a lesser degree, because more areas would be open to camping in bighorn sheep habitat. Compared to Alternative A, this alternative would have impacts similar to those discussed under Alternative B.

4.3.10.3 Summary of Impacts

Table 2.2 (of Chapter 2) summarizes the impacts of the various alternatives and their program actions on recreation.

4.3.11 RIPARIAN RESOURCES

Within the MPA, riparian areas are typically associated with perennial, intermittent, and ephemeral streams, as well as isolated springs and other water sources. Management decisions with the potential to impact riparian resource health, the proper functioning condition (PFC) of streams, water resources necessary to riparian zone establishment and survival, or the physical environment on which riparian vegetation depends (e.g., stream stability) were the decisions evaluated in this analysis.

Analysis of impacts to the riparian resources of the MPA were conducted primarily by overlaying proposed management decisions (e.g., surface disturbances due to grazing, OHV travel, camping and other recreational use, and woodland harvest) upon the 13,450 acres of riparian areas in the MPA, as identified in the GIS-based, Utah GAP database (Lowry et al. 2005) of vegetation types. Quantitative impacts were measured as acres of riparian resource. Where GIS or other quantitative data were unavailable, potential impacts to riparian resources were analyzed qualitatively, based on these same criteria.

Under all alternatives, management actions for the following resources would result in negligible impacts to riparian resources: air quality, cultural resources, health and safety, paleontological resources, and visual resources. This is because protecting air quality, maintaining safety around AML sites and reducing the risks of hazardous materials spills and spill-site cleanup, protecting cultural resources under Section 106, protecting known fossil areas for fossil scientific study and recreational fossil collection, and protecting scenic quality would neither degrade nor improve the water, soil and vegetation components that comprise riparian resources. Accordingly, the impacts of management actions for each of these resources are not analyzed further in this section.

4.3.11.1 IMPACTS OF FIRE MANAGEMENT DECISIONS ON RIPARIAN RESOURCES

Under all alternatives, fire management would follow the guidelines in the Utah Land-use Plan Amendment for Fire and Fuels Management (LUP; BLM 2005c). Management actions under the Utah LUP would have generally beneficial impacts on riparian resources, since non-fire fuel treatments would promote diversity in native riparian vegetation types and reduce exotic species.

4.3.11.2 IMPACTS OF LANDS AND REALTY DECISIONS ON RIPARIAN RESOURCES

Under all action alternatives, riparian areas are protected from the impacts of lands and realty decisions because of the stipulation that requires no surface-disturbing activities within 100 meters of riparian areas.

However, an exception could be authorized if there are no practical alternatives, impacts could be fully mitigated, or the action is designed to enhance the resource values (see Appendix C, Stipulations Applicable to Oil and Gas Leasing and Other Surface-disturbing Activities). In such instances that an exception is granted because there is no practical alternative, mitigation measures such as the Standards for Pipeline Crossings (See Appendix H) and the BMPs for soils and minerals would be employed.

LTAs could acquire riparian areas, and LTA criteria call for the retention of those already in public ownership. This would beneficially impact riparian resources as they would be protected by the stipulations placed upon them under all action alternatives.

4.3.11.3 Impacts of Livestock Grazing Decisions on Riparian Resources

In general, restricting grazing from riparian areas would provide long-term protection and enhancement of riparian areas because it would eliminate any improper livestock management practices that could result in the loss of riparian vegetative and cover and the trampling of riparian soils. Improper grazing practices may result in adverse impacts due to decreased growth or loss of riparian vegetation and possible loss or degradation of riparian soils, water quality, streambed and bank structure, and habitat quality." In this analysis, the impacts of livestock grazing decisions upon riparian resources are measured in the acres of riparian area that could become unavailable for grazing. Table 4.81 shows the riparian areas that could become unavailable due to grazing management decisions under each alternative.

Table 4.81. Grazing Restrictions (i.e., in Riparian Areas, by Alternative)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Acres unavailable (out of 13,450 acres) calculated using GAP (satellite photo) data % of Total Riparian	Approx. 1,000 7.4	4,422 32.9	1,169 8.7	Approx. 500 3.7
Acres unavailable (out of 32,292) calculated by MFO using infrared photos and field tested	4,414	4,946	4,392	1,177
% of Total Riparian	13.7	15.3	13.6	3.6

4.3.11.3.1 Alternative A

Under Alternative A, current management, which prohibits grazing in the South Sand Flats, North Sand Flats, Between the Creeks, Pear Park, Beaver Creek (itself), Spring Creek, Cottonwood, Bogart, and Diamond allotments, would continue. These prohibitions prevent grazing on approximately 7.4% of the total riparian acres within the MPA using GAP data and 13.7% using field data (see Table 4.81), resulting in beneficial impacts to riparian habitat in these areas, in the forms described above.

4.3.11.3.2 Alternative B

In addition to the grazing exclusions specified under Alternative A, grazing would not be authorized in the Ida Gulch, River, Mill Creek and Professor Valley allotments. Grazing would also be unavailable in the riparian areas of the following drainages under Alternative B: Ten Mile from Dripping Spring to the Green River, Day Canyon, Mill Creek Canyon, Seven Mile Canyon, East Coyote, Kane Springs, Lower Gray Canyon of the Green River, and Hatch Wash. Therefore, under Alternative B, grazing would not be permitted on approximately 32.9% of the total riparian acreage within the MPA—an increase of 444.6% in the amount of unavailable riparian acreage, compared to Alternative A (see Table 4.81). More riparian acres would be unavailable for grazing under Alternative B than under any other alternative.

4.3.11.3.3 PROPOSED PLAN

Grazing would not be allowed in the following allotments: Bogart, Cottonwood, Diamond, Ida Gulch, Pear Park, and Mill Creek. The riparian areas unavailable for grazing under the Proposed Plan are the same areas as under Alternative B, with the exception of Kane Springs, Lower Gray Canyon of the Green River, and Hatch Wash, which would remain available for grazing. Therefore, in total, grazing would be prohibited on approximately 8.7% of riparian areas within the MPA under the Proposed Plan, or 116.9% more than Alternative A (see Table 4.81). The Proposed Plan would protect more riparian acreage than Alternative A, but not as much as Alternative B.

4.3.11.3.4 ALTERNATIVE D

Grazing would be available in the Cottonwood, Diamond, and Bogart allotments. This would adversely impact riparian resources found in those allotments, including Cottonwood Wash, Diamond Canyon and Nash Wash. Impacts would be greater than under Alternative A because the acreage of riparian exclusion is far less in Alternative D.

4.3.11.4 IMPACTS OF MINERAL RESOURCE DECISIONS ON RIPARIAN RESOURCES

Mineral resource decisions that would affect riparian resources include the continuation of existing mineral withdrawals and the application of a controlled surface use (CSU) stipulation, which would prohibit surface-disturbing activities within the 100 year floodplain or within 100 meters of riparian areas.

Under all alternatives, adverse impacts to riparian resources from mineral development would be avoided because the controlled surface use stipulation requires a proponent to move operations up to 100 meters to avoid riparian areas, benefiting riparian resources by protecting them from surface disturbance.

However there are exceptions to this stipulation which allow for development in riparian areas if there are no practical alternatives, impacts could be fully mitigated, or the action is designed to enhance the resource values (see Appendix C). In such instances that an exception is granted because there is no practical alternative, mitigation measures such as the Standards for Pipeline Crossings (See Appendix H) and the BMPs for soils and minerals (Gold Book) would be employed. While some riparian resources could be removed in the course of such construction, the extent of the impact would be minimized using these measures.

Existing mineral withdrawals along the Colorado, Dolores, and Green Rivers would be continued under all alternatives, providing an additional level of protection for riparian resources by excluding them from the adverse impacts of locatable mining operations. The application of a no surface occupancy stipulation for all surface-disturbing activities to these areas under all alternatives would further protect riparian resources along these major river courses from potential adverse impacts associated with surface disturbance (e.g., vegetation degradation and introduction of noxious weeds). This stipulation would leave the riparian vegetation intact.

4.3.11.5 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Riparian Resources

In general, managing non-WSA lands to maintain their wilderness characteristics would be beneficial to riparian resources by applying NSO or closed stipulations to oil and gas leasing and precluding all surface-disturbing activities, limiting travel to designated roads, and allowing no new ROWs. NSO stipulations and precluding surface-disturbing activities would prevent impacts and habitat disruption that could result from surface-disturbing activities in and adjacent to riparian areas. Limitations on travel and new ROWs would beneficially reduce disturbances associated with stream crossings and off-road travel, resulting in no damage to, or removal of, riparian vegetation.

Alternatives A and D would be the least protective of riparian resources, since they would not manage areas within the MPA to maintain wilderness characteristics. Alternative B would be the most protective since 266,485 acres would be managed to maintain wilderness characteristics. The Proposed Plan, which would manage 47,761 acres to maintain wilderness characteristics, would have intermediate impacts on riparian resources.

4.3.11.6 Impacts of Recreation and Travel Decisions on Riparian Resources

Recreation management decisions affecting riparian resources include the number of acres managed as SRMA (specifying controls on recreation use, including controls on camping and campfires), limitations on the number of river users and their duration of use, and restrictions on OHV use and travel. See Table 4.82 for acreage of SRMA by alternative. Each of these limitations generally would reduce direct, adverse impacts to riparian resources by reducing the disturbance of riparian vegetation and stream banks, the spread of noxious weeds, soil compaction, and the potential for impacts due to human-caused fire.

A recent United States Geologic Survey (USGS 2007) synopsis of relevant literature summarizes several studies indicating that motorized travel through riparian areas can have negative impacts on water quality. Other studies summarized by USGS indicate negative impacts from OHV use on soil properties and vegetative cover, which can result in accelerated rates of erosion and sedimentation and elevated levels of turbidity in affected watersheds. The USGS study is summarized in Appendix G.

Table 4.82. Acreage Managed as SRMA, by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Acreage managed as SRMA	141,234	976,173	658,642	277,471
Percentage of MPA managed as SRMA	8%	54%	36%	15%

User numbers and OHV use decisions vary by alternative. Table 4.83 outlines the approximate amount of riparian area open and closed/limited to OHV use under the travel plan. The impacts of limiting OHV use to designated roads and trails would be the same as closure of riparian areas to OHVs.

Table 4.83. Acres of Riparian Areas, by OHV Area Designation, by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Calculated using GAP (satellite photo) data Acres Open	2,100	0	0	0
Acres Closed or Limited	11,350	13,450	13,450	13,450
Total	**13,450**	**13,450**	**13,450**	**13,450**
Calculated by MFO using infrared photos and field tested Acres Open	6,192	0	792	840
Acres Closed or Limited	26,100	32,292	31,500	31,452
Total	**32,292**	**32,292**	**32,292**	**32,292**

4.3.11.6.1 ALTERNATIVE A

Among the alternatives, Alternative A would provide the lowest level of management for recreation resources and, thus, the least amount of protection for riparian resources. Most of the MPA would be managed as an Extended Recreation Management Area (ERMA), which allows for only minimal restrictions on recreation use, rather than as SRMAs with provisions for controlled recreation use (141,234 acres, or 8% of the MPA, would be managed as SRMA under Alternative A). In addition, allowable river-user numbers would remain at current level. This management decision would result in adverse impacts to riparian resources, of the forms described above, as recreation users would impact riparian resources through unrestricted camping and other activities.

Approximately 2,100 acres (using GAP data; 6,192 acres using field data) of riparian resources would be open to OHV use under Alternative A, which represents 16% and 47%, respectively, of the total riparian acreage within the MPA (see Table 4.83). Of all the alternatives, this management decision allows for the greatest potential adverse impacts to riparian resources as riparian vegetation would be destroyed by vehicles.

There are 321.9 miles of route identified as having possible riparian conflicts.

4.3.11.6.2 ALTERNATIVE B

Among the alternatives, Alternative B would manage 976,173 acres as SRMA (54% of the acreage in the MPA) and would provide the most intensive management for recreation use, and provide the most protection for riparian resources Alternative B would be most restrictive of user numbers on the Colorado and Dolores Rivers. River user decisions under Alternative B would therefore be beneficial to riparian resources by reducing the human imprint upon them, as compared to Alternative A, and would be the most protective to riparian resources of all the alternatives.

OHV use and camping would be limited to designated areas outside the riparian areas across most of the MPA, providing an increased level of protection from human disturbance for riparian resources, compared to Alternative A (see Table 4.83). This amounts to a beneficial impact to riparian resources compared to Alternative A because of the lack of recreation rules under Alternative A.

There are 321.9 miles of designated routes with possible riparian conflicts. In Alternative B, 179.6 miles of these routes are not identified for travel.

4.3.11.6.3 Proposed Plan

The Proposed Plan would manage 658,642 acres as SRMA, providing management for recreation use (and protection of riparian resources) on 36% of the acreage in the MPA. The Proposed Plan would allow more visitors per day in the Colorado and Dolores River SRMAs than Alternative B, but fewer than Alternative A. Therefore, the Proposed Plan's adverse impacts to riparian resources from human use along the river corridors would be greater than under Alternative B but less than under Alternative A.

OHV use impacts would be the same as under Alternatives B and D (see Table 4.83). However, camping would be more limited under the Proposed Plan than under Alternative A or D, and therefore it would have slightly more beneficial impacts on riparian resources protected from camping and campfires. Overall, the Proposed Plan would provide more protection for riparian resources than either Alternatives A or D, and provide less protection than Alternative B.

There are 321.9 miles of designated routes with possible riparian conflicts. In the Proposed Plan, 50.1 miles of these routes are not identified for travel.

4.3.11.6.4 Alternative D

Alternative D would manage 277,471 acres as SRMA, providing management for recreation use on 15% of the acreage in the MPA. More visitors would be allowed in the Colorado and Dolores River SRMAs under Alternative D than under Alternative B or the Proposed Plan, but fewer than under Alternative A. Therefore, this management decision would have a greater adverse impact on riparian resources by increasing human use along the river corridors than Alternative B or the Proposed Plan, but a lower adverse impact than Alternative A.

OHV use impacts under Alternative D would be the same as under Alternative B and the Proposed Plan (see Table 4.83).

There are 321.9 miles of designated routes with possible riparian conflicts. In Alternative D, 14.7 miles of these routes are not identified for travel.

4.3.11.7 Impacts of Riparian Management Decisions on Riparian Resources

4.3.11.7.1 Impacts Common to All Alternatives

Adherence with the Utah BLM Standards for Rangeland Health under all alternatives would promote the maintenance and restoration of the 13,450 acres of riparian resources in the MPA. Standard 2 states that "riparian and wetland areas [must be] in properly functioning condition (PFC). Stream channel morphology and functions [must be] appropriate to soil type, climate, and function" (BLM 1997a). Under all alternatives, the BLM would develop monitoring and

management strategies and restrictions as necessary to maintain or restore PFC, which would benefit riparian resources by ensuring that all stream corridors meet PFC criteria.

Pipelines crossing perennial, intermittent, and ephemeral streams would be constructed to withstand 100-year floods under all alternatives (see Appendix H). This would minimize the likelihood of breakage and subsequent contamination of riparian areas during high flow events. Each surface crossing would be constructed at a height adequate to remain above peak flows. Each subsurface crossing would be buried deeply enough to remain undisturbed by scour throughout peak flows. These stipulations would minimize adverse impacts to riparian resources resulting from unrefined petroleum or hazardous substance release and/or flood flow obstruction.

No new surface-disturbing activities would be allowed within active floodplains or within 100 m of riparian areas. Therefore, mineral activities in riparian areas and 100-year floodplains would not occur under any of the alternatives, thereby limiting the potential for adverse impacts to riparian resources from mineral development.

Under all alternatives, the MFO would also comply with the Colorado River Salinity Control Act and with Utah's state water quality standards. Activities within the MPA would be managed to minimize and mitigate damage to soils, to maintain and/or restore overall watershed health, and to reduce erosion, stream sedimentation, and salinization of water. These reductions and minimizations would limit short- and long-term adverse impacts to riparian resources by helping to maintain and restore overall watershed health. Riparian vegetation, as an integral part of a watershed's ecosystem, would benefit directly (through less saline water) and indirectly (through maintenance of a naturally stable stream channel) from these management actions.

Riparian areas would be excluded from public, commercial and private harvest of woodland products under all alternatives, except for Native American ceremonial purposes. Prohibiting woodland harvest would benefit riparian resources by limiting adverse impacts from vegetation disturbance, stream bank trampling, and the introduction/spread of noxious weeds during public access. Mechanical and other vegetation removal practices—for habitat, range, and watershed improvements—would be allowed and have been evaluated in the 1991 Vegetation EIS (BLM 1991a). Riparian areas would be protected against surface disturbance by mechanized or motorized equipment and from structural development under all alternatives.

Under all alternatives, requirements for the control of invasive and non-native weed species would minimize their introduction and spread in riparian areas, which would benefit the PFC of native riparian vegetation by reducing competition with invasive species. The MPA would reduce tamarisk where appropriate using allowable vegetation treatments. These actions would reduce and/or prevent adverse impacts to riparian resources from noxious weeds.

4.3.11.7.2 Impacts Varying by Alternative

Riparian management decisions that vary by alternative include limitations on livestock grazing in riparian areas and the development of Watershed Management Plans (WMPs). Each alternative limits grazing in different allotments and areas of the MPA and prioritizes different watersheds for the development of WMPs.

These management actions are considered not only riparian management actions, but also livestock management and soil and water resource management actions, respectively, and represent one set of impacts each. To avoid duplication, the impacts of grazing restrictions in

riparian areas upon riparian resources are considered in Section 4.3.11.3, and the impacts of WMPs upon riparian resources are considered in Section 4.3.11.8.

4.3.11.8 Impacts of Soil and Water Decisions on Riparian Resources

Under all alternatives, prohibiting surface-disturbing activities within 100-year floodplains would have a beneficial impact on riparian resources in the MPA; it would reduce the disturbance of riparian vegetation and soils and the introduction and establishment of weeds on floodplains.

The prioritization of Watershed Management Plans (WMPs) and riparian studies would vary among alternatives. In general, the development of WMPs and riparian studies would have beneficial impacts on riparian resources by:

- better integrating riparian management with watershed-wide management practices, which would improve the success of riparian management activities; and
- providing better information and data, which would enhance the BLM's ability to adaptively manage riparian resources.

4.3.11.8.1 Alternative A

Because no Watershed Management Plans (WMPs) or riparian studies are mandated under Alternative A, this riparian management decision would result in no impacts to riparian resources.

4.3.11.8.2 Alternative B

Seventeen watersheds would be chosen for development and implementation of Watershed Management Plans (WMPs) and riparian studies under Alternative B, the most of any alternative. Thus, Alternative B would have the greatest beneficial impact to riparian resources resulting from this management decision.

4.3.11.8.3 Proposed Plan

Eight watersheds would be chosen for development and implementation of WMPs and riparian studies under the Proposed Plan: fewer than under Alternative B, but more than under Alternatives A and D. Thus, the Proposed Plan would have greater beneficial impacts to riparian resources resulting from this management decision than Alternatives A and D, but less beneficial impacts than under Alternative B.

4.3.11.8.4 Alternative D

Impacts would be the same as under Alternative A because no WMPs would be prepared.

4.3.11.9 Impacts of Special Designations Decisions on Riparian Resources

Special designations decisions affecting riparian resources would include: (1) the designation of ACECs with management prescriptions protective of riparian resources, such as restrictions on dispersed camping and on surface-disturbing activities in riparian areas and (2) determinations that river segments are suitable for Wild and Scenic River (WSR) designation.

- The impacts of ACEC designations on riparian resources would depend upon each potential ACEC's management prescriptions and are, therefore, discussed under each alternative, below.
- WSR designation would require that a river's "free flowing character" be maintained, and would prohibit activities that impact the "outstanding and remarkable values" of a river. Thus, any WSR designation would provide an increased level of protection for the given segment and would indirectly benefit riparian resources along that segment through the maintenance of the river's natural structure and ecosystem characteristics. It should be noted that riparian corridors would already be protected by the BLM National Riparian Policy and other stipulations proposed in this RMP. However, WSR designations may offer protections to those areas outside the riparian corridor but within the WSR management corridor, which is 1/4 mile from the high-water mark on each bank of the river segment.
- The impacts of Wilderness and WSA management on riparian resources would be beneficial, as these areas are managed as closed to mineral development.

4.3.11.9.1 ALTERNATIVE A

Under Alternative A, only the Negro Bill ONA (1,375 acres), a riparian corridor, would be designated. No ACECs would be designated under this alternative. No river segments would be determined suitable for WSR designation. Six segments of the Colorado and Dolores Rivers would remain eligible and would be managed to protect their ORVs, free-flowing nature, and tentative classification. This could offer some protections to riparian resources for those segments. Beneficial impacts associated with ONA designation would occur on only 1,375 acres and decisions on WSR suitability would not be made.

4.3.11.9.2 ALTERNATIVE B

Alternative B, the designation of the Mill Creek Canyon ACEC would benefit riparian resources, as it would exclude livestock grazing and prohibit campfires in its riparian areas and maintain a 3-cfs base flow in the South Fork of Mill Creek below the Sheley Diversion. This ACEC designation would reduce the adverse impacts of livestock grazing on riparian areas (in the forms described in Section 4.3.11.3.2) and reduce the risk of human-caused wildfire in riparian areas.

Under Alternative B, the designation of the Ten-Mile Wash ACEC would benefit riparian resources by prioritizing the ACEC for riparian restoration. The ACEC would also prohibit camping in riparian areas, which would limit human disturbance of vegetation and the risk of human-caused weed invasion and fire.

In addition, under Alternative B, designation of ACECs and the resulting no surface occupancy stipulation would protect riparian areas from destruction in the following ACECs: Colorado River Corridor, Behind the Rocks, Bookcliffs, Colorado River Corridor, Cottonwood-Diamond, Highway 279/Shafer Basin/Long Canyon, Labyrinth Canyon, Upper Courthouse, Westwater Canyon, and White Wash.

Alternative B would recommend 71,300 acres as suitable for some level of WSR designation, which would protect riparian vegetation within that area.

Thus, special designations decisions under Alternative B would provide more protection and benefits for riparian resources than Alternative A, as more riparian areas would be protected in Alternative B.

4.3.11.9.3 PROPOSED PLAN

Impacts from ACEC designation to Mill Creek Canyon and Ten Mile Wash would be the same as under Alternative B. Under the Proposed Plan, designation of ACECs and the resulting no surface occupancy stipulation would protect riparian areas in the following ACECs: Behind the Rocks, Cottonwood-Diamond, and Highway 279/Shafer Basin/Long Canyon.

The Proposed Plan would recommend 41,236 acres as suitable for some level of WSR designation, which would protect riparian vegetation within that area. Thus, the Proposed Plan would be less protective of riparian resources than Alternative B, but more protective than Alternatives A and D.

4.3.11.9.4 ALTERNATIVE D

Impacts from ACEC designation would be similar to Alternative A, although 1,375 acres of the Negro Bill ONA would not be designated. All river segments (other than Salt Wash) would be listed as "not suitable" for any WSR designation. Therefore, Alternative D provides the lowest level of protection of riparian resources.

4.3.11.10 IMPACTS OF SPECIAL STATUS SPECIES DECISIONS ON RIPARIAN RESOURCES

Special status species management decisions would protect and/or enhance riparian resources under all alternatives. Recovery plans for the southwestern willow flycatcher, Colorado River fishes, bald eagle, and western yellow-billed cuckoo would benefit riparian resources via riparian habitat enhancement. The removal of invasive tamarisk for restoration or enhancement of these and other special status species' habitat would generally benefit riparian resources.

Under all alternatives, special status species management decisions would avoid further loss of cottonwood gallery riparian habitats and would eliminate surface disturbance in riparian areas to protect bald eagle roosting areas. Any disturbed riparian vegetation would be replaced with native species or ecological equivalents in all special status species use areas. These actions would help maintain existing riparian resources.

All alternatives would also impose year-round restrictions on surface-disturbing activities within 300 feet of suitable habitat for southwestern willow flycatcher and western yellow-billed cuckoo—species that primarily use riparian areas for all life phases. Restrictions on surface disturbance would reduce potential disturbance or removal of riparian vegetation and soils and the introduction of invasive weeds. The eradication of tamarisk would create short-term surface disturbance but would result in long-term enhancement of riparian resources.

All alternatives would also avoid loss of riparian habitats in designated critical habitat areas of endangered Colorado River fishes. Preserving riparian habitats along these drainages would prevent sedimentation and changes in water quality.

4.3.11.11 Impacts of Vegetation Decisions on Riparian Resources

Under all alternatives, vegetation treatment decisions would reduce the prevalence of invasive Russian olive and tamarisk throughout the MPA and replace them with native willow and cottonwood stands. This would have a beneficial impact of unknown magnitude on riparian areas (depending on the success and extent of the treatments), as it would restore their native ecosystem characteristics.

4.3.11.12 Impacts of Wildlife Decisions on Riparian Resources

4.3.11.12.1 Impacts Common to All Alternatives

- Implementation of the revised Dolores Triangle Management Plan would improve riparian habitat through the installation of fencing and exclosures in Granite, Coates, Ryan, and Renegade Creeks. This decision would prevent livestock from trampling riparian vegetation and carrying weed species into riparian areas, and it would prevent sedimentation and loss of soils.
- Impacts resulting from limitations on livestock grazing to benefit wildlife would be the same as those described in Section 4.3.11.3.

4.3.11.12.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

- Restrictions on camping in riparian areas to protect wildlife habitat under all alternatives, including prohibition and restriction to designated areas, would benefit riparian resources by reducing vegetation and soil disturbance and the human spread of invasive weeds.
- Management of migratory bird habitat would prioritize the maintenance and/or improvement of lowland riparian areas, which would have a beneficial impact of unspecified magnitude on those riparian resources.

4.3.11.13 Impacts of Woodlands Decisions on Riparian Resources

All alternatives would prohibit public fuelwood gathering from riparian areas. This decision would have beneficial impacts on riparian resources by preventing disturbances and weed introduction associated with public access for fuelwood gathering.

Under all alternatives, woodland management would allow sustainable harvest of willows and cottonwoods from riparian areas for Native American ceremonial purposes. This decision would have adverse, but negligible impacts on riparian areas due to the minimal removal of vegetation and associated disturbances.

4.3.11.14 Summary of Impacts

In general, Alternatives A and D would be the least protective of riparian resources, and would prioritize the least riparian area for restoration and enhancement-focused management. Alternative B would be the most protective by excluding the most areas from grazing, and prioritizing the most WMPs and riparian studies. It would therefore provide the greatest beneficial impacts and greatest reduction of past cumulative impacts on riparian resources. The Proposed Plan would provide an intermediate level of protection and restoration.

Table 2.2 (located in Chapter 2) summarizes the impacts to riparian resources due to the management decisions of applicable resources under each alternative.

4.3.12 SOCIOECONOMIC RESOURCES

This section discusses impacts to socioeconomic resources from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning socioeconomic resources are described in Chapter 3.

Grand County, Utah is entirely within the MPA, with approximately 1,500,000 acres of BLM land. In addition, approximately 300,000 acres of San Juan County fall under the jurisdiction of the Bureau of Land Management's MFO, comprising the entire northeast third of San Juan County. Therefore, land management decisions made in the MPA could have a potential impact on the socioeconomics of both Grand and San Juan counties. The following socioeconomic impact analysis includes Grand County as well as San Juan County where appropriate.

Implementation of any of the alternatives likely would result in impacts to the social and economic conditions of Grand and San Juan Counties. While the range of these socioeconomic impacts may vary depending on the alternative implemented, some land management actions would have greater impacts than others, and these are disclosed in the following analysis.

Potential economic impacts include changes in employment and income; changes in tax revenue for local, state, and Federal governments; and changes in the demand for housing and public service. Quantitative data was used to analyze these economic impacts, where available. Where quantitative data are not available, a qualitative analysis is performed based on the best available information.

Social impacts to communities cannot be measured in economic terms except to the degree that economic problems (e.g., unemployment) may lead to social problems (e.g., divorce, substance abuse, crime, etc.). Human impacts that are difficult to quantify include enhancements to or detractions from existing lifestyles, sense of place, and community values, and disproportionate impacts on low-income or minority populations. Accordingly, these impacts are assessed qualitatively.

Impacts to socioeconomic from implementation of alternatives would be considered significant if one or more of the following occurs and is attributable to the implementation of alternatives:

- Substantial gains or losses in population/employment
- Substantial alterations in the lifestyles or quality of life of individuals who use or inhabit the MPA.
- Disproportionately adverse changes to environmental or human health within an identified minority or low-income population

4.3.12.1 IMPACTS COMMON TO ALL ALTERNATIVES

4.3.12.1.1 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that disproportionately high and adverse

human health and environmental impacts of Federal programs, policies, and activities to minority or low-income populations be identified and addressed.

For each alternative, it has been determined that BLM resource management actions within the MPA would not result in disproportionate effects to "environmental justice populations" as defined in Executive Order 12898. Minority and low-income populations do exist in the MPA, but none of the proposed alternatives for BLM action would cause disproportionate adverse impacts to these populations in comparison to the general population.

4.3.12.1.2 PILT (Payments in Lieu of Taxes) Program

None of the alternatives would result in significant changes in Federal ownership in the MPA. Any future land exchanges or sales would be assessed to determine specific impacts, but, in general, actions proposed with the PRMP/FEIS would not change payments to Grand and San Juan Counties made under the PILT program according to established formulas.

4.3.12.1.3 Population

Population changes in Grand and San Juan Counties that could be associated with the implementation of any of the alternatives considered in this EIS would likely be linked to employment changes. Activities such as livestock grazing and mineral development within the MPA that support jobs in the area are not expected to increase or decrease substantially under any of the alternatives (see impacts analysis below for further details). Therefore, it is not likely that BLM-related management decisions (apart from recreation decisions that could increase revenues to recreation-based businesses) would result in significant changes to current population trends (see Section 3.12.4.2.1 for local population data).

4.3.12.2 Alternatives Impacts

4.3.12.2.1 Impacts of Air Quality Decisions on Social and Economic Conditions

None of the decisions concerning air quality are expected to adversely affect the social or economic conditions of Grand and San Juan counties.

4.3.12.2.2 Impacts of Cultural Resource Decisions on Social and Economic Conditions

The MPA has approximately 4,200 inventoried cultural sites. Cultural sites draw recreationists to the area. Increases or decreases in access to sites as well as changes to the quality of the sites have the potential to impact visitor experience and local revenues.

Cultural resource management decisions could increase or decrease recreational visits to the sites, as well as influence the overall visitor experience. The level of impacts is related to several factors including 1) the importance of the sites to Native American communities in the area (the historic cultural sites in the area serve as a connection between the landscape and the local tribes' respective heritages), 2) any links between local residents and cultural sites, and 3) the degree to which specific sites draw visitors to the area.

Potential economic impacts resulting from cultural resource management decisions could include an increase or decrease in visitor spending. Increasing access could increase visitor spending in the area in the short term, but degradation to sites could lead to long-term adverse economic

impacts, as visitors may choose not to return to the area. For the purposes of this analysis, it is suggested that a greater emphasis on restoration, preservation, and inventories of cultural sites within the MPA would maintain and/or enhance recreationists' experience, leading to greater long-term beneficial impacts to socioeconomics.

4.3.12.2.2.1 Alternative A

Under Alternative A management of cultural sites would continue as it currently exists. No prioritizations would be made for field inventories, scientific restoration, public interpretation of sites, or nomination of sites to the National Register of Historic Places. The social and economic conditions resulting from the presence of cultural sites in the area would remain the same.

4.3.12.2.2.2 Alternative B

Alternative B offers the most protective plan for cultural resources within the MPA, because it would place greater restrictions on surface-disturbing activities such as mineral development, recreation use, and OHV travel. Additionally, it would provide more special designations, which, in turn, would reduce the possibilities for inadvertent adverse impacts to cultural resources. Alternative B also provides a proactive approach to cultural resources through the development and implementation of integrated cultural-recreational management plans.

Long-term beneficial impacts to local economic conditions resulting from cultural resource management decisions would be greatest under Alternative B. The identification, preservation, and restoration of sites within the MPA would attract the greatest number of visitors interested in the area's cultural history. Economic contributions to local towns from these visitors would be greatest under this alternative.

The social benefits resulting from cultural resource management decisions such as visitor experience, Native American connections to historic sites, and social connections that tie the landscape to a rich cultural history would be greatest under Alternative B. The long-term social benefits would be directly related to the restrictions on surface-disturbing activities, the opportunities for public interpretation, and the implementation of cultural-recreational management plans.

Revenue generated from cultural resource-related tourism and the historical and social connections would likely be greatest under Alternative B; however, impacts resulting from cultural resource management decisions could also have some adverse economic impacts to the area. By restricting surface-disturbing activities, such as mineral development and OHV travel, the revenue typically generated from these activities could be less under Alternative B in comparison to other alternatives.

4.3.12.2.2.3 Proposed Plan

The Proposed Plan would provide the next-greatest benefit to socioeconomics from cultural resource management decisions, as it provides slightly fewer prioritizations that would reduce opportunities for adverse impacts to cultural resources compared to Alternative B. The prioritizations would lead to long-term beneficial economic impacts resulting from resource-related tourism.

Because the Proposed Plan allows for fewer restrictions that limit surface-disturbing activities, compared to Alternative B, opportunities for mineral development and OHV travel would be greater, thus allowing communities to generate revenue resulting from these activities. However, it is impossible to predict whether tourist-generated revenue would exceed commodity-based losses or revenues.

4.3.12.2.2.4 Alternative D

Alternative D would provide the fewest socioeconomic benefits from cultural resource management decisions in the MPA. Alternative D opens the most acres to surface-disturbing activities, and, therefore, the potential for degradation of cultural resources sites would be highest. However, more opportunities for surface-disturbing activities would allow for more revenue generation from these activities and thus short-term beneficial economic impacts to local communities.

4.3.12.2.3 Impacts of Fire Management Decisions on Social and Economic Conditions

Impacts of fire management decisions on social and economic conditions would be the same for all alternatives. During a normal fire year the Moab Fire District averages 100 wildfires resulting in 10,000-16,000 acres of burned land. The Moab Fire District encompasses the Monticello, Moab, and Price Field Offices. Most fire activity occurs in the eastern half of the district, including the area of the MPA, although fires can occur in almost all areas of each field office. In the twenty-five-year period between 1980 and 2005, approximately 74% of wildland fires occurring in the Moab Fire District were lightning-caused. Prior to 1995, an average of 100 fires per year burned an average of 10,000 acres. The past decade has shown a trend of increasing wildland fire, with an average of 130 fires each year burning an average of 16,000 acres. In the MPA specifically, over this 10-year period, an average of 4,000 acres were burned each year (personal communication between Dave Engleman, FMO MPA and Laura Burch, SWCA October 31, 2006). This annual average does not include the Diamond Creek Fire that burned approximately 90,000 acres in 2001. See Section 3.4 for further fire management details.

In the upper Snake River Plain, which has similar vegetation types as the Moab Fire District, the average cost of wildland fire treatment was estimated to be $105 per acre. The average cost for wildland fire suppression was estimated to be approximately $140 per acre (BLM 2006b). Based on an average of 4,000 acres burned per year in within the MPA, the annual cost to suppress fires would be an estimated $560,000. The cost of fighting fires, including supplies and labor, has the potential to impact local economies.

Of the total expenditures for the fire management program, the following are estimates of percentages spent in each category.

- 45% variable costs
- 30% fixed labor costs
- 25% other suppression costs (BLM 2006b)

Increased fire treatment and suppression could lead to more seasonal jobs in the region, since more firefighters would be needed during fire season. The fixed labor costs for suppression (see above) would be funneled back into the community as the firefighters are generally employed

locally and thus contribute to the local economy. Areas of the economy that are boosted by the variable costs for treatment and suppression include fuel, food, lodging, maintenance, vehicles, administration, aviation, warehousing, and seeding.

It should be noted that the expenditures related to fire management within the Moab Fire District are made on an inter-agency basis and do not solely rely on BLM funding. Other agencies involved in management activities are the Bureau of Indian Affairs; Utah's Forestry, Fire, and State Lands office; the U.S. Forest Service; the National Park Service; and the U.S. Fish and Wildlife Service. Funding for treatment and suppression of fires within the MPA are often out of BLM control and therefore out of the scope of this RMP. However, by looking at the expenditures for fire management on an annual basis, specifically the variable and fixed labor costs, fiscal impacts to local communities can be estimated.

Full suppression of increasingly larger fires could result in adverse fiscal impacts to affected agencies and local volunteer fire departments. If future demands for fire-fighting services cannot be met by current staffing levels and budgets, the MFO and other agencies that help fight BLM fires would be adversely impacted. Local governments may be required to expend money to fight larger fires.

It should be noted that wildfire treatment, such as actively managing lands to reduce fuel loads, is less costly to agencies than fire suppression ($105 per acre vs. $140 per acre). Expenditures for fuels treatments in the Moab Fire District (MFD), however, are currently paid almost exclusively to out-of-area contractors, providing only marginal direct economic benefits to the local economy (personal communication between Bill Stevens, MFO, and Brain Keating, MFD fuels specialist, on June 27, 2007). Actively managing BLM lands to reduce fuel loads would potentially provide economic benefits associated with the reduced risk of large-scale fires that could damage personal property (e.g., homes) and fewer expenditures on fire suppression.

Homes and structures that are located within areas faced by threat of wildfire are becoming increasingly susceptible to wildland fire; with that comes an accompanying risk to lives and property. Communities in need of management to reduce the threat from wildland fire on adjacent public lands are identified as wildland-urban interface areas, or "WUIs." WUIs presently recognized within the MPA include the communities of Brown's Hole, Castle Valley, Dewey, La Sal and Old La Sal, Moab and Spanish Valley, Pack Creek, Thompson Springs, Willow Basin, and Wilson Arch. Treatments to reduce fuel loads in these areas would potentially have long-term beneficial impacts on these communities because risk of damage to property is decreased. If there is a reduced risk of large-scale fires in WUI areas, people may be more likely to remain in these areas, and individuals interested in remote locations for primary or secondary homes could be more likely to build in these areas, thus maintaining or increasing the populations of local communities.

4.3.12.2.4 Impacts of Health and Safety Management on Social and Economic Conditions

For all of the alternatives, health and safety management actions that would identify and address safety concerns about abandoned minelands, respond to hazardous waste releases, and protect public health and safety would have negligible adverse impacts to social and economic conditions of Grand and San Juan Counties because no local expenditures would be required. Long-term beneficial impacts to socioeconomics would likely result with the reclamation of

abandoned mine land, as the lands would be safer to recreate on and improved soils and habitats could contribute to a positive visitor experience. The hazard management restrictions would not interfere with or restrict the local economy, government revenue, or the local social character of the two counties.

4.3.12.2.5 Impacts of Lands and Realty on Social and Economic Conditions

For all of the alternatives, management decisions regarding access to, permits for, transfer of, acquisition, or exchanges of lands within the MPA would have negligible adverse impacts on socioeconomics in Grand or San Juan Counties. Alternative B and the Proposed Plan provide for rights-of-way (ROW) exclusion areas, including in non-WSA lands with wilderness characteristics. Alternative B could have adverse economic impacts to those individuals and businesses whose livelihood could be impacted by an inability to obtain a ROW. The Proposed Plan has 92 percent fewer acres (exclusive of WSAs) than Alternative B as ROW exclusion areas, with a corresponding reduced adverse economic impact.

Filming permits, which authorize local revenue-generating activity, would be granted under all alternatives provided they meet the criteria outlined in Table 2.1, Lands and Realty, Actions Common to All. Wind and solar energy and communication sites, R&PPs and utility lines throughout the MPA would be considered under all alternatives

4.3.12.2.6 Impacts of Livestock Grazing on Social and Economic Conditions

There are a total of 83 allotments within the MPA boundaries; 74 are administered by the MFO, and 68 are currently permitted for livestock use. Total BLM acres within allotments equal 1,794,798 acres; of these, 1,706,171 acres are currently permitted for livestock use.

Economic benefits associated with livestock grazing in the MPA are associated with income and employment generated by ranching operations on BLM lands. Indirect economic benefits are related to secondary jobs, income, and sales and income taxes.

A decrease in the number of acres available for grazing has the potential to adversely impact the lifestyle of ranchers. Losses in grazing opportunities could result in lost income and consequently a decline in social well being for affected ranchers and their families. The inability for ranchers to continue with traditional practices could potentially impact the overall character and way of life for residents of Grand and San Juan Counties.

However, it is important to note that the majority of grazing permittees within the MPA do not reside within the MPA. Therefore, contributions from these ranchers to the local economy could be minimal since supplies and materials are often purchased outside of the Grand and San Juan County communities. According to BLM records, of the 42 grazing permittees in the MPA, 15 live within the MPA (BLM 2006a).

Reductions in ranching-based income could make it more difficult for families to earn a living on ranching alone. Family members may have to get second jobs or work off the farm to bring in additional income. If ranchers are unable to continue operations, effects to local communities could include loss of business activity and/or the businesses themselves, and a decline in population if individuals have to relocate to earn a living. The positive direct and indirect economic impacts associated with livestock grazing (such as income, employment, sales, and income tax) would continue under all four alternatives. Due to the slight variation among

alternatives in the acres and AUMs available for grazing (see Table 4.84), socioeconomic impacts would resemble current conditions regardless of the alternative selected. Because the acreage available for grazing differs by no more than 101,582 acres (out of 1,822,528 acres) across alternatives, it is unlikely that the lifestyle enjoyed by the local ranching community would be adversely impacted in the short-term or long-term. Approximately 77,256 acres are not available to grazing in the No Action Alternative (A); as a result, current livelihoods would not be affected. However, under Alternative B two allotments currently available for grazing would not be available. This could have adverse impacts on the permittee holding the allotments. In addition it should be noted that of the 153,797 acres under consideration for closures under Alternative B 126,907 acres are currently unavailable and were not available for grazing under the Grand RMP. Furthermore, impacts to local economic conditions would be minor because only a minority of grazing permittees live within the MPA and therefore they may not contribute substantially to the local economy.

Table 4.84. Livestock Grazing Acres Available per Alternative

	Alternative A (No Action)	Alternative B	PROPOSED PLAN	Alternative D
Acres Available	1,695,621	1,668,732	1,708,294	1,770,314
Acres Unavailable	126,907	153,797	114,234	52,214
AUMs available	107,071	106,437	107,179	108,876

4.3.12.2.7 Impacts of Minerals on Social and Economic Conditions

4.3.12.2.7.1 Locatable Minerals

Uranium

As mentioned in Section 3.12.1.5.7, recent increases in the price of uranium have led to a substantial increase in the filing of uranium claims within the MPA. Between FY 2004 and FY 2006, 4,242 mining claims were filed within the MPA. While the exact percentage of uranium claims versus other locatable mineral claims is not known, it is likely that the majority of the claims filed were for uranium. In addition, the Mineral Potential Report (MPR) indicates a high potential for the occurrence of uranium in the La Sal and Lisbon Valley areas. Should extraction occur, the majority would take place on BLM land. While the increase in the filing of mining claims does not necessarily predict future development, any extraction activities would have beneficial impacts on local economic conditions, as developers would require goods and services in nearby towns. The number of acres open to uranium extraction is identical under Alternatives A, B, C and D, and represents no change from the current condition. Therefore, potential adverse impacts (i.e., restricting the number of acres open to extraction) would be negligible under all alternatives.

Other Locatables

As in the case of uranium, the extraction of other locatables such as copper, placer gold, and limestone would not be adversely impacted regardless of the alternative selected. This is due to the large number of acres open to extraction under all alternatives and the small amount of mining that is likely to take place.

The recently opened copper mine, located within the MPA, could continue operations under all alternatives. Contributions to the social and economic conditions in Grand and San Juan Counties from employment, property taxes (the mine is located partially on private land as well as BLM land), and indirect retail goods and services could continue regardless of the RMP alternative selected.

Salable Minerals

Sand, gravel, building stone, and clay have a high potential for occurrence, and extraction of these minerals would likely occur throughout the life of the RMP regardless of the alternative selected. Minor—or even negligible—impacts to socioeconomics would be likely since the operations are typically small, and the number of acres open to extraction would likely be adequate to accommodate demand. Alternative B has 808,097 acres open to development of salable minerals while the other three alternatives have over 1.2 million acres available. Under all alternatives, these acreages should be sufficient to meet demand for salable minerals (see Section 4.3.7.2 for exact acreages).

4.3.12.2.7.2 Leasable Minerals

Potash and Salt

Under all alternatives, the same minimum amount of potash and salt development would be expected. The expected level of development would not appreciably contribute to the economy of Grand County.

Oil and Gas Development

The greatest socioeconomic impacts from minerals decisions would result from changes to the oil- and gas-leasing program that currently exists in the MPA. Because of undefined market and non-market factors, the following analysis is based on simplified assumptions used to quantify general estimates of development costs, employment, production, and production revenue. This analysis is based on the following assumptions pertaining to the number of wells drilled per year, employment, production, and fiscal impacts.

Wells Drilled Per Year

This analysis is based on an estimate of potential oil and gas wells drilled annually over the life of the plan (LOP). The number of wells drilled per year has been figured by dividing the total number of wells per alternative by the 15-year life of the plan. Table 4.85 illustrates the annual well potential per alternative.

Table 4.85.A. Summary of Well Potential and Acres Open to Leasing on BLM Land per Alternative

	Predicted Wells			
	Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Acreage Open*	1,427,949	808,097	1,234,267	1,387,473
% Of Total Acreage Open Compared to Alternative A	--	-43%	-13.5%	-2.8%
Total Number of Wells over 15 Years	451	255	432	448

Table 4.85.A. Summary of Well Potential and Acres Open to Leasing on BLM Land per Alternative

	Predicted Wells			
	Alternative A	Alternative B	PROPOSED PLAN*	Alternative D
Total Annual Well Potential	30	17	29	30
Total Number of Potential Oil Wells	4	2	4	4
Total Number of Potential Gas Wells	26	15	25	26

*"Open" refers to acreage open for development, and excludes acreage available for leasing with no surface occupancy stipulations.

Employment

The drilling and completion of an oil well requires a crew of approximately 7 full-time employees (FTE). In addition to the crew members, several service and supply companies contribute to well development. One oil well could involve the services of up to 25 employees from drilling to completion. The majority of employees would be in the area on a short-term basis and would typically stay in a nearby hotel. Short-term construction workers may stay in on-site trailers or in local campgrounds. It is likely that the employees related to the oil and gas exploration and completion of wells within the MPA are not permanent residents of Grand or San Juan Counties (personal communication between Jeff Brown, Monticello FO, and Laura Burch, SWCA, on August 11, 2006).

Given the number of wells predicted annually per alternative (17–30), it is reasonable to assume that 2 crews of 7 FTEs and approximately 2 groups of service professionals (or equivalent in the number of employees) would be responsible for all wells throughout completion. Because the employees responsible for drilling and completion typically do not live in the area and because the overall number of employees required to complete the initial development phases is relatively small, it is predicted that the overall contribution to employment opportunities in Grand and San Juan Counties from oil and gas development is minimal, regardless of alternative. It is not likely that the employment derived from the drilling and completion of wells in the area would positively impact poverty or unemployment rates in Grand and San Juan Counties. Employees working on-site may stay in local hotels and patronize local business while in town, thus contributing to the local economy, but these contributions would be short-term and would vary from year to year. It should be noted that many oil and gas workers live in Grand Junction, and spend little, if any money in Grand County.

Once a well begins production (which can last up to 20 years), local employees could be employed on a long-term basis to maintain and operate the wells and to begin gradual reclamation of inactive wells and associated access roads. These oil and gas production jobs pay well (relative to other jobs within the county) and could employ up to 20-30 people over the life of the well. Because a small number of workers are needed to perform operation and oversight functions, contributions to the local economy and to overall county employment numbers are not significant. Employment related to all mining activities, including oil and gas development, only contributed 2.1% (120 jobs) to the total employment in Grand County and 5.6% (313 jobs) in San Juan County in 2000 (See Section 3.12.4.2.6).

Production

The majority of mineral development currently occurring within the MPA is natural gas production with 244 producing gas wells versus 30 producing oil wells on lands in the MPA (per Section 3.12.1.5.7, Table 3.40). Based on these numbers and historical trends, the following analysis assumes that 88% of the wells drilled in the MPA would be gas and 12% would be oil. See Table 4.85 for the number of oil and gas wells per year per alternative.

According to the Energy Information Administration, in January 2007 current-day oil price was $56.29 per 42-gallon barrel (EIA 2007). In 2004, the average yearly production per oil well in Utah was 7,141 barrels of oil. Potential annual revenue per oil well is $401,966 assuming that 7,141 barrels are recovered (7,141 × $56.29). The life of each well is estimated to be 15-20 years. The rate of production per oil well declines approximately 10% per year after the initial year. Therefore, annual revenue per well would begin at $401,966 and decrease 10% per year throughout the life of the well.

As of December 2006, the current natural gas price according to the Energy Information Administration was $6.65 per thousand cubic feet (MCF) for natural gas (EIA 2007). In 2004, the average yearly production per gas well in the state of Utah was 75,153 MCF (EIA, 2007), although gas wells in Grand County produce below the state-wide average. For analysis purposes, potential annual revenue per natural gas well is assumed to be at the state-wide average of $499,767 (75,153 × $6.65). The life of each well is estimated to be 20 years. The rate of production declines approximately 10% per year after the initial year, according to the UDNR. Therefore, the recovery value would begin at $499,767 and decline 10% per year throughout the life of the well.

Fiscal Impacts

The drilling and completion of wells in the MPA would have an impact on local and state governments resulting from taxes and other revenue received. Tax and royalty revenue would be realized for the life of the well, with diminishing returns after maximum production is reached. The severance taxes and royalty revenues generated from natural resource development are dependant on the amount of the commodity produced. Given the uncertainty of the geology and the market, the quantification of revenue is speculative.

Royalty revenue to the Federal, state, and county government equals 12.5% of production revenue. The Federal government returns 50% of the total royalties to the state where the mineral production occurs. The royalties are then distributed between the state and counties where the production takes place. Assuming the recovery value for one oil well is $401,966 per year, royalty revenues would be $50,245 per well at maximum production (401,966 × 0.125). If the recovery value for one natural gas well were $499,767 per year, royalty revenues would be $62,470 per well at maximum production ($499,767 × 0.125). The State of Utah receives 50% of this royalty payment, or $31,235 per gas well and $25,122 per oil well. Table 4.86.A. shows annual estimated royalty revenue by alternative.

Table 4.86.A. Annual Estimated Royalty Revenue per Alternative

	Estimated Revenue			
	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Oil Wells	$200,980	$100,490	$200,980	$200,980
Gas Wells	$1,624,244	$937,050	$1,561,750	$1,624,244

*Revenue shown is at maximum production. Table does not reflect 10% annual decrease in production and therefore, revenue.

In addition to royalty revenue, developers pay several taxes that benefit state and local governments, including severance, conservation, mineral withholding, and payroll taxes. In 2002 the severance tax rate for oil and gas development on Utah lands was 3% of the value up to and including the first $13 per barrel for oil, $1.50 per MCF of natural gas, plus an additional 5% of the value above these prices. The estimated ad valorem taxes for each mineral type are based on productions, assessed values, and current tax rates. Ad valorem taxes assessed on property associated with oil and gas operations generate tax revenue for the counties; with respect to this RMP, the greater the number of producing wells in the MPA, the greater the generation of property taxes associated with oil and gas extraction assets.

The State of Utah collects severance taxes on oil and gas and mining production within the state. In fiscal year 2006, these totaled over $17 million from mining, and over $71 million from oil and gas[2]. The amounts collected are a function of sales prices and actual production, making estimates of future collections tenuous at best. Severance tax revenues are remitted directly to the State's General Fund, making them available for expenditures as the Legislature sees fit. There is no direct correspondence between a particular County's natural resource production and the amount (if any) of severance tax revenues flowing indirectly back to a County[3].

Although there is no direct relationship between the amount of severance taxes produced within the MPA by natural resource production, one can estimate the contribution production activities make to the State. According to State of Utah data, severance taxes paid across the State totaled $70.1M in FY 2007. Although the different types of wells pay severance taxes at slightly different rates, a County's share of total production, regardless of well type, is the best estimate available with non-proprietary data. Table 4.86.B shows current severance tax benefits based on actual production in Grand County and estimates of production in that portion of San Juan County within the MPA. Estimates of future severance tax impacts from Alternatives B-D are based on projected changes in well activity. The State also collects severance taxes on metal and metalliferous minerals, which also go directly to the State's general fund. However, there are no planning decisions expected to affect production of these resources.

Figures from the Utah Tax Commission for 2006 indicate that estimated ad valorem (i.e., property) taxes collected from natural resources properties totaled $808,689 for Grand County, and $3,506,662 for San Juan County. The only property tax producing natural resources of significance in the MPA and potentially affected by planning decisions are oil and gas activities. Of those amounts, property taxes related to oil and gas were $593,754 for Grand and $2,855,217

[3]Source: Utah State Tax Commission, *Annual Report 2006 Fiscal Year*.
[3] Source: Conversation between Bill Stevens, Moab Field Office and Inge-Lise Goss, Auditing Division Manager, Minerals Section, Utah State Tax Commission, December 30, 2007.

for San Juan. On a per well basis, this averages to $1,041 per well for Grand and $3,767 per well for San Juan.[4] These are taxes levied on natural resources for *all* lands in the two counties, of which BLM constitutes a part. Given that active wells in Grand County on BLM lands constitute approximately 77 per cent of all wells and assuming that each of these wells produced property taxes at the average rate for all wells in Grand County, we can conclude that Grand County wells on BLM produced approximately $457,000 in property taxes for Grand County in 2006. For San Juan County, and assuming that all wells in the MPA are on BLM, active wells produced approximately $117,000 in property taxes for San Juan County in 2006. Table 4.86.B shows annual estimated ad valorem taxes per alternative.

Table 4.86.B. Annual Estimated Severance and Ad Valorem (Property) Taxes per Alternative

	Alterative A	Alternative B	PROPOSED PLAN	Alternative D
Estimated annual property tax benefit from oil and gas production	$574,000	$321,440	$551,000	$574,000
Estimated annual severance tax benefits to State from oil and gas production on BLM in the Moab Planning Area	$865,732, based on relative share of total State production (State of Utah data, February, 2008).	Likely to be about 45 per cent less than A, due to decreased production opportunities	Similar to A, since estimated production only slightly less than A	Similar to A, since estimated production similar to A

Bonus payments are one-time payments to the Federal government for a leased parcel of BLM land for a ten-year period that contribute to the state and local economies as a proportion of the payments are disbursed to state and local governments; these would continue under all alternatives. However, it is assumed that the more acres that are open to oil and gas development, the greater the opportunity for economic contributions from bonus payments.

Annual rental payments—$1.50 per acre for the first 5 years and $2.00 per acre each subsequent year—would also continue to contribute to state and local revenues as a proportion of the payments are disbursed to state and local governments under all alternatives. As in the case of bonus payments, annual rental payments have the potential to be greater in the future if more acres are open to mineral leasing.

As noted in Section 3.12.1.5.7, Grand and San Juan Counties receive a portion of Federal mineral lease monies returned to the State of Utah by the Federal government through the Permanent Community Impact Fund Board (CIB). The funds received by Grand and San Juan Counties for infrastructure projects would likely continue in amounts similar to recent contributions regardless of the BLM alternative selected, because CIB funding is not directly correlated with production by county but rather by applicant eligibility.

[4] Most of the current production in San Juan County (and presumably, most of the property tax base for these wells) lies outside the Moab Field Office boundary.

Alternative A

The number of employees needed to drill and complete the wells would remain the same. Given the historically inconsistent number of wells drilled annually within the MPA, the number of short-term employees would vary yearly. Should the maximum number of wells be drilled in a given year, it is likely that 2 crews of 7 FTEs and approximately 50 well service employees would be required. Under Alternative A (as well as all the other alternatives) the number of employees responsible for long-term production of the wells is expected to remain relatively unchanged since few local employees are required to perform maintenance and operation duties over the life of the wells. Should drilling of the actual annual well potential occur (30 wells annually) for several consecutive years, additional production employees would likely need to be hired. However the number necessary would likely be few. These additional jobs would have a minor beneficial impact to the local economy. Poverty and unemployment rates would not be positively or adversely impacted as a result of oil and gas related employment.

The annual estimated production royalty revenue from 4 oil wells would be $200,980; from 26 natural gas wells it would be $1,624,244. The range of economic contributions would vary depending on the combination of oil and gas wells that are producing annually. Assuming that producing wells occur on public lands, 50% of the production royalty revenues listed in Table 4.86 would go to the state; 10% of the royalties would go to the General Fund of the U.S. Treasury; and 40% of the royalties would to go the special purpose accounts of the reclamation fund (BLM 2005f).

Property taxes, including ad valorem taxes resulting from oil and gas development, would increase or decrease in proportion to the amount of production occurring within Grand and San Juan Counties. Overall, the contributions to the local economy from property tax and from other tax revenue generated from oil and gas extraction companies would be similar to current contributions. Annual oil and gas lease rental payments would also continue to contribute to the economy in a similar fashion under all alternatives.

Alternative B

Government revenues in the form of taxes and production royalties from oil and gas extraction under Alternative B would be less than those under Alternatives A, D, and the Proposed Plan given that the Alternative B's total well potential, at 255, is less (compared to approximately 450 under Alternatives A, D, and the Proposed Plan). With annual estimated revenue at $100,460 for oil and $937,050 for gas, local economic contributions from production royalties would be less and would thus adversely impact the local economies when compared to the other alternatives. Acres open for oil and gas development would be substantially fewer under Alternative B than under the other alternatives (43% fewer than in Alternative A), giving developers fewer exploration and extraction location options within the MPA. Employment related to oil and gas development would be less under Alternative B in comparison to the other alternatives. Hiring additional employees to manage the long-term production of the wells would be the least likely under this alternative, thus allowing for less of a potential beneficial impact to the local economy in comparison to the other alternatives.

An additional potential impact to state revenues is the potential loss to SITLA from not being able to lease or develop lands bordered all or in part by non-WSA lands with wilderness characteristics. The value of these lands for oil and gas leasing and/or development may be

reduced if all or portions of these public lands are closed to new oil and gas leasing. This in turn could reduce the monies collected by the state (through SITLA), including royalties and severance taxes. These impacts can be estimated using current data, and incorporating several assumptions. If one assumes that SITLA lands whose perimeter is more than fifty per cent bounded by acreage closed to new oil and gas leasing as a result of implementing Alternative B would be unavailable for development, and using the projections of the RFD, one can project that fewer than six wells (5.65) would not be drilled over the life of the plan. Using data provided by the State of Utah, royalty payments to wells on SITLA lands averaged $57,065 as of early 2008. Severance taxes averaged $9,335 for all wells, regardless of land ownership. Multiplying these figures by the wells assumed to not be drilled, the fiscal loss to the state would total $332,443 in royalties and $52,747 in severance taxes in any year in which all 5.65 wells would have been in operation. This amount could increase over the life of the plan, as it is likely that some fraction of these wells would be in operation in several (or even all) years of the plan.

The wages foregone in Grand and San Juan Counties as a result of adopting Alternative B can be estimated, given the assumptions of employment per well outlined earlier. Assuming 7 full-time equivalent jobs per well, and assuming that the probability of a well being situated in an area of non-WSA lands with wilderness characteristics, the number of jobs foregone on BLM in Grand County would be 15.69 in any given year. In the MFO portion of San Juan County it would total 1.88. These estimates are likely on the high side, given that direct employment in 2006 in Grand County (where most of the MPA's oil and gas activity occurs and is projected to occur in the future) was 25 employees, servicing over 250 wells. Using data provided by the University of Utah Bureau of Economic and Business Research, the average earnings in the oil and gas industry in Grand County was $34,421 in 2006.[5] (The study points out that most of the employees actually reside in Colorado.) Assuming that similar wages would be paid in Grand and San Juan Counties, and that these were *new* jobs going to county residents, the foregone wages would be $540,065 in Grand and $64,711 in San Juan County. Again, these estimates are likely on the high side, given that *total* wages in the industry in 2006 in Grand County were $829,000, which amounted to 0.8 per cent of total wages in the county.

Proposed Plan

Government revenues in the form of royalties and taxes from oil and gas production under the Proposed Plan would be similar to those under Alternative A, given that the total well potential between the alternatives is similar (451 under Alternative A and 432 under the Proposed Plan). Although the number of acres open for oil and gas development is less under the Proposed Plan by 13.5% (see Table 4.85.A.), the number of wells projected to be drilled would be only one well per year less. Employment levels related to oil and gas development would be similar to Alternative A.

Alternative D

Government revenues in the form of royalties and taxes from oil and gas production under Alternative D would be similar to those under Alternative A, given that the total well potential between the alternatives is almost identical (451 under Alternative A and 448 under Alternative D). When compared to the No-Action Alternative, the numbers of acres open for oil and gas

[5] Source: *The Structure and Economic Impact of Utah's Oil and Gas Exploration Industry Phase III – Grand County*, University of Utah, Bureau of Economic and Business Research (January, 2008)

development is less under Alternative D by 2.8% (see Table 4.85.A). Employment levels related to oil and gas development would be similar to Alternative A.

4.3.12.2.8 Impacts of Non-WSA lands with Wilderness Characteristics Decisions on Social and Economic Conditions

Alternatives A and D do not propose any lands be managed for wilderness characteristics. Therefore impacts to revenues from mineral development would not be affected. However, some recreation revenues could be lost due to fewer opportunities for non-mechanized recreation in Alternatives A and D.

Alternative B proposes to manage 266,485 acres of lands to maintain their wilderness characteristics. These lands would be closed to oil and gas leasing. Under Alternative B, approximately 15.2% of all BLM lands would be managed to maintain wilderness characteristics In the Proposed Plan, the BLM would manage 47,761 acres of lands to maintain wilderness characteristics. These 47,761 acres (2.6%) would be limited to NSO. The management of wilderness characteristics under Alternative B (15.2%) and the Proposed Plan (2.6%) would have adverse impacts to oil and gas development and the subsequent revenue generated for the local economy, as fewer wells would be drilled, particularly under Alternative B.

Managing lands for wilderness characteristics may have some positive economic benefits to the local economy, above and beyond recreation benefits to individual users of these areas. There is an extensive body of literature which argues that protecting lands as wilderness provides local, regional and national economic benefits. A briefing paper prepared by the Wilderness Society (TWS 2004) summarizes some of the more relevant research on this topic. For example, some research suggests that private property located next to or near protected lands increases in value due to this proximity. Other research suggests that areas with protected lands are more likely to attract higher income individuals, as well as businesses, who value the types of recreation activities provided in protected areas. Still other research argues that certain types of high-dollar recreation, such as hunting, are enhanced by wilderness protection. While most of these studies have focused on the benefits accruing to designated wilderness, it is possible that the same arguments may be applicable to non-WSA lands with wilderness characteristics.

In the MPA, with its relatively large number of second homeowners, it is reasonable to expect that certain features of managing for wilderness characteristics, such as protection of visual resources, would contribute to the appeal of the area both as a second home locus and as an area in which to retire. This scenario could benefit the local economy to the extent that such newcomers spend locally on such items as housing (especially construction), financial services, and healthcare. For some current residents, however, the restrictions on mineral extraction in Alternative B and the Proposed Plan, with any corresponding loss in employment opportunities or local tax revenues, could pose an additional economic hardship.

In Alternative B and the Proposed Plan, OHV use on designated routes would be permitted on those lands with wilderness characteristics (see Section 4.3.8.2.13 for details). Thus, adverse social and economic impacts as a result of decreases in OHV use are not likely regardless of alternative selected, although greater opportunities for OHV use occur under Alternative A.

4.3.12.2.9 Impacts of Paleontological Resources on Social and Economic Conditions

Management actions for paleontological resources would have negligible impacts on socioeconomic resources because the recreational and scientific collection of fossils, as well as the protection of these resources would be similar to current conditions and are the same across alternatives. Personal collection of invertebrate and plant fossils would be allowed throughout the MPA. The recreational collection of vertebrate fossils, as well as of noteworthy invertebrate and plant fossils, is already prohibited within the MPA. Therefore, the recreational collection of fossils from BLM-administered lands would have minimal impacts on the local economy. The permit-required scientific gathering of fossils within the MPA occurs rarely; approximately a half-dozen permits are issued annually (See Section 3.9.3). The economic contributions, including sales and hotel tax revenue, from scientific collection would also be negligible under all alternatives.

4.3.12.2.10 Impacts of Recreation and Travel on Social and Economic Conditions

Proposed recreation management decisions for the MPA have the potential to impact the local and regional socioeconomic conditions. The socioeconomic impacts would be primarily in the form of income and employment effects in the economies that serve the recreational user. Because the majority of recreation revenue occurs in Grand County, as do the majority of goods and services accessed by recreational users and tourists, the following analysis will not focus on the socioeconomic impacts to San Juan County. See the Monticello EIS/RMP for recreation impacts to San Juan County.

The relationship between changes in land-use decisions as they regard recreation and their associated social and economic impacts is difficult to quantify. Therefore, the following assumptions have been made:

- Increasing recreation opportunities could positively affect visitation, which could also benefit local businesses and overall traveler spending in the region.
- Improving the recreation experience would have a positive effect on the social component of recreation, potentially increasing visitation.
- Recreation Focus Areas, which would tend to segregate or concentrate specific recreational opportunities, activities, and users into spatially separate areas, would reduce recreation resource use conflicts. Focus areas are recreational management areas that would emphasize specific recreational opportunities and activities while permitting other recreational uses, in accordance with the Moab Travel Plan. It has also been assumed that a reduction in recreational use conflicts would enhance the expected recreational experiences within a particular focus area for certain user groups. Focus areas would be managed to meet the needs of specific user groups and thus the recreational experience would be more enjoyable and more likely to meet user recreation expectations. The number of focus areas within the MPA differs for each alternative. The focus areas emphasize recreational opportunities through facilities and education.
- Special Recreation Management Areas (SRMAs) are also intended to reduce user conflict as the BLM manages them more broadly for a specific recreational experience in comparison to focus areas. Each SRMA has been previously identified as an area where recreation issues or management concerns occur. Both focus areas and SRMAs would still allow for other

recreational uses within their boundaries in accordance with the Moab Travel Plan. For more information on the types of focus areas and SRMAs, see Section 4.3.10.2.10. Overall, focus areas and SRMAs would have long-term beneficial impacts on local socioeconomic conditions, because enhancing specific recreation opportunities in particular areas would likely reduce user conflict. With the reduction of user conflict in the MPA, it is likely that visitors would have a positive recreation experience and return to contribute more to the local economy.

- Specific user groups have their own sets of recreational expectations, goals, and needs. It has also been assumed that, because each user group has specific needs, goals, and expectations, each group also has recreational conditions and criteria that provide the opportunity for a satisfactory user experience. The recreation user groups and assumed conditions/criteria for satisfactory recreational user experiences are found in Section 4.3.10. Restrictions on dispersed camping and access routes to campsites may negatively affect recreationists seeking this type of experience.

With the trend toward increased recreation within the MPA, user conflicts are likely to remain an issue regardless of the alternative selected. User groups, as defined in Section 4.3.10, include motorized (on-road), motorized (off-road), non-motorized, non-mechanized, river floating, and specialized recreation. Increases in conflicts among user groups have the potential to adversely impact visitor experience to the area. The adverse impact to visitors regarding their recreation experiences would likely be short-term. However, long-term adverse impacts to the county's economy could be possible, as users might choose to recreate in other areas where they feel they are more likely to have a positive recreation experience. This would contribute to a loss in traveler spending in the area.

A recent United States Geologic Survey (USGS 2007) synopsis of relevant literature summarizes numerous studies of the impacts of OHV use on other users, often addressing the issue in the context of user conflicts. Other studies summarized by USGS concentrate on the economic benefits resulting from expenditures on OHV-related activities; the USGS was unable to find any published studies on the socioeconomic costs produced by OHV use, but concluded that such costs could exist. The USGS study is summarized in Appendix G.

4.3.12.2.10.1 Impacts Common to All Alternatives

Special Recreation Permits (SRPs) would be issued under all alternatives as a discretionary means to help meet BLM management objectives, facilitate recreational use of public lands, control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and provide opportunities for economic activity in the nearby communities. The number of land based commercial SRPs would not differ among the alternatives. Revenues generated by commercial SRPs (2006) total $6,270,676; of these revenues, $2,762,175 was generated by commercial river companies, and $3,508,501 was generated by land-based outfitters.

4.3.12.2.10.2 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

Among all action alternatives, within SRMAs, no surface occupancy for oil and gas leasing and other surface-disturbing activities would be permitted within 0.5 miles of developed recreation

sites, including current and potential future facilities. As a result, visitor experience within the SRMAs would likely be enhanced and user conflicts reduced.

4.3.12.2.10.3 Alternative A

As shown in Section 3.12.1.5.7, tourist spending in Grand County has grown consistently since the 1990s, contributing an annual average of $2 million in local sales tax revenue since 2000 (UDTD 2004). Under current management actions, recreation use is projected to continue existing trends. Visitation to local attractions would be anticipated to follow the existing growth trend. Local and regional social and economic impacts from recreation and tourism would be similar to those experienced currently.

Tourism-related spending in Grand County could total approximately $100 million dollars, as it did in 2003. Expenditures for leisure and hospitability services are taxed at the local and state level and are a benefit to counties. Under Alternative A, tax revenue from visitor spending (i.e., hotel, restaurant, and sales tax) would similarly contribute to the county's fiscal resource base.

Travel- and tourism-related employment could continue to increase according to existing trends. Recent increases in travel- and recreation-related employment in Grand County are illustrated with a jump from 1,878 to 1,999 jobs between 2000 and 2003, a 6.4% increase (UDTD 2004). Increases would reflect the trends of recent years and would have a positive impact on the local economic conditions. However, it should be noted that with increases in higher wage jobs, such as construction and infrastructure development as a result of second-home ownership in a recreational setting, lower wage service jobs could potentially become harder to fill with local residents.

Under Alternative A there would be 3 SRMAs (Canyon Rims, Cameo Cliffs, and Colorado River) totaling 135,094 acres designated, and no designation of focus areas. It is likely that user conflicts could increase as they have over recent years as more people come to the MPA for recreational purposes. User conflicts could result in adverse experiences for the users thereby decreasing the likelihood that they would return to the Moab area and patronize the local businesses, potentially a long-term adverse impact on the local economy.

Under Alternative A, 620,212 acres would be designated as open to OHV use and 1,196,920 acres would be designated as limited to Existing or designated routes. It is presumed that the number of acres available for OHV travel among all alternatives is sufficient to meet current demand (personal communication between Bill Stevens, MPA, and Laura Burch, SWCA, on November 9, 2006). However, if increased interest in OHVs continues as it has in recent years, the number of acres available under any alternative may not meet future need.

This alternative represents the current conditions for OHV access, and, as such, it is likely that the economic contributions from the user group would be similar to current contributions. Contributions to the local economy from hotel taxes, retail, maintenance, and restaurant sales would continue along the current path.

Recreational users who require motorized access would most enjoy short-term benefits under Alternative A. Fewer places would disallow motorized access, potentially decreasing the recreation experience and/or social well-being of individuals or groups who value solitude. Possible degradation of soil, water quality, cultural resources, wildlife, and scenic quality, in

areas associated with high OHV use and cross-country travel, could adversely impact the recreation opportunities and visitation in the long-term.

Special Recreation Permits are required for commercial outfitters along the Colorado Riverway SRMA and the Two Rivers SRMA. Both of these SRMAs permit a maximum of 30 outfitters and a total of 24,000 passenger days per year. Outfitters who currently receive permits would likely continue to receive permits, and the revenue generated from river runners within the local economy would continue at current levels.

4.3.12.2.10.4 Alternative B

Under Alternative B there would be 11 SRMAs totaling 1,016,554 acres and 22 focus areas. Generally, this alternative emphasizes non-motorized use while still providing opportunities for motorized vehicle use. Groups or individuals who value solitude and non-motorized activities would have the most places to enjoy under Alternative B, perhaps enhancing the visitor experience. This alternative is least responsive to the desires of individuals and groups who feel public lands should remain open to motorized vehicle access, potentially detracting from their social well-being. The potential for OHV-related damage to resources would be smallest under this alternative, thus having a long-term beneficial impact on visitation to the area.

Because this alternative focuses on non-motorized activities, it is possible that the focus areas would see an increase in hikers and a decrease in OHV users. The emphasis on non-motorized use could lead to greater visitor satisfaction among non-motorized users and a decrease in satisfaction among motorized users. It is possible that dissatisfaction among OHV users could lead to decreases in their economic contributions to Grand County. Given the continuing increase of OHV use within the MPA, a decrease in use by motorized users could be of greater significance than a decrease in use by non-motorized users. Although it is not certain how much money each user group contributes on a daily basis in the Moab area, it is possible that local government revenue from hotel, restaurant, and sales tax on goods purchased would be reduced under Alternative B, should OHV use decline. The fiscal resources of local government would potentially be indirectly impacted by a decrease in recreational visits to the county. Expenditures for leisure and hospitality services are taxed at the local and state levels and are a benefit to local government. Because the proportion of recreation expenditures compared to expenditures from local residents and/or non-recreation consumers is not possible to quantify, it is generally concluded that a decrease in recreation use in the area would lead to a decrease in tax revenues for local government.

Under Alternative B, zero acres would be designated as open to OHV use, with all OHV routes restricted to limited areas (1,475,074 acres). This alternative eliminates all acres open to cross-country travel, which includes closure of the popular White Wash Sand Dunes. While this may lead to an adverse impact to users who enjoy cross-county travel, the majority of OHV use occurs on existing routes according to the best professional judgment of the MFO (Personal communication with Bill Stevens, MPA, and Laura Burch, SWCA, November 9, 2006). Although the exact number of OHV users who use the areas currently designated as open for cross country travel is not known, decreases in their visits to the area because of the restrictions under Alternative B could have minor adverse economic impacts to the county as discussed in the paragraph above.

The recent trend towards the construction of second homes in the Moab area may be due to the scenic and non-motorized recreational opportunities in the area. Although the MPA has not been studied specifically, a multi-county sponsored study in Colorado suggests strongly that second home buyers are attracted to areas primarily based on access to scenery and recreation (Venturoni et al. 2005). The same study found that 82 per cent of these second home owners indicated hiking and jogging as their favorite recreational activities. To the extent that these results can be extrapolated to the MPA, this suggests that an emphasis on preservation of scenery and an emphasis on non-motorized recreation opportunities could fuel continued growth in the second home industry, with concomitant economic benefits to local communities. With the non-motorized focus of Alternative B, higher wage jobs such as construction and infrastructure development resulting from second home construction could likely increase similar to existing trends. The emphasis on non-motorized recreation would continue to draw those interested in non-motorized recreation opportunities to develop second homes and contribute to the local retail economy.

A potential downside to the above scenario exists. Given a limited supply of housing, growth in second home ownership could drive up housing prices in general, as seems to have been the case recently in Grand County. An increase in housing costs could make it more difficult to attract and retain workers in lower wage industries, of which tourism is typically a segment. If tourism-oriented employers find it more difficult to attract and retain employees, the kinds of services expected by al visitors may decline in quantity and/or quality. Such an outcome could pose adverse impacts to the local economy. Second home ownership also could cause changes in the demographic character of the local community, which some current residents may regard as undesirable for its perceived impacts on local culture and customs.

Within the 2 SRMAs that require SRPs for river rafting, Alternative B allocates the fewest permits when compared to the other alternatives. Within the Colorado Riverway SRMA, 19 unallocated permits and 2 allocated permits would be issued. Westwater Canyon, within the Two Rivers SRMA, allows for a daily 48-person launch limit for each sector (private and commercial). When compared to the other action alternatives, Alternative B has a 36% reduction in launch limits as compared to the Proposed Plan and a 63% reduction as compared to Alternative D. These reductions would have minor adverse impacts on socioeconomics as fewer river runners would be allowed to run rivers and contribute to the local economies before and/or after trips, assuming these river permits are at maximum capacity currently. Alternatively, a decrease in supply, even with demand constant, could allow commercial outfitters to increase prices, and therefore their own revenues.

4.3.12.2.10.5 Proposed Plan

Under the Proposed Plan there would be 10 SRMAs totaling 658,642 acres and 30 focus areas. The Proposed Plan emphasizes a balance of recreational opportunities for motorized and non-motorized uses within the MPA. Groups or individuals who value solitude and non-motorized activities would have the greatest number of focus areas emphasizing a range of recreational opportunities. This alternative also promotes the greatest amount of motorized backcountry touring and the most motorized, sporting-event focus areas (although the acreage for the White Wash Sand Dunes and Dee Pass is slightly reduced compared to Alternative D). This alternative is most responsive to those who feel that a balance of uses should be allowed within the MPA.

With its implementation of SRMAs and focus areas, the Proposed Plan would have the potential to reduce user conflicts to a greater degree than the other alternatives. The reduction in user conflict and the ability for user groups to recreate in specific areas geared toward their particular activities allow for the broadest range of satisfactory user experiences. By providing satisfactory experiences for the widest spectrum of users, the Proposed Plan would provide more potential for increased visitation and economic contributions to the region than would Alternatives A, B, and D. The Proposed Plan, therefore, potentially provides greater long-term economic contributions to the retail economy and, indirectly, to the local government in the form of sales tax revenue.

This alternative would designate 1,866 acres (White Wash Sand Dunes) as open to OHV use, with 1,481,334 acres designated as limited for OHV use. Allowing cross-country travel in the White Wash Sand Dunes would permit motorized users to recreate in a manner not permitted under Alternative B. In addition, the Gemini Bridges/Poison Spider Mesa motorized backcountry touring area and the Dee Pass motorized trail area would be established as focus area for OHV use. By allowing for cross-country travel and other motorized trail access, the Proposed Plan gives OHV users more opportunities to meet their recreation expectations and needs than does Alternative B. Thus, the economic contributions to the local economy by OHV users would be greater under the Proposed Plan than under Alternative B. Moreover, while user conflicts between motorized and non-motorized vehicle users would continue to occur under Alternative A, they would be less likely to occur under the Proposed Plan, and therefore the Proposed Plan would provide more satisfactory user experiences.

By providing for a range of recreational opportunities for all users, the Proposed Plan could have a beneficial impact on local employment. Satisfactory user experiences would result in more tourists returning to the MPA and a corresponding increase in the need for goods and services. A range of jobs would be necessary to meet the needs of tourists, including lower wage service jobs and higher paying professional jobs. Given the reduction in user conflicts under the Proposed Plan, recreation- and tourism-related employment is likely to steadily increase as it has under current conditions. This increase is expected, in the long-term, to exceed the employment needs generated by Alternative A, because user conflicts and resource degradation would be less likely.

The Proposed Plan would allow for similar amounts of Special Recreation Permits within the Colorado Riverway SRMA when compared to Alternatives B and D (21 commercial permits issued annually under Alternative B and the Proposed Plan and 25 under Alternative D). For Westwater Canyon, commercial and private permits are required. The daily launch limit would be 75 people and commercial group size would be 25 plus 3 additional crew. Because the Proposed Plan allows for 36% more people to be permitted on a daily basis on the SRMA rivers (compared to Alternative B), it improves the potential for an increase in local revenue generation. With a 41% decrease in launch limits, compared to Alternative D, potential revenue generated from river runners could be less under the Proposed Plan.

4.3.12.2.10.6 Alternative D

Alternative D emphasizes motorized uses and would provide 6 SRMAs totaling 277,495 acres and 10 focus areas. The majority of acres that would be designated as focus areas would be open to motorized vehicle use. Under Alternative D, 3,604 acres would be designated as open to OHV use, which includes White Wash Sand Dunes and Airport Hills. Alternative D would designate

1,762,083 acres as limited to designated routes, including the Dee Pass Motorized Trail Focus Area.

Emphasizing motorized recreation could have positive, short-term, social impacts on OHV user groups, because the specific group would have greater opportunities to meet their recreation objectives. However, impacts to all other user groups could be adverse under Alternative D and its emphasis on motorized use. Other user groups who believe that recreation on public lands should include opportunities for solitude would have a more challenging time finding places to meet their recreation objectives. The long-term impacts of emphasized motorized use would be adverse, as crowding, user conflicts, and the degradation of the environment would detract from the overall visitor experience for all user groups.

Dissatisfaction among non-motorized users could lead to decreases in economic contributions to Grand County. The decreases in satisfactory recreational experiences by non-motorized users, such as hikers, mountain bikers, and river rafters, may result in fewer returns to the MPA. Although it is not certain how much money each user group contributes on a daily basis in the Moab area, it is possible that local government revenue from hotel, restaurant, and sales tax would be reduced under Alternative D should OHV use be emphasized. While OHV users would still continue to patronize local businesses, the contributions from the range of other users would decrease, adversely impacting local economies. The fiscal resources of local governments would potentially be indirectly impacted by a decrease in recreational visits to the county, as the local- and state-level leisure and hospitality tax revenues would decrease.

Impacts of Alternative D to local employment would be similar to those of Alternative B. By emphasizing the recreation opportunities for one user group and not others, user conflicts and decreases in satisfactory experiences by the other groups could lead to a decrease in visits to the MPA. Thus, fewer goods and services—and therefore employees—would be needed to meet the demand from recreation-based tourism.

The number of individuals allowed per river trip within the Colorado Riverway SRMA and Two Rivers SRMAs is greatest under Alternative D. Should the demand for permits rise to meet Alternative D's permit maximums, benefits to local communities from recreation-based revenue would be greatest under this alternative.

4.3.12.2.11 Impacts of Riparian Decisions on Social and Economic Conditions

Management decisions common to all alternatives for riparian resources would have negligible impacts to the social and economic conditions of communities in Grand and San Juan Counties. The impacts would be negligible because all floodplains and riparian/wetlands would be managed in accordance with Executive Orders, the Clear Water and Endangered Species Act, and Utah's Standards for Rangeland Health, and because there is opportunity for mineral leasing across all alternatives outside of riparian areas. These mandates and management actions would not allow great variation in the management of the resource such that it would have a substantial impact on the local economy or social character of communities.

4.3.12.2.12 Impacts of Soil and Water on Social and Economic Conditions

Soil and water resource actions common to all alternatives would have negligible impacts on socioeconomics. Approximately 58% of lands available for surface-disturbing activities are overlain by sensitive soils with high limitations (See Section 4.3.7.3.7 for details). Any surface

disturbance projects (e.g., minerals development) initiated on these sensitive soils would require the implementation of specifically tailored of Best Management Practices (BMPs) and mitigation measures. Although the implementation of BMPs may result in minor increases in cost and time on behalf of the project proponent, the medium and high limitations do not prohibit development and therefore do not represent economic loss to the county. Under all alternatives developers would be able to extract oil and gas from over three quarters of medium- and high-risk soils and, as a result, generate revenues for Federal and local governments as well as provide limited opportunities for local employment.

Development on slopes greater than 30% would require a controlled surface-use stipulation, and an additional timing limitation from November 1 through April 30 (181 days) for slopes such as those in the Book Cliffs RFD Area. These special stipulations may require additional costs and time to relocate well pads and pipelines, requirements that may result in a decrease in revenue for the developer. However, impacts to local economic conditions should be minor given that the lands would still be effectively open to development, assuming the requisite minimization of damage to sensitive soils is accomplished.

4.3.12.2.13 Impacts of Special Designations on Social and Economic Conditions

4.3.12.2.13.1 Areas of Critical Environmental Concern (ACECs)

Protecting the relevant and important values associated with Areas of Critical Environmental Concern (ACECs) limits activities that are considered incompatible with the protection of the specific values and resources of concern. Specifically, surface-disturbing activities (mineral development, OHV use, road and facilities construction) would be limited as a result of ACEC designations. With specific regard to mineral resource development, ACEC designation could limit areas to development. ACEC designations could have adverse impacts upon oil and gas development in some locations and, therefore, to subsequent revenue for the local economy. Alternatives A and D do not designate ACECs and would not be limited by the special designation restrictions. Outside of WSAs, ACEC designation under Alternative B results in 16.5% of BLM lands with major restrictions for oil and gas leasing (no surface occupancy or closed). ACEC designation under the Proposed Plan (with 63,232 acres designated) results in 1.7% of BLM lands with a no surface occupancy stipulation for oil and gas leasing (See Section 4.3.7.2 for details on acres of potential ACECs available to mineral development). Under Alternative B and the Proposed Plan, the restrictions to and/or exclusion of lands from oil and gas development would lower the number of locations where potential wells could be drilled. The lower number of locations could indirectly lead to a lower yield and commercial supply of oil and natural gas and, therefore, fewer royalties paid to the Federal, state, and local governments. An approximate monetary impact would be difficult to estimate, because desired future locations of development in proposed ACEC sites is unknown.

Under the two alternatives where ACEC designations are proposed, OHV use would be allowed in ACECs on designated routes, although the miles of Class D roads would vary slightly among alternatives (see Table 4.136 in Section 4.3.16.2.6.1). Allowing OHV access within ACECs could be beneficial in the long-term for socioeconomics, because opportunities would remain available for recreational access. Revenue generated in local communities by OHV users would be similar to current conditions.

4.3.12.2.13.2 Wilderness Study Areas and Wilderness Areas

The MPA contains 11 existing WSAs totaling 348,815 acres (or approximately 16% of BLM lands). WSA designations would continue to apply across all alternatives and would be managed in a manner that does not impair their suitability for congressional designation (BLM 1991c). An ongoing debate exists in the literature as to the economic benefits (or lack thereof) of wilderness, and these arguments may extend to WSAs. However, management of WSAs is non-discretionary across alternatives, and therefore beyond the scope of this analysis. In addition, the management of the Black Ridge Wilderness Area (5,200 acres) is set by law and beyond the scope of this EIS.

4.3.12.2.13.3 Wild and Scenic River Recommendations

Under Alternative A, none of the eligible Wild and Scenic River (WSR) segments carried forward in this RMP would be evaluated for WSR suitability determination. However, the 6 river segments eligible for WSR designation would continue to be managed in a manner that would not impair the WSR eligibility. Social and economic impacts resulting from this management action would be similar to current conditions. Alternative D would not recommend rivers within the MPA for WSR designation. Therefore, special designation decisions under Alternative D regarding WSRs would have no impact on socioeconomics above and beyond current conditions (Alternative A). See Section 4.3.14.4 for river segments proposed for WSR designation under each alternative.

Suitable WSR segments impose no restrictions on oil and gas leasing or other mineral development. Special restrictions were not necessary to protect WSR values because restrictions imposed to benefit other resource values, such as riparian, visuals, and floodplains, were sufficient. Socioeconomic impacts from the restrictions imposed to protect these other resources (riparian, visuals, floodplain) are discussed under the relevant sections.

The designation of the WSRs under Alternative B could potentially lead to an increase in tourism revenue to the BLM and local communities, thus having long-term beneficial impact on the local economies. The designation of rivers and/or river segments could attract more people to the area who enjoy the type of recreation that often accompanies these designations (including high scenic qualities and opportunities for solitude). The increase in tourism based on river recreation could lead to increased revenue to local river-running companies and an increase in tourist dollars spent in nearby communities.

The designation of portions of the Colorado, Green and Dolores Rivers as suitable WSRs under the Proposed Plan could potentially lead to an increase in tourism revenue to the BLM and local communities, thus having long-term beneficial impact on the local economies. The impact of the Proposed Plan is estimated to be approximately the same as in Alternative B because the major rivers used by the river industry are designated as suitable in the Proposed Plan. The designation of rivers and/or river segments could attract more people to the area who enjoy the type of recreation that often accompanies these designations (including high scenic qualities and opportunities for solitude). The increase in tourism based on river recreation could lead to increased revenue to local river-running companies and an increase in tourist dollars spent in nearby communities.

4.3.12.2.14 Impacts of Special Status Species and Other Wildlife and Fisheries Decisions on Social and Economic Conditions

Across all alternatives, the impacts to socioeconomics of management actions regarding special status species (e.g., temporary seasonal or spatial buffers and restrictions for roosting or nesting birds, and habitat enhancement to protect special status species) would be minor. Restriction on mineral development within Special Status Species habitats would adversely impact developers during specific times of the year (see Section 4.3.7.3.9). The timing limitations imposed by special status and other wildlife species could potentially hinder development. However, due to the large number of acres open to oil and gas development across alternatives (over 1 million acres) and the number of wells predicted annually (no more than 30 wells) within the MPA, a negligible to minor adverse economic impact would be anticipated, because drilling would commence during periods without seasonal restrictions and, in areas without restrictions, could go on year-round.

4.3.12.2.15 Impacts of Vegetation Decisions on Social and Economic Conditions

Vegetation management efforts may benefit the local economy if labor, seed, and equipment maintenance come from local communities. Since vegetation treatments are expected to be similar in size across all alternatives, there would be no differences among alternatives in social and economic conditions.

4.3.12.2.16 Impacts of Visual Resource Decisions on Social and Economic Conditions

The demand for a range of recreation opportunities would not be limited as a result of VRM (Visual Resource Management) classifications; therefore, impacts to socioeconomics from recreational visitation would be minor under all alternatives. Opportunities for recreation with high levels of scenic quality (VRM Class I and Class II) would remain throughout Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), Special Recreation Management Areas (SRMAs), and along eligible Wild and Scenic river segments. See Section 4.3.12.2.10 for more details on recreation impacts to socioeconomics.

Under all alternatives, designation of lands as VRM Class III or IV would not impose special restrictions on oil and gas development. However, VRM Class I and II do impose restrictions on oil and gas development. VRM Class I results in the imposition of major restrictions on oil and gas development (no surface occupancy or closed). VRM Class II results in the imposition of a controlled surface use stipulation, requiring specific controls or constraints to protect visual resources. Low levels of surface disturbance are permitted under VRM Class II, at a site-specific project level, as long as the disturbance is not visible over the long term, which often requires extensive mitigation.

It should be noted that all WSAs are designated as VRM Class I for all alternatives. However, the limitations to oil and gas development are a result of the WSA designation and not the VRM I classification. Table 4.87 provides the acreage of VRM classes by alternative.

Table 4.87. VRM Class Acreages by Alternative[6]

VRM Class	Alternative A/ VRM Inventory	Alternative B	PROPOSED PLAN	Alternative D
I	349,110	453,462	358,911	349,617
II	401,015	373,647	365,566	245,773
III	800,782	784,246	829,158	956,724
IV	271,356	210,532	268,133	269,641
Total	**1,822,263[1]**	**1,821,887**	**1,821,768**	**1,821,755**

Source: BLM GIS form 2003 and 2006.

Alternative D would have the least amount of lands with VRM Class I and II designations (595,390 acres) compared to the other alternatives and therefore the most acres open for oil and gas development and greatest potential for mineral-based revenue. Alternatives A, B, and C have similar acreages with VRM I and II (750,125 acres under A, 796,736 acres, under B, and 714,840 acres under Proposed Plan) which would limit the placement of oil and gas wells. Therefore, the difference in economic impacts among Alternatives A, B, and the Proposed Plan would be minor.

A potential decrease in revenue based on tourism and sightseeing-based revenue would be greater under Alternative D, should oil and gas wells be visible from popular tourist destinations. Alternatives A and B provide the greatest amount of viewshed protection with VRM Class I and II designations (750,125 acres under Alternative A and 799,736 acres under Alternative B), and therefore the greatest potential for sightseeing-based revenue. The Proposed Plan designates a similar amount of VRM Class I and II, with oil and gas development restricted on 714,840 acres.

Overall, the socioeconomic impacts from visual resource management on oil and gas exploration would be relatively minor given that the maximum number of wells to be developed within the MPA is 450 (under Alternative A) and given the large amount of VRM Class II, III, and IV lands (over 1 million acres under every alternative) available for oil and gas development. The preservation of viewsheds with high scenic quality would allow for the greatest opportunity for recreation and sightseeing-based revenue, thus having long-term beneficial impacts on the local economy and visitor experience.

4.3.12.2.17 Impacts of Woodland Decisions on Social and Economic Conditions

Woodland management actions common to all alternatives would have negligible impacts on the social and economic conditions of communities in Grand and San Juan counties, because the private and commercial use of woodland products is not a substantial contributor to the local economy. No commercial timber sales have occurred within the MPA due to the lack of timber resources. The number of wood gathering permits is not anticipated to increase over the life of the RMP, and the percentage of acres available for woodland gathering does not vary appreciably across any of the alternatives.

[6] Totals are not exact due to GIS shapefile variances.

Willow and cottonwood harvesting by Native Americans for ceremonial uses in riparian areas would be allowed under all alternatives, with negligible impacts to riparian vegetation, since the level of collection is low.

4.3.12.3 Summary of Impacts

Overall, the local economy would not experience substantial adverse impacts from BLM resource management decisions in the form of lessened revenues. Beneficial impacts, in the form of positive visitor experiences and contributions to the local economy, are possible as a result of management decisions but benefits would not vary significantly among alternatives. Many resource management decisions regarding air quality, fire management, hazard management, paleontology, soil and water, special status species, and woodlands would have negligible impacts on the social and economic conditions of Grand and San Juan Counties. Resource management decisions regarding cultural resources, lands and realty, livestock grazing, minerals, non-WSA lands with wilderness characteristics, recreation and travel management, special designations, and visual resource management would have a greater impact. Population, employment, and local revenue would remain relatively unchanged with the implementation of any of the proposed alternatives. The influence of proposed resource management decisions would not contribute to a substantial change to the local economic diversity of Grand or San Juan Counties.

4.3.13 Soil and Water

This section discusses impacts to soil and water resources from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning soil and water resources are described in Chapter 3.

For the purposes of this broad scale analysis, the primary indicator of impacts to soil and water resources is the amount of surface disturbance caused by management decisions made for other resources, particularly surface disturbance that occurs in highly erodible, reclamation-limited, or other sensitive soils. Another important indicator of impacts to water resources is a decrease in water quality conditions in perennial streams, including levels of suspended sediments, sediment bedload, dissolved solids, nutrient loads, bacteria counts, and water temperatures. Once these parameters exceed the State water quality standards at a site, the perennial stream is listed on the 303d list, which is the final indicator of poor water quality conditions.

Surface disturbance would impact soil and water resources to varying degrees, depending on the amount, location, and type of surface disturbance; the soil type; the time of year and the surface hydrology. Surface-disturbing activities that currently occur and that are expected to continue include grazing, oil and gas and mineral exploration and development and associated access routes, recreation and OHV use, and woodland harvest and other forms of vegetation removal and treatments.

All soils in the MPA are susceptible to accelerated erosion, but sensitive soils are more susceptible to impacts. Surface-disturbing activities could result in any of the following impacts under any alternative: increased soil erosion and sedimentation, decreased soil productivity, changes to quantity and quality (e.g., salinity) of surface water and groundwater, loss of vegetation or prevention of revegetation, or introduction of noxious weeds and the attendant increases in water use (e.g., tamarisk uses large quantities of groundwater) and/or changes in soil

chemistry and productivity. Analyses of impacts to soil and water resources in this section are based upon the factors contributing to site degradation and their inherent risks (Table 4.88), according to SSURGO soils mapping for the MPA.

Some sites are at risk of degradation because surface layer wind and/or water erodibility factors are high. Kw refers to the relative ease of water erosion. The slope factor accounts for the tendency of steeper slopes to erode more easily. The wind erodibility group refers to the relative ease of wind transport of surface materials.

Other sites are at risk of degradation due to reclamation-limiting factors (i.e., factors that prevent soils from being fully reclaimed following surface disturbance). See Table 4.88 for a list of these factors. In reclamation-limited soils, one or more factors make site reclamation difficult in semi-arid environments, including alkalinity, droughty soils, soil rooting depth, salinity, available water capacity, and sodium adsorption. Available water capacity refers to the amount of water available for plant uptake. Salinity refers to the amount of salt within soils that can be dissolved in surface waters. The sodium adsorption ratio refers to the amount of sodium that can be held by the soils and influence nutrient uptake. Rooting depth refers to the depth of soil, which influences how far plant roots can grow. Finally, alkalinity refers to soil pH, which generally limits plants' ability to establish when it is higher (i.e., more basic).

Table 4.88. Factors Contributing to Site Degradation and Their Inherent Risks*

Factors	High Risk	Moderate Risk	Low Risk	Restrictive Feature
Erodibility				
Kw Factor (surface layer) and Slope (sl)[1]	K ≥ .37, sl ≥ 10%; or K = .20-.36, sl > 30%	K = .20-.36, sl 10-30%; or K < .20, sl > 30%	K < .20, sl 10-30%; or sl < 10%	Water erosion hazard
Wind Erodibility Group (surface layer)	1, 2	3, 4, 4L	5–8	Wind erosion hazard
Limits on Reclamation				
Available Water Capacity (average to 40 inches; in/in)[2]	< 0.05	0.05–0.10	0.10 <	Droughty soils
Salinity3 (mmhos/cm; surface layer)	16 <	8–16	< 8	Excess salt
Sodium Adsorption Ratio4 (surface layer)	13 <	4–13	< 4	Excess sodium
Depth to Bedrock or Hardpan (inches)	< 10	10–20	20 <	Rooting depth
Alkalinity (pH of surface layer)	9.0 ≤	7.8–8.9	< 7.8	Excess alkalinity

* Draft parameters developed by the BLM's National Science and Technology Center, SSURGO soils mapping.

[1] K Factor of surface layer adjusted for the effect of rock fragments. Slope is the maximum value for the range of slope of a soil component within a map unit.

[2] Maximum value for the range of available water capacity for the soil layer; inches of water per inches of soil.

[3] Maximum value for the range in soil salinity.

[4] Maximum value for the range in sodium adsorption ratio.

An important soil component often affected by surface disturbance is the biological soil crust, comprised of cyanobacteria, lichens and mosses. These crusts help to stabilize soils, reducing erosion and increasing soil productivity. Biological soil crusts have not been mapped and could occur in most of the soils within the MPA.

Throughout this analysis, highly erodible soils, reclamation-limited soils, and biological soil crusts are collectively referred to as sensitive soils. Biological soil crusts are discussed only qualitatively and are not included in the tables. However, any of the other soil parameters may overlap in any area, and so acreages presented in this analysis are not additive. For example, a particular acreage may have soils with shallow rooting depth as well as high wind erodibility. Acreages are also only approximate, due to limitations in soil mapping techniques and the planning area-wide scale of analysis.

Decisions regarding the management of resources other than soil and water in the MPA may affect soil and water resources either directly or indirectly. Those impacts may be beneficial or adverse, and are described below. Management decisions regarding air quality, paleontology, socioeconomics, special status species, vegetation, visual resources, wildlife resources, or woodland resources would result in negligible impacts to soil and water resources. The impacts would be negligible because protecting air quality, allowing recreational fossil collection and scientific study of fossils, improving the local and regional economy, protecting federally listed species and their habitat under the Endangered Species Act, improving and maintaining native vegetation communities, protecting scenic quality, permitting woodland harvesting, and maintaining habitat for non-listed wildlife species would not have surface-disturbance impacts on sensitive soils and soil crusts. Therefore, impacts from these management decisions were not analyzed. Travel management decisions are included in the discussion of recreation decisions.

4.3.13.1 Impacts of Fire Management Decisions on Soil and Water

Under all alternatives, fire management would follow the guidelines in the Utah Land-use Plan Amendment for Fire and Fuels Management (LUP; BLM 2005c). Under all alternatives, estimated fuels reduction treatments of 5,000–10,000 acres per year would be targeted. Because specific areas are not designated for treatment each year, the specific soils affected are unknown; therefore, a qualitative assessment of short- and long-term impacts follows. Individual fire management projects will be analyzed at the implementation level with site-specific NEPA documentation under all alternatives.

The impacts of fire management on soil and water resources would be adverse in the short term due to increased erosion and sedimentation and runoff from areas where vegetation is removed during prescribed burns or other fuels-reduction treatments. Fuels-reduction treatments would be designed to limit these impacts in areas with sensitive soils and to surface hydrology via implementation of emergency stabilization techniques described in the LUP, which would reclaim plant cover and reduce erosion and subsequent sedimentation of surface waters.

Long-term, beneficial impacts to soil and water resources would occur under all alternatives due to a reduction of the risk of catastrophic fires and the establishment of a more natural fire return interval. Impacts would take the form of reduced frequency and number of high-intensity fires fewer hydrophobic soils, increased infiltration, decreased flood magnitude, and less erosion and sedimentation. These fire management decisions would also lower the potential for long-term loss of vegetative cover and the attendant stream sedimentation and changes in surface

hydrology that can occur with increased runoff timing and intensity. A detailed analysis of these treatments' impacts to soil and water resources is included in the LUP's EA (BLM 2005c).

4.3.13.2 Impacts of Health and Safety Decisions on Soil and Water

Under all alternatives, where Abandoned Mine Lands (AMLs) are rehabilitated, the management of hazardous materials would result in beneficial impacts to soil and water resources in the short and long term by reducing water quality-related threats to public health and/or the environment. The impacts would be identical under all alternatives.

4.3.13.3 Impacts of Lands and Realty Decisions on Soil and Water

Under all alternatives, surface disturbance within utility corridors would potentially impact sensitive soils. Impacts to total acres disturbed and acres of sensitive soils disturbed were analyzed by alternative. Because no particular data on the distribution of biological soil crusts are available, only a qualitative discussion is included. The widths of proposed utility corridors vary by alternative, and are analyzed by approximate total acreage of disturbed soils and disturbed sensitive soils contained within the corridors. Table 4.89 presents these acreages within proposed utility corridors under each alternative.

4.3.13.3.1 Alternative A

Under Alternative A, utility corridors have the potential to impact up to 32,502 acres of soils and up to 25,700 acres of sensitive soils; see Table 4.89). Based on a comparison of these maximum acreages of total soils and sensitive soils across all alternatives, Alternative A represents the least adverse impact to total soils and sensitive soils due to surface disturbance associated with utility corridors.

4.3.13.3.2 Alternative B

Under Alternative B, utility corridors have the potential to adversely impact up to 65,865 acres of total soils and up to 56,500 acres of sensitive soils (see Table 4.89). Impacts would take the forms described under Alternative A. This potential for adverse impacts is greater than Alternative A because there are more acres of designated corridors, but much less than the Proposed Plan and Alternative D because there are fewer acres in this alternative.

4.3.13.3.3 Proposed Plan

Under the Proposed Plan, utility corridors have the potential to adversely impact up to 173,099 acres of total soils and up to 135,500 acres of sensitive soils (see Table 4.89). Impacts would take the forms described under Alternative A. This potential for adverse impacts is much greater than Alternatives A and B, and slightly less than Alternative D due to the total number of acres proposed within utility corridors.

Table 4.89 Sensitive Soils in Designated Utility Corridors

Sensitive Soil	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
	Acres	% of MPA	Acres	% of MPA	Acres O	% of MPA	Acres	% of MPA
Wind-erodible	650	<0.1	1,200	<0.1	3,700	0.1	3,700	0.2
Water-erodible	80	0.0	20	0.0	220	<0.1	220	<0.1
Alkalinity	8900	.05	18,500	1.0	33,000	1.8	38,700	2.1
Droughty	13,000	0.7	24,700		58,700	3.2	68,500	3.7
Rooting Depth	25,700	1.4	56,500	1.4	135,500	7.4	164,200	9.0
Salinity	9,800	0.5	19,500	3.1	37,400	2.0	45,750	2.5
Sodium Adsorption	9,800	0.5	19,500	1.0	37,700	2.0	46,500	2.5
Total Acreage**	**32,502**		**65,865**	**1.0**	**173,099**		**204,168**	

* Comprises Standard Conditions and Controlled Surface Use/Timing Limitations leasing categories.

** Acreages of soil types are not additive, as some soils may exhibit more than one sensitive soil characteristic. Total acreage refers to ALL soils types, not just sensitive soils.

4.3.13.3.4 ALTERNATIVE D

Under Alternative D, utility corridors have the potential to adversely impact up to 204,158 acres of total soils and 164,200 acres of sensitive soils (see Table 4.89). Impacts would take the forms described under Alternative A. This potential for adverse impacts is the greatest under Alternative D since the most acres would be proposed in utility corridors in this alternative.

4.3.13.4 IMPACTS OF LIVESTOCK GRAZING MANAGEMENT DECISIONS ON SOIL AND WATER

Under all alternatives, the impacts of livestock grazing management decisions on soil and water resources would depend upon the number of acres of total and sensitive soils, acres of riparian zone, and the miles of perennial streams in each allotment that are available for grazing Depending on season and duration of use, grazing could have direct, adverse impacts on soil productivity and indirect, adverse impacts to water quality due to trampling of soils and loss of biological soil crusts and vegetative cover, especially in riparian areas. Changes in timing may affect the degree of these adverse impacts. For example, limiting grazing during the growing season allows stream banks to retain their vegetation, which protects them from erosion caused by high flows and results in fewer adverse impacts. In addition, if the grazing season on saline soils ends by March 2, the freeze-thaw cycle can partially restore soil infiltration rates and reduce compaction.

Development of Allotment Management Plans (AMPs) and use of grazing systems, as well as the monitoring of grazing for compliance with all rangeland standards, would be beneficial to soil and water resources. AMPs and grazing systems promote proper grazing practices and reduce impacts to soils; where monitoring showed site degradation, adaptive management of livestock use would result in appropriate changes in seasons of use and other grazing management would mitigate impacts to soil and water resources.

The acres of sensitive soils affected by each alternative are shown in Table 4.90. The alternatives vary season of use on certain sensitive soils, with varying impacts to these soils. Therefore, the discussion of impacts is qualitative and not quantitative.

Livestock grazing would be excluded from riparian areas in the following allotments: Between the Creeks, North Sand Flats, South Sand Flats, and Castle Valley. This would provide relatively beneficial impact to 47,247 acres of soils, 10,026 acres of sensitive soils and 1,122 acres of riparian habitat.

Livestock grazing is dispersed on BLM lands, lessening the impacts of soils compaction. Soil compaction is of greatest concern near water sources, on livestock trails and in other areas of livestock concentrations. Wet or moist conditions exacerbate soil compaction problems.

The earlier in the year the grazing season ends, the fewer impacts to soil and water resources. Spring rest is important to soils, as the freeze-thaw cycle improves soil permeability and infiltration rates and therefore overall soil productivity. With productive soils, erosion is minimized and impacts to water quality are reduced. With later grazing seasons, soils are compacted and the freeze-thaw cycle improvements are negated. Also, late spring grazing tends to utilize riparian areas more, and may reduce proper functioning conditions and impact water quality conditions.

Table 4.90. Grazing Impacts on Erodible and Reclamation-limited Soils, by Alternative

Alternative	Status	Erodible		Reclamation-limited				
		Wind-erodible	Water-erodible	High Alkalinity	Droughty Soils	Rooting Depth	High Salinity	Sodium Adsorption
A	Acres Available	39,050	13,150	106,200	619,200	838,100	119,900	139,750
	Acres Unavailable	700	2,800	550	71,450	22,950	250	250
	% Available	98.2	82.4	99.5	89.7	97.3	99.8	99.8
B	Acres Available	37,850	13,100	106,200	602,300	823,250	119,900	139,750
	Acres Unavailable	1,900	2,850	550	88,400	37,800	250	250
	% Available	95.2	82.1	99.5	87.2	95.6	99.8	99.8
C	Acres Available	38,750	13,450	106,200	624,100	836,650	119,900	139,750
	Acres Unavailable	1000	2,550	550	66,550	24,400	250	250
	% Available	97.5	84.1	99.5	90.4	97.2	99.8	99.8
D	Acres Available	38,950	15,750	106,200	651,050	846,500	119,900	139,750
	Acres Unavailable	850	250	550	39,600	14,550	250	250
	% Available	97.9	98.4	99.5	94.3	98.3	99.8	99.8

Other grazing decisions that would vary among alternatives are the proposed adjustment of grazing practices, and the development of AMPs. These decisions, when implemented, would generally reduce surface disturbance. Manipulation would limit the intensity and duration of grazing impacts, but not entirely avoid them. AMPs would result in benefits because they may utilize both grazing manipulation and some timing restrictions. Timing restrictions would protect soils from compaction during wet periods and from subsequent increases in surface runoff and erosion, and would generally be the most protective of soil and water resources.

4.3.13.4.1 ALTERNATIVE A

Management of grazing in saline soils would reduce impacts from saline soil erosion through grazing manipulations. This would reduce surface and vegetation disturbance on moderate to highly saline soils in the MPA, providing some protection for sensitive soils. These management actions would provide the lowest level of protection for sensitive soils of any of the alternatives.

About 126,907 acres would not be available for grazing. This is a beneficial impact to 126,907 acres of soils, 84,949 acres of sensitive soils, and 4,418 acres of riparian habitat. Impacts are also reduced in the Mill Creek and Castle Valley municipal watersheds and the Cottonwood-Diamond watershed (because of the exclusion of grazing in the Castle Valley, Cottonwood and Diamond allotments). This would reduce impacts to water resources and floodplains and would improve overall watershed. Removal of grazing in the Diamond, Cottonwood and Nash watersheds (within the Diamond, Cottonwood and Bogart allotments) would lead to increased stability of stream channels and improved riparian health. Erosion and sedimentation would decrease with the removal of grazing from these very steep allotments.

The 2003 catastrophic wildfire which severely burned the Diamond and Cottonwood allotments released erosion of loose alluvial sediments at an accelerated rate. The stream channels are very unstable, with excessive bank erosion. Beneficial impacts in these watersheds would be realized with the continued cessation of grazing. These impacts would include increased time for post-fire ecological recovery, decreased sedimentation and erosion, increased water quality conditions (water temperature, sediment loads and turbidity), increased aquatic habitat conditions and increased riparian health and post-fire recovery.

While short term adverse impacts consisting of vegetation removal and soil erosion could occur, range projects, including vegetation treatments, implemented to benefit livestock and other resource values would result in long term benefits to soil and water resources.

4.3.13.4.2 ALTERNATIVE B

Under Alternative B, management of grazing in saline soils would reduce impacts from saline soil erosion by considering adjustments in seasons of use on allotments with saline soils to minimize soil compaction. Grazing management decisions would protect sensitive soils most under Alternative B; they would result in:

- reduced soil compaction and erosion of saline soils, due to timing restrictions during critical months of the year; and
- improved soil productivity and water quality over the long term.

About 153,797 acres would not be available for grazing. This is a beneficial impact to 153,797 acres of soils, 106,752 acres of sensitive soils and 4,953 acres of riparian habitat. Impacts are also reduced in the Mill Creek and Castle Valley municipal watersheds and the Cottonwood-Diamond watershed (because of the exclusion of grazing in the Castle Valley, Cottonwood and Diamond allotments). This would reduce impacts to water resources and floodplains and would improve overall watershed health. Removal of grazing in the Diamond, Cottonwood and Nash watersheds (within the Diamond, Cottonwood and Bogart allotments) would lead to increased stability of stream channels and improved riparian health. Erosion and sedimentation would decrease with the removal of grazing from these very steep allotments.

The 2003 catastrophic wildfire which severely burned the Diamond and Cottonwood allotments released erosion of loose alluvial sediments at an accelerated rate. The stream channels are very unstable, with excessive bank erosion. Beneficial impacts in these watersheds would be realized with the continued cessation of grazing. These impacts would include increased time for post-fire ecological recovery, decreased sedimentation and erosion, increased water quality conditions (water temperature, sediment loads and turbidity), increased aquatic habitat conditions and increased riparian health and post-fire recovery.

Grazing in 4,422 acres of riparian resources and along 58 miles of perennial stream would be excluded. This would provide beneficial impacts to water resources and floodplain stability, and improve overall watershed health.

While short term adverse impacts consisting of vegetation removal and soil erosion could occur, range projects, including vegetation treatments, implemented to benefit resource values would result in long term benefits to soil and water resources. No other alternative would implement range projects solely to reduce soil compaction and erosion; therefore, of all the alternatives,

Alternative B represents the greatest, short- and long-term, beneficial impacts to soil and water resources.

4.3.13.4.3 PROPOSED PLAN

Under the Proposed Plan, management of grazing in saline soils would reduce impacts from saline soil erosion via AMPs. These protection measures would result in increased forage and improved soil productivity and water quality over the long term, due to implementation of vegetation treatments to benefit wildlife or watershed values. While short term adverse impacts consisting of vegetation removal and soil erosion could occur, range projects, including vegetation treatments, implemented to benefit livestock and other resource values would result in similar long term benefits to soil and water resources.

About 114,234 acres would not be available for grazing. This is a beneficial impact to 114,234 acres of soils, 80,178 acres of sensitive soils and 4,279 acres of riparian habitat. Impacts are also reduced in the Mill Creek and Castle Valley municipal watersheds and the Cottonwood-Diamond watershed (because of the exclusion of grazing in the Castle Valley, Cottonwood and Diamond allotments). This would reduce impacts to water resources and floodplains and would improve overall watershed health. Removal of grazing in the Diamond, Cottonwood and Nash watersheds (within the Diamond, Cottonwood and Bogart allotments) would lead to increased stability of stream channels and improved riparian health. Erosion and sedimentation would decrease with the removal of grazing from these very steep allotments.

The 2003 catastrophic wildfire which severely burned the Diamond and Cottonwood allotments released erosion of loose alluvial sediments at an accelerated rate. The stream channels are very unstable, with excessive bank erosion. Beneficial impacts in these watersheds would be realized with the continued cessation of grazing. These impacts would include increased time for post-fire ecological recovery, decreased sedimentation and erosion, increased water quality conditions (water temperature, sediment loads and turbidity), increased aquatic habitat conditions and increased riparian health and post-fire recovery.

The Proposed Plan would restrict grazing in 1,169 acres of riparian resources. This would provide beneficial impacts to water resources and floodplain stability, and improve overall watershed health along 28 miles of perennial stream.

Overall, the Proposed Plan would provide more protection for saline soils than Alternatives A and D, but less protection than Alternative B.

4.3.13.4.4 ALTERNATIVE D

About 52,217 acres would be unavailable for grazing. This is a beneficial impact to 52,217 acres of soils, 43,999 acres of sensitive soils and 1,177 acres of riparian habitat. Impacts from grazing are reduced in the Mill Creek and Castle Valley municipal watersheds (because of the exclusion of grazing in the Mill Creek and Castle Valley allotments). This would reduce impacts to water resources and floodplains and would improve overall watershed.

Under this alternative, the Cottonwood and Diamond watersheds (within the Cottonwood and Diamond allotments) would be available for grazing, with adverse impacts to these watersheds. These watersheds, which suffered a catastrophic fire in 2003, could be subject to increased erosion of loose alluvial sediments and sedimentation. Stream channel stability would decrease,

bank erosion would be excessive, and riparian health would deteriorate if grazing were to be reintroduced into these allotments. Adverse impacts in these watersheds would result with the reintroduction of grazing. These impacts would include decreased time for post-fire ecological recovery, increased sedimentation and erosion, decreased water quality conditions (water temperature, sediment loads and turbidity), decreased aquatic habitat conditions and decreased riparian health and post-fire recovery.

4.3.13.5 Impacts of Mineral Resource Decisions on Soil and Water

The impacts of mineral resource decisions on soil and water resources were assessed by the acres of potential surface disturbance to total soils/sensitive soils under each alternative. Throughout this analysis, it was assumed that areas open to minerals development would be more likely be subjected to surface-disturbing activities, although the actual amount of future mineral development cannot be predicted.

As mentioned in Section 4.3.13, above, biological soil crusts, which have potential to be impacted by surface-disturbing activities, have potential to occur on any soils in the MPA. No quantitative data are available for these soils. Therefore, the quantitative analysis in this section applies only to reclamation-limited soils and highly erodible soils.

Under all alternatives, disturbance of total soils/sensitive soils associated with mineral resource development would contribute to adverse impacts to soil and water resources in general, including loss of vegetative cover and soil productivity and sedimentation of surface waters. In particular, noxious weed infestation resulting from disturbance of reclamation-limited soils would impact soil productivity and would cause changes in surface water hydrology. Biological soil crusts would potentially be crushed during surface disturbance and would no longer be protected from wind and/or water erosion. Damaged biological soil crusts would also take longer to be reclaimed after the completion of development, due to the long period of time needed to develop these crusts (BLM 2001d).

Under all alternatives, the acreage of total soils/sensitive soils in each BLM leasing category (i.e., Standard Conditions, Controlled Surface Use and/or Timing Limitations, No Surface Occupancy, and Closed, listed from greatest to least amount of surface disturbance) would quantify impacts to sensitive soils in terms of acres of surface disturbance. Generally, areas that are Closed to development or subject to No Surface Occupancy would experience little or no surface disturbance due to minerals development; thus, negligible or no adverse impacts to soil and water resources would occur. Areas of sensitive soils subject to Standard Conditions or conditions of Controlled Surface Use and/or Timing Limitations would experience short- and long-term impacts to soil and water resources from surface disturbance associated with minerals development. These short- and long-term adverse impacts would include destruction of biological soil crusts; erosion and subsequent sedimentation of surface waters; changes in surface hydrology and infiltration; and possible alteration of soil chemistry and/or productivity by noxious weeds.

Across all alternatives, over the life of the RMP, projected surface disturbance in the Big Flat – Hatch Point, Eastern Paradox, Lisbon Valley, Roan Cliffs, and Salt Wash RFD areas would be minimal and negligible because the level of development is expected to be low. However, the Bookcliffs and Greater Cisco RFD Areas have far greater acreages of sensitive soils with potential to be impacted by surface disturbance associated with minerals development (BLM

2005e; see Table 4.1). Analysis of the alternatives therefore focuses on the Bookcliffs and Greater Cisco RFD areas (Tables 4.91 and 4.92). Surface disturbance due to geophysical exploration also has the potential to impact soil and water resources under each alternative.

Approximate acreages of exploration-associated surface disturbance over the life of the plan were determined (though exact locations of exploration and disturbance cannot be determined), and a quantitative analysis of impacts to sensitive soils due to geophysical exploration is also provided under each alternative.

Finally, approximately 1,015 acres of surface disturbance are expected to occur due to the development and extraction of locatable, salable, and leasable (other than oil and gas) minerals under all alternatives (BLM 2005f). Although the locations of these surface disturbances relative to sensitive soils in the MPA are unknown, they would have a adverse impact on soil and water resources through soil disturbance, soil compaction, and mixing of soil horizons. They could potentially increase runoff and erosion as well, and lead to the invasion of noxious weeds.

4.3.13.5.1 ALTERNATIVE A

Under Alternative A, at least 41% of soils in the MPA with at least one limiting factor have the potential to be disturbed by mineral resource development (see Table 4.91). Adverse impacts resulting from this disturbance would take the form of degradation of soil productivity, erosion, and sedimentation of surface waters. Under Alternative A, mineral leasing decisions would result in the highest total surface disturbance of all the alternatives. Therefore, Alternative A represents the greatest potential for adverse impacts to sensitive soils, because erodible, reclamation-limited, and biological crusted soils are most likely to be open to mineral development under this alternative (see Table 4.91).

Within the Book Cliffs and Greater Cisco RFD areas (approximately 14.5% of the MPA; see Table 4.92), more surface disturbance is expected than under Alternative B. A total of 300 wells would be installed in these RFD areas over the life of the plan, resulting in surface disturbance on 4,504 acres and impacting soil and water resources in the short and long term. Surface occupancy for oil and gas leasing would be allowed on a similar acreage of reclamation-limited soils to Alternative D and the Proposed Plan.

Table 4.91. Sensitive Soils with Potential to be Impacted by Oil and Gas Leasing, All RFD Areas

Alternative	Status	Wind-erodible	Water-erodible	Alkalinity	Droughty	Rooting Depth	Salinity	Sodium Adsorption
Alternative A	Acres Open[1]	36,800	9,700	106,600	519,800	743,250	120,000	129,950
	Acres Closed[2]	2,950	6,200	50	169,900	116,700	50	10,000
	% of MPA Open	2.0	0.5	6.0	29.0	41.0	7.0	7.0
Alternative B	Acres Open[1]	23,300	4,450	106,200	282,650	470,300	104,600	106,650
	Acres Closed[2]	16,400	11,500	500	407,700	390,700	15,500	33,400
	% of MPA Open	1.3	0.2	6.0	16.0	26.0	6.0	6.0
PROPOSED PLAN	Acres Open[1]	32,000	6,700	106,200	397,100	691,450	120,100	130,500
	Acres Closed[2]	7,800	9,200	500	293,200	169,500	0	9,500
	% of MPA Open	2.0	0.4	6.0	22.0	38.0	7.0	7.0
Alternative D	Acres Open[1]	34,800	9,300	106,200	492,750	732,500	120,100	130,500
	Acres Closed[2]	4,900	6,700	500	197,900	128,550	0	9,500
	% of MPA Open	2.0	0.5	6.0	27.0	40.0	7.0	7.0

[1] Comprises Standard Conditions and Controlled Surface Use/Timing Limitations leasing categories.
[2] Comprises No Surface Occupancy and Closed leasing categories.

Table 4.92. Oil and Gas Leasing Impacts on Erodible and Reclamation-limited Soils in the Bookcliffs and Greater Cisco RFD Areas

Alternative	Status	Bookcliffs RFD Area Only			Greater Cisco RFD Area Only		
		Wind-erodible	Water-erodible	Reclamation-limited	Wind-erodible	Water-erodible	Reclamation-limited
Alternative A	Acres Open[1]	0	3,300	74,000	2,200	430	189,400
	Acres Closed[2]	0	2,950	22,200	200	200	7,500
	% of MPA Open	0.0	<1.0	4.1	<1.0	<1.0	10.4
Alternative B	Acres Open[1]	0	2,600	53,600	1,900	10	82,600
	Acres Closed[2]	0	3,700	42,900	500	630	114,400
	% of MPA Open	0.0	<1.0	3.0	<1.0	<1.0	4.5
PROPOSED PLAN	Acres Open[1]	0	3,200	21,600	200	400	190,350
	Acres Closed[2]	0	3,050	74,900	2,200	200	6,700
	% of MPA Open	0.0	<1.0	4.1	<1.0	<1.0	10.5
Alternative D	Acres Open[1]	0	3,300	75,300	2,200	200	190,400
	Acres Closed[2]	0	2,900	21,200	200	400	6,400
	% of MPA Open	0.0	<1.0	4.1	<1.0	<1.0	10.5

[1] Comprises Standard Conditions and Controlled Surface Use/Timing Limitations leasing categories.
[2] Comprises No Surface Occupancy and Closed leasing categories.

Under Alternative A, geophysical exploration has the potential to disturb 2,397 acres within the MPA, any portion of which may be sensitive soils. Impacts, if they occur, would take the forms described above.

Overall, because it represents the highest acreage of sensitive soils Open to mineral resource development (and surface disturbance) of all the alternatives, Alternative A is most likely to adversely impact sensitive soils on a planning area-wide level. Assuming all alternatives adversely impact sensitive soils, Alternative A would impact the same number of acres as Alternatives C and D also resulting in the greatest acreage of adverse impacts to sensitive soils.

4.3.13.5.2 ALTERNATIVE B

Under Alternative B, at least 26% of soils in the MPA with at least one limiting factor have the potential to be disturbed by mineral resource development (see Table 4.91). Adverse impacts resulting from this disturbance would take the forms described under Alternative A. Alternative B is 15% less than Alternative A and represents the least potential for adverse impacts to sensitive soils, because erodible, reclamation-limited, and biological crusted soils are least likely to be open to mineral development under this alternative (see Table 4.91).

Under Alternative B, surface occupancy for oil and gas leasing would be allowed on reclamation-limited soils within the Book Cliffs and Greater Cisco RFD areas on approximately 7.5% of the MPA, which is approximately 50% fewer acres of reclamation-limited soils open to surface disturbance than under Alternative A. A total of 149 wells would be installed in these two RFD areas over the life of the plan resulting in surface-disturbance on 2,235 acres, which would result in approximately 50% less surface disturbance than Alternative A.

Under Alternative B, geophysical exploration has the potential to disturb 1,404 acres within the MPA, any portion of which may be sensitive soils. Impacts would take the forms described under Alternative A. Geophysical exploration under Alternative B is much less likely to adversely impact sensitive soils than it is under Alternative A.

Based on the acreages detailed in Tables 4.81 and 4.82, of all the alternatives, Alternative B would have the least adverse impacts to soil and water resources due to mineral resource development decisions.

4.3.13.5.3 PROPOSED PLAN

Under the Proposed Plan, at least 38% of soils in the MPA with at least one limiting factor have the potential to be disturbed by mineral resource development (see Table 4.91). Adverse impacts resulting from this disturbance would take the forms described under Alternative A. The Proposed Plan, only 3% less than Alternative A, closely resembles that alternative as well as Alternative D, in the magnitude of impacts to sensitive soils from oil and gas leasing decisions (see Table 4.92).

In addition, slightly fewer acres of reclamation-limited soils within the Book Cliffs and Greater Cisco RFD areas would be open to surface occupancy (approximately 14.5% of the MPA). The impacts from these activities would be extremely similar to other alternatives other than differences in the areas over which they would occur.

Under the Proposed Plan, geophysical exploration has the potential to disturb 2,072 acres within the MPA, any portion of which may be sensitive soils. Impacts would take the forms described

under Alternative A. Geophysical exploration under the Proposed Plan is somewhat less likely to adversely impact sensitive soils than Alternative A, but more likely than Alternative B.

4.3.13.5.4 Alternative D

Under Alternative D, at least 40% of soils in the MPA with at least one limiting factor have the potential to be disturbed by mineral resource development (see Table 4.91). Adverse impacts resulting from this disturbance would take the forms described under Alternative A. Alternative D, being only 1% less than Alternative A, most closely resembles Alternative A in the magnitude of impacts to sensitive soils from oil and gas leasing decisions (see Table 4.91), but also closely resembles the Proposed Plan.

This is true for the amount of reclamation-limited soils within the Book Cliffs and Greater Cisco RFD areas open to surface occupancy (approximately 14.5% of the MPA) as well

Under Alternative D, geophysical exploration has the potential to impact 2,329 acres, any portion of which may be sensitive soils. This would result in the same amount of surface disturbance as under Alternative A and would take the forms described under Alternative A.

4.3.13.6 Impacts of Non-WSA lands with Wilderness Characteristics Resource Decisions on Soil and Water

Management of lands that have wilderness characteristics varies by alternative. Generally, limits on surface disturbance and motorized recreation on lands with wilderness characteristics would protect soil and water resources from adverse impacts.

4.3.13.6.1 Alternative A and Alternative D

There are no management decisions regarding non-WSA lands with wilderness characteristics under Alternatives A and D. Therefore, no additional protection for soil and water resources would occur under these alternatives.

4.3.13.6.2 Alternative B

Under Alternative B, management decisions regarding non-WSA lands with wilderness characteristics would occur on 266,485 acres. One such decision would prohibit surface-disturbing activities on the entire 266,485 acres, any portion of which may be sensitive soils. Of all the action alternatives, Alternative B would manage the most acres to maintain wilderness characteristics. Management under Alternative B would therefore provide the most protection for sensitive soils against adverse impacts due to surface disturbance and motorized recreation.

4.3.13.6.3 Proposed Plan

Under the Proposed Plan, management decisions regarding non-WSA lands with wilderness characteristics would occur on 47,761 acres. One such decision would prohibit surface-disturbing activities on the entire 47,761 acres. This restrictions applies on fewer acres than Alternative B, but more than Alternatives A and D. Management under the Proposed Plan would therefore potentially result in fewer impacts to soil and water resources than would Alternatives A and D.

4.3.13.7 Impacts of Recreation and Travel Management Decisions on Soil and Water

Under all alternatives, recreation and travel management decisions—primarily regarding OHV use—would affect soils, biological soil crusts, and water quality. Surface disturbance from OHV use would increase soil erosion, decrease soil productivity and infiltration rates, and may decrease water quality. Disturbance levels would be related to the amount of surface disturbance, soil type and slope, and proximity to water resources. Limiting OHV use to designated routes and closing some areas would minimize or eliminate adverse impacts to soil and water resources.

Where proposed under the alternatives, control of human waste through installation of vault toilets in high-use recreation areas generally would benefit water quality by reducing E. coli contamination and nutrient-loading of surface waters. Designation of camping areas generally would limit the surface disturbance that results from dispersed camping and unofficial fire pits and, thus, would limit adverse impacts to soils.

Under all alternatives, the proper management of designated trails (e.g., installing signage, enforcing closures, proper trail design on slopes, etc.) would limit impact to soil and water resources. However, the alternatives differ in the total acres of soils and the number of acres of sensitive soils as well as miles of perennial streams and acres of riparian resources that are open or closed to OHVs or in which OHVs are limited to designated routes. Because closures and limiting OHVs to designated routes both generally result in no additional surface disturbance that impacts soil and water resources, these two OHV use categories were analyzed together for each alternative (Table 4.93).

Under all alternatives, SRMAs would be established to manage recreational use and to mitigate impacts caused by this use, such as uncontrolled camping, parking, and other activities. The greater the proportion of public lands managed as SRMAs, the greater the ability to control the impacts resulting from recreation use, resulting in fewer impacts to soil and water resources. See Table 4.94 for acreage of SRMAs by alternative. In addition, river recreation user numbers differ by alternative, as specified in Chapter 2, Table 2.1. The user numbers for SRMAs, as specified in Table 2.1, are the basis for the analysis of impacts to soil and water resources resulting from foot, non-motorized, and motorized traffic and disturbance; fire; the potential for spread of noxious weeds; and potential for contamination in general.

Table 4.93. Sensitive Soils with Potential to be Impacted by OHV Use, by Alternative

Alternative	Status	Wind-erodible	Water-erodible	Alkalinity	Droughty	Rooting Depth	Salinity	Sodium Adsorption
Alternative A	Acres Open	11,300	8,000	10,450	213,900	262,900	11,100	19,100
	Acres Closed or Limited	28,500	7,900	96,300	476,500	598,000	109,100	120,900
	% of MPA Open	0.6	0.4	0.6	12.0	14.0	0.6	1.0
Alternative B	Acres Open	0	0	0	0	0	0	0
	Acres Closed or Limited	39,750	16,000	106,700	690,700	861,000	120,100	140,000
	% of MPA Open	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROPOSED PLAN	Acres Open	210	0	0	370	1,610	0	0
	Acres Closed or Limited	39,500	16,000	106,700	690,300	859,400	120,100	140,000
	% of MPA Open	<0.1	0.0	0.0	<0.1	<0.1	0.0	0.0
Alternative D	Acres Open	270	0	0	1,150	2,700	0	0
	Acres Closed or Limited	39,500	16,000	106,700	689,500	858,300	120,100	140,000
	% of MPA Open	<0.1	0.0	0.0	<0.1	0.1	0.0	0.0

Table 4.94. SRMA Acreage, by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Acreage of SRMAs	141,234 acres	976,173 acres	658,642 acres	277,471 acres

A recent United States Geologic Survey (USGS 2007) synopsis of relevant literature summarizes numerous studies of the impacts of OHV use on soil and water resources. The USGS concludes that the research reviewed found important effects of OHV activities on the functioning of soil and water resources including soil compaction, diminished water infiltration, diminished presence and impaired function of soil stabilizers (biotic and abiotic crusts, desert pavement), and accelerated erosion rates. Compacted soil inhibits infiltration of precipitation. In turn, soil moisture available to vegetation is diminished, volumes and velocities of precipitation runoff increase, and soil erosion accelerates, leading to the formation of gullies and other surface changes. Additionally, soil compaction may inhibit root growth among plants, in which case organic matter, litter, soil fertility, and vegetative cover are diminished, further exacerbating the soil's susceptibility to erosion. Where biotic and chemical crusts or other soil stabilizers are disturbed or destroyed, soil erosion from water and wind may increase beyond rates found in undisturbed sites with similar soils and conditions; nutrient-cycling processes also are likely to be disrupted, potentially leading to declines in soil fertility. The USGS study is summarized in Appendix G.

4.3.13.7.1 ALTERNATIVE A

Under Alternative A, a minimum of 620,212 acres of total soils and 262,000 acres of sensitive soils would be open to cross country OHV travel and associated surface disturbance due to recreation and travel management decisions. Twenty miles of perennial stream and 2,100 acres of riparian resources would be open to OHV travel and associated surface disturbance. If disturbed, these soils would be at risk of erosion and compaction, and water quality could decline. The numbers of acres (and the percentage of all BLM lands) open to cross country OHV use, and the potential for adverse impacts to soil and water resources, is by far the greatest under Alternative A.

Under Alternative A, most of the MPA would be managed as a general Extensive Recreation Management Area (ERMA) rather than as SRMAs, and user numbers would remain at current levels—the highest levels of all alternatives. The least amount of area would be established as SRMAs in Alternative A, and thus impacts to soil and water resources from unmanaged recreation use would continue at the highest rate of any of the alternatives. Recreation decisions under Alternative A would also provide the lowest level of management for recreation resources of any alternative and would, therefore, result in the highest level of adverse impacts to soil and water resources from human-caused surface disturbance, including fire risk and the spread of noxious weeds.

Under Alternative A, dispersed camping would be allowed at the Kane Creek Crossing. This is an adverse impact to soil and water resources in a major floodplain and stream corridor, and a public health and safety risk. Camping in the Bartlett/Tusher/Ten Mile area would also not be closed. This would provide an adverse impact to soil and water resources, because unrestricted camping leads to soil compaction and increased erosion.

There are 960.3 miles of route identified as having possible soils conflicts.

4.3.13.7.2 ALTERNATIVE B

Under Alternative B, the largest amount of area would be established as SRMAs, resulting in the greatest control of recreation use of any alternative. This would result in mitigating the greatest amount of potential impacts to soil and water resources from unmanaged recreation use, In addition, limitations on user numbers on the Colorado and Dolores Rivers within SRMAs would be greater than under any other alternative. No open OHV use areas would be designated (see Table 4.93), and camping would be limited to designated areas across much of the MPA, providing the greatest level of protection for soil and water resources of all the alternatives.

The installation of vault toilets in areas of high visitor use would limit adverse impacts to soil and water resources in these areas by keeping the human waste flow from entering the soil and water.

The Bookcliffs SRMA would provide non-mechanized recreation opportunities, with no new motorized routes and no motorized permits, which provides a relatively beneficial impact to soil and water resources in an area with a high density of steep slopes. The Canyon Rims SRMA would provide non-mechanized recreation opportunities, with no new motorized routes. This is a beneficial impact to soil and water resources. The Colorado Riverway SRMA would prohibit camping at the Kane Creek Crossing area. This would provide a relatively beneficial impact in this major floodplain and stream corridor, as well as protect public health and safety. Camping in the Barlett/Tusher/Ten Mile area of the Labyrinth Rims/Gemini Bridges SRMA would be closed, providing a relatively beneficial impact to soil and water resources because the soil compaction and erosion that accompany dispersed camping would not occur.

There are 960.3 miles of designated routes with possible soils conflicts. In Alternative B, 337.6 miles of these routes are not identified for travel.

4.3.13.7.3 PROPOSED PLAN

Under the Proposed Plan, the second largest amount of area would be established as SRMAs, resulting in the second greatest degree of control of potential impacts to soil and watershed. Under the Proposed Plan, more users would be allowed on the Colorado and Dolores Rivers within SRMAs than under Alternative B, but fewer than would be allowed under Alternative A, and Alternative D. Impacts from recreational users would take the forms described under Alternative A, but to lesser degree.

Under the Proposed Plan, all but 1,866 acres of soils be closed or limited to OHV use. This alternative represents fewer protection benefits to soil and water resources than Alternative B, but many more protection benefits than Alternatives A and D (see Table 4.93).

The Canyon Rims SRMA would provide non-mechanized recreation opportunities, with no new motorized routes. This is a beneficial impact to soil and water resources. The Colorado Riverway SRMA would provide responsible camping opportunities at the Kane Creek Crossing area. This would decrease adverse impacts in a major floodplain and stream corridor. Camping in the Bartlett/Tusher/Ten Mile area of the Labyrinth Rims/Gemini Bridges SRMA would not be closed, although it would be restricted to designated sites or campgrounds. This would provide a

limited adverse impact to soil and water resources. This alternative is more beneficial than Alternatives A and D but less protective than Alternative B.

There are 960.3 miles of designated routes with possible soils conflicts. In the Proposed Plan, 167.5 miles of these routes are not identified for travel.

4.3.13.7.4 ALTERNATIVE D

Under Alternative D, fewer acres of SRMA would be established, and more impacts to soil and water resources would result from unmanaged recreation use. This is particularly true because the Labyrinth-Gemini area, an area of very high recreation use, would not be managed as an SRMA and impacts to soils and vegetation from unmanaged recreation use would result. In addition, more users—including users of the Colorado and Dolores Rivers—would be allowed than under Alternative B and the Proposed Plan, but less than under Alternative A.

Under Alternative D, all but 3,096 acres of soils would be closed or limited to OHV use This alternative represents fewer protection benefits to soil and water resources than Alternative B and the Proposed Plan, but many more protection benefits than Alternative A (see Table 4.93). No vault toilets would be installed in high visitor use areas, and camping would not be limited to designated sites, except in a few specific areas, resulting in less protection than Alternative B and the Proposed Plan provide.

The Colorado Riverway SRMA would promote responsible camping opportunities at the Kane Creek Crossing area. This would decrease adverse impacts in a major floodplain. Camping in the Bartlett/Tusher/Ten Mile area would not be closed. This would result in adverse impacts to soil and water resources.

Overall, Alternative D would provide more protection for soil and water resources through recreation management than Alternative A provides, and far less protection than Alternative B and the Proposed Plan would provide.

There are 960.3 miles of designated routes with possible soils conflicts. In Alternative D, 51.0 miles of these routes are not identified for travel.

4.3.13.8 IMPACTS OF RIPARIAN MANAGEMENT DECISIONS ON SOIL AND WATER

Under all action alternatives, no surface disturbance would be allowed within 100 meters of riparian areas, perennial streams and springs, public water reserves, and 100-year floodplains. This would protect soils by reducing erosion and subsequent sedimentation, stabilizing stream banks and floodplains, and improving water quality. Healthy riparian resources are integral to good water resource conditions. Impacts to riparian resources would affect water quality and quantities.

The development and implementation of Watershed Management Plans (WMPs) would benefit soil and water resources because they would emphasize integration of soil and water resource management within basins for which plans are developed. All impacts associated with WMPs are described qualitatively. Generally, the alternatives differ in their development and implementation of the WMPs.

Limitations on livestock grazing in riparian areas would relatively benefit soil and water resources for the reasons described in Section 4.3.13.4.

4.3.13.8.1 ALTERNATIVE A AND D

Alternatives A and D do not direct the development or implementation of any WMPs. Therefore, these alternatives would not provide any of the benefits of these plans to soil and water resources. Livestock grazing would be managed less protectively of riparian resources under Alternatives A and D than under the other alternatives, and would therefore have a greater adverse impact.

4.3.13.8.2 ALTERNATIVE B

Of all the alternatives, Alternative B would develop and implement WMPs in the greatest number of watersheds, including Mill Creek, Ten Mile Wash, Kane Springs, White Wash, Professor Creek, Negro Bill Canyon, Cottonwood/Diamond, Spring Canyon, Red Wash, Green River, Colorado River, Onion Creek, and Westwater Creek. Alternative B therefore represents the most beneficial impacts to soil and water resources of the forms described under Alternative A because specific management direction would be provided for these watersheds.

Grazing would also be excluded from the following areas: Ten Mile from Dripping Springs to the Green River, Day Canyon, Mill Creek, Seven Mile Canyon, East Coyote, Lower Gray Canyon of the Green River, Kane Springs and Hatch Wash. This is a relatively beneficial impact to 4,422 acres of soils, and 28 miles of perennial stream.

Alternative B would therefore achieve the greatest reduction of adverse impacts to soil and water resources.

4.3.13.8.3 PROPOSED PLAN

The Proposed Plan would develop and implement WMPs in fewer watersheds than under Alternative B, but more than under Alternatives A and D. WMPs would be developed and implemented in Ten Mile Wash, Kane Springs, Bartlett Wash, Tusher Wash, Mill Canyon, Courthouse Wash, Cottonwood/Diamond, and Onion Creek. The Proposed Plan therefore represents fewer beneficial impacts to soil and water resources than Alternative B, but more beneficial impacts than Alternatives A and D. Impacts would take the forms described under Alternative A.

Grazing would also be restricted in the following areas: Ten Mile from Dripping Springs to the Green River, Day Canyon, Mill Creek, Seven Mile Canyon, and East Coyote, This is a relatively beneficial impact to 1,169 acres of soils, and 28 miles of perennial stream.

Livestock grazing would be actively managed on more acres to reduce adverse impacts to soil and water resources, as compared to Alternatives A and D, and on fewer acres as compared to Alternative B. The Proposed Plan therefore provides an intermediate level of protection for soil and water resources.

4.3.13.9 IMPACTS OF SOIL AND WATER MANAGEMENT DECISIONS ON SOIL AND WATER RESOURCES

4.3.13.9.1 IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, the BLM would comply with all laws to protect municipal watersheds and the watersheds of any public or private water supply. The BLM would continue to manage soil

and water resources in accordance with Executive Order 11988, the Clean Water Act, and the Endangered Species Act. These actions would have a beneficial impact of unknown magnitude on soil and water resources. BLM would also coordinate with UDOGM to remediate abandoned mine lands. The beneficial impacts of this remediation upon soil and water resources are discussed in Section 4.3.13.2.

4.3.13.9.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND THE PROPOSED PLAN)

The BLM would manage soil and water resources in accordance with Utah BLM's Rangeland Health Standards and Guidelines for Grazing and Recreation. This would maintain or improve soil and water conditions, and therefore would provide a beneficial impact common to all action alternatives.

The following management decisions would result in beneficial impacts to soil and water resources by protecting and restoring watershed health, healthy soils and good water quality conditions:

- Allow no surface disturbance within public water reserves, 100-year floodplains, or within 100 meters of natural springs or perennial streams whenever possible, and within 100 m of riparian zones.
- Continue to manage Mill Creek Planning Area in accordance with the Mill Creek Management Plan to provide relatively beneficial impacts on 1,164 acres of soils and 18 miles of perennial streams.

The following management decisions would reduce the accelerated erosion and other impacts associated with surface-disturbing activities. This can be considered a relative beneficial impact to soil and water resources.

- BLM management would follow TMDL recommendations in Mill Creek and Onion Creek watersheds, and any other impaired watersheds as defined by the State of Utah and the current 303d list of impaired waters. These recommendations refer to improving water quality conditions to meet state standards.
- Any proposed surface-disturbing activities, especially those located in sensitive soils (see Table 4.88) would incorporate BMPs and other mitigation measures to minimize soil erosion and maintain soil stability.
- Continue to require the Grand County Water Conservancy District to leave 3 cfs of stream flow in Mill Creek, downstream of the Sheley Tunnel diversion structure, providing a relatively beneficial impact to 6 miles of perennial streams.
- Apply a timing limitation to oil and gas leasing and other surface-disturbing activity prohibiting activities on moderate to highly saline soils (313,800 acres) from December 1 to March 31. This restriction includes road construction and traffic on existing roads associated with drilling operations.
- Erosion control practices for slopes greater than 20% would follow Utah's Nonpoint Source Management Plan (UDEQ 2001). A controlled surface use stipulation would be applied to oil and gas leases and other surface-disturbing activities on slopes in the Bookcliffs that are greater than 30% from November 1 to April 30.

- Guidelines from Technical Reference 1730-2 (BLM 2001d, as revised) regarding biological soil crusts would be applied or followed where feasible, These decisions would reduce impacts to biological soil crusts and would constitute a beneficial impact.
- Pipeline crossings would be constructed as recommended in the Guidance for Pipeline Crossings (Appendix H).
- The limitation of new OHV routes saline soils (not in the proposed travel plan) would beneficially impact soil and water resources by not accelerating the natural rate of erosion, therefore providing a relative beneficial impact to soil and water resources.

4.3.13.9.3 Impacts Varying By Alternative

The primary municipal watersheds of concern in the MPA include the Castle Valley watershed aquifer system (a sole-source, unconfined surficial aquifer), the Thompson watershed, and the Mill Creek watersheds. These watershed sources provide drinking water for the towns of Castle Valley, Thompson and Moab respectively, as well as for the surrounding inhabited areas. Surface disturbance could lead to contamination of groundwater and surface waters by sediment and hazardous materials. Changes in surface hydrology due to road building would also have adverse impacts to these watershed resources, where rates of infiltration peak runoff would increase, causing lower rates of infiltration, increased peak runoff and higher rates of soil erosion. Generally, the elimination of surface-disturbing activities upstream of public water reserves would reduce adverse impacts to soil and water resources.

Under some alternatives, road construction and traffic associated with drilling operations would be prohibited seasonally in areas with saline soils underlain by Mancos Shale when wet soils are most susceptible to impacts. These timing limitations would protect soil and water resources by reducing accelerated rates of erosion preventing erosion of the moderate to highly saline soils associated with the Mancos Shale and reducing subsequent contamination of water resources.

Development of Allotment Management Plans (AMPs) and use of grazing systems would be beneficial to soil and water resources. The areas prioritized for AMPs vary by alternative, based on soil and water resource concerns. Because the development of AMPs is also proposed as a Livestock Management action, these impacts are discussed in Section 4.3.13.4.

The development of Watershed Management Plans (WMPs) would also be beneficial to soil and water resources. Because the development of WMPs is also proposed as Riparian Management, these impacts are discussed in Section 4.3.13.8.

4.3.13.9.3.1 Alternative A

Alternative A does not include specific decisions regarding oil and gas leasing or other surface-disturbing activities in the Castle Valley aquifer or the Mill Creek municipal watersheds. These water sources would therefore be subject to impacts such as surface disturbance and contamination of shallow groundwater by well drilling and changes in surface hydrology due to road building and access to lease areas, which would have and adverse impact on soil and water resources in these watersheds. (The Castle Valley municipal watershed totals 10,321 BLM acres; the Mill Creek municipal watershed not encompassed by the Mill Creek WSA totals 9,667 BLM acres.)

There is no restriction on new motorcycle routes on saline soils in Alternative A. This would have an adverse impact on soil and water resources because soil compaction and erosion would result.

4.3.13.9.3.2 Alternative B and the Proposed Plan

Alternative B would close the Castle Valley and Mill Creek municipal watersheds to oil and gas leasing and other surface-disturbing activities. These closures would protect these surface waters and shallow aquifers from potential impacts such as contamination with drilling fluids and sedimentation within these watersheds, and impacts described under Alternative A would be prevented under Alternatives B. This alternative would provide more protection for these watersheds than does Alternative A.

The Proposed Plan would implement a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities within the Castle Valley and Mill Creek municipal watersheds. This limitation would protect these surface waters and shallow aquifers from potential impacts such as contamination with drilling fluids and sedimentation within these watersheds, and impacts described under Alternative A would be prevented under the Proposed Plan.

Under Alternative B and the Proposed Plan, a timing limitation would be applied to 330,142 acres of certain sensitive soils (saline or highly wind erodible) prohibiting surface-disturbing activities from December 1 to May 31. Additionally, road construction and use would be limited in these areas from December 1 to May 31, thus reducing short- and long-term, adverse impacts to soil and water resources. Alternative B and the Proposed Plan therefore provide more protection to sensitive soils, by area, than Alternatives A and D. Overall, Alternative B and the Proposed Plan would provide the greatest protection for soil and water resources.

4.3.13.9.3.3 Alternative D

Impacts regarding the Castle Valley and the Mill Creek municipal watersheds would be the same as under Alternative A.

Under Alternative D, no timing limitations would be applied to surface disturbance of moderately and highly saline soils. Therefore, Alternative D would result in adverse impacts to saline soil and water quality compared to Alternative A and would be the most adverse of all the alternatives.

4.3.13.10 Impacts of Special Designation Decisions on Soil and Water

Although ACEC designation alone does not necessarily provide protection, special management attention designed for each ACEC often limits surface-disturbing activities, thereby protecting soil and water resources. Protections associated with ACEC designation that would affect soil and water resources include no surface occupancy stipulations, travel limitations, and grazing restrictions. Because of the complexity of the proposed ACECs' management criteria, their effects are addressed more generally under each of the alternatives.

Under all alternatives, the management of Wilderness Study Areas (WSAs) would be consistent with the BLM's Interim Management Policy (1995), which does not allow any motorized use or surface disturbance within WSAs. Thus, no impacts to soils or water resources would occur

within these areas under any alternative. Transportation and OHV management within WSAs varies between alternatives. These impacts are included in the discussion in Section 4.3.13.7 (Impacts of Recreation and Travel Management on Soil and Water).

Under all alternatives, designating specific river segments as Wild under the Wild and Scenic Rivers Act would uniformly, beneficially impact soil and water resources, as it would protect sensitive soils. The designation of river segments as Wild would limit surface-disturbing activities within 1/4 mile of those river segments, which in turn would limit potential decreases in soil productivity and potential increases in sedimentation of surface waters. These protections (where proposed) would overlap riparian management prescriptions preventing surface disturbance within 100 meters of riparian areas, springs, and 100-year floodplains.

The total number of river miles designated as Wild varies by alternative, as does the total number of acres of sensitive soils adjacent to those river segments (Table 4.95).

Table 4.95. Acres of Sensitive Soils adjacent to River Segments Eligible for WSR Designation as Wild, by Alternative

Limiting Factor	Alt. A	Alt. B		PROPOSED PLAN		Alt. D	
	Acres	Acres	± Compared to Alternative A	Acres	± Compared to Alternative A	Acres	± Compared to Alternative A
Wind-erodible	0	3,100	+3,100	2,700	+2,700	0	0
Water-erodible	300	1,300	+1,000	700	+400	0	-300
Alkalinity	0	100	+100	0	0	0	0
Droughty	5,400	40,800	+35,400	25,900	+20,500	0	-5,400
Rooting Depth	1,800	30,300	+28,500	18,400	+16,600	0	-1,800
Salinity	0	100	+100	0	0	0	0
Sodium Adsorption	0	200	+200	100	+100	0	0

4.3.13.10.1 ALTERNATIVE A

Under Alternative A, no additional areas would be designated as ACECs, therefore no additional areas would be beneficially or adversely impacted by ACEC management prescriptions. Under Alternative A, no river segments would be determined suitable. However, all eligible rivers would continue to be managed as eligible under this alternative with the tentative classifications currently identified. Approximately 5,400 acres of sensitive soils are within 1/4 mile of the eligible river segments. These acres would continue to be protected from surface disturbance under Alternative A

4.3.13.10.2 ALTERNATIVE B

All of the 14 proposed areas would be designated as ACECs under Alternative B. Special management attention prescribed for ACECs during planning varies by ACEC. Where management would limit surface disturbance (for example, by closing or limiting motorized routes, placing limitations on recreational activities, placing limitations on mineral development

activities, etc.) it would provide protection for soil and water resources. The Cottonwood-Diamond Watershed ACEC, in particular, would protect public health and safety by protecting soil and water resources and floodplains.

Because Alternative B would designate all 14 proposed areas as ACECs, it would result in the greatest amount of protection for soil and water resources compared to Alternatives A, D, and the Proposed Plan. 609,687 acres of soils, 398,318 acres of sensitive soils and approximately 100 miles of perennial stream would be protected due to ACEC designation and associated management.

Under Alternative B, the designation of river segments as suitable with a tentative classification as Wild would limit surface disturbance on 40,800 acres of sensitive soils adjacent to these segments. Designation of eligible segments as suitable in Alternative B, no matter what their tentative classification, would help protect 340 miles of perennial streams. Therefore, WSR designation decisions under Alternative B have the potential to provide the most protection to sensitive soils of all the alternatives.

4.3.13.10.3 PROPOSED PLAN

Under the Proposed Plan, 5 of the 14 proposed areas (63,232 acres) would be designated as ACECs. Impacts would be similar to Alternative A for those areas not proposed, and similar to Alternative B for those that are designated. The Proposed Plan would therefore provide more protection of soil and water resources through ACEC designation than Alternatives A and D but less than Alternative B. Under the Proposed Plan, the designation of one river segment as Wild would limit surface disturbance on approximately 25,900 acres of sensitive soils adjacent to these segments, and protect 185 miles of perennial stream. Therefore, WSR designation decisions under the Proposed Plan have the potential to provide protection to more acres of sensitive soils than Alternatives A and D, but to fewer acres than Alternative B

ACEC management would protect 63,252 acres of soils, 33,672 acres of sensitive soils and 15 miles of perennial streams under this alternative.

4.3.13.10.4 ALTERNATIVE D

As with Alternative A, no additional ACECs would be designated under Alternative D. No river segments would be designated and managed as suitable for congressional wild and scenic river designation under Alternative D; therefore, no protections for soil and water resources adjacent to any river segment would occur.

4.3.13.11 SUMMARY OF IMPACTS

The management of many resources within the MPA would have the potential to impact soil and water resources. Impacts related to fire management and health and human safety would have the same impacts for all alternatives. Impacts related to cultural resources, livestock grazing, mineral and utility corridor development, non-WSA lands with wilderness characteristics, recreation and travel, riparian, and special designations would have varying degrees of impact on soil and water resources. Table 2.2 (of Chapter 2) outlines the potential impacts for each alternative due to resource management.

Generally, the greatest level of adverse impacts to soil and water resources would occur under Alternatives A and D, and the lowest level of impacts would occur under Alternative B. The Proposed Plan would generally have an intermediate level of impacts.

The most significant difference between alternatives in terms of impacts to soil and water resources would be due to livestock grazing management, minerals development decisions, and the regulation of OHV use.

4.3.14 SPECIAL DESIGNATIONS

This section discusses impacts to areas of special designation from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning special designations are described in Chapter 3.

Special designations include Areas of Critical Environmental Concern (ACECs), a National Historic Trail (Old Spanish Trail), and Wild and Scenic Rivers (WSRs). The management of ACECs focuses on protecting specific relevant and important values. The management of the National Historic Trail seeks to enhance public enjoyment and understanding of the Old Spanish National Historic Trail. For river segments that are eligible/suitable for congressional designation as WSRs, management focuses on protecting specific, identified, outstandingly remarkable values, and the tentative classification and free-flowing character.

Wilderness Study Areas (WSAs) and Wilderness Areas (WAs) are also special designations that were previously established by law and policy. Nothing in this RMP will change these designations. There are eleven Wilderness Study Areas and one Wilderness Area (Black Ridge) in the MPA. The management of wilderness (WSAs and WAs) focuses on maintaining the wilderness characteristics of appearance of naturalness, outstanding opportunities for solitude and/or primitive, unconfined recreation, and size and guidelines have already been established for managing these areas. The only decisions that will be made in the RMP for WSAs are: OHV designations, route designations, and VRM designations. There are no decisions to be made for the Black Ridge Wilderness

4.3.14.1 ASSUMPTIONS

Some areas within the MPA may have two or more special designations. Any potential ACEC or WSR-eligible river segment that falls within a WSA[7] would be managed under the IMP, which strictly regulates surface disturbance[8] and protects the "relevant and important values" (in the case of an ACEC) or "eligibility" (in the case of a WSR) of the area. WSAs are closed to mineral leasing and development and most other surface-disturbing activities. Because WSA restrictions on surface-disturbing activities would generally protect the relevant and important values of potential ACECs, as well as the outstanding remarkable values of WSRs, the following analyses assume that WSAs have a beneficial impact on other lands considered for special designations. Because the management of WSAs is often more restrictive than the management of ACECs, the designation of an ACEC where a WSA already exists often does not provide significant additional resource protection.

[7] Some river segments border WSAs. Depending on the WSA border description, some of the area suitable for WSR designation would likely be within the WSA.
[8] Subject to valid rights existing at the time of the enactment of FLPMA.

In addition to protecting scenic resources (see Section 4.3.14), Visual Resource Management (VRM) designation of an area influences the surface-disturbing activities that can take place. VRM Class I is the most restrictive, allowing virtually no surface-disturbing activity. VRM Classes II and III allow little to moderate surface disturbance, respectively, and VRM Class IV generally does not restrict surface disturbance. The following analyses therefore assume that more restrictive VRM Classes (I and II) are more beneficial to the values of specially designated areas than less restrictive classes, since they serve to protect scenic resources and reduce surface disturbance.

Under all alternatives, mineral leasing would be conducted primarily for oil and gas within seven Reasonable Foreseeable Development (RFD) areas, which cover the entirety of the MPA except for WSAs. (WSAs are closed to mineral leasing by law and policy, which is the same for all alternatives.) The level of development in each RFD area varies from alternative to alternative and from special designation to special designation (e.g., ACECs, WSRs). Under all alternatives, areas designated as open to leasing with standard lease terms and open to leasing with timing limitation and controlled surface use stipulations are most likely to experience surface-disturbance due to oil and gas development. Therefore, the following analyses assume that acreage closed to leasing or managed with a no surface occupancy (NSO) stipulation for mineral leasing generally benefit areas considered for special designations by reducing or eliminating mineral development and associated resource impacts, such as surface disturbance. Conversely, the analyses assume that areas open to mineral leasing under standard terms or timing limitation/controlled surface use stipulations would be adversely impacted by mineral development.

Under Alternative A, all lands outside WSAs are open to the disposal of salable minerals. However, the disposal of salable minerals is not anticipated in these areas. Under Alternatives B, D, and the Proposed Plan salable minerals are subject to the stipulations governing oil and gas leasing and other surface-disturbing activities. This means that a NSO stipulation closes land to salable mineral disposal.

Under all action alternatives, the imposition of a closed or NSO stipulation for oil and gas leasing would preclude all other surface-disturbing activities, with the exception of locatable mineral development.

Under all alternatives, all public lands within the MPA are open to mining claim location unless they are within an existing withdrawal. It is possible that mining claims could be located in areas proposed for Special Designation (eligible rivers for Congressional WSR designation, or ACECs). Wilderness Areas are withdrawn by Congress. Mining claims can be located within WSAs, but development is subject to the non-impairment standard. Except where WSAs are in place and where development of claims would be subject to a non-impairment standard, claimants could conduct operations that would adversely impact the resources of concern. Locatable mineral development would be subject to timing limitations and controlled surface use stipulations. However, development in these areas is not anticipated, and therefore, for this analysis, it is assumed that adverse impacts to these areas from locatable mineral development would not occur

In general, the following analyses assume that woodland harvest would adversely affect the values of lands considered for special designations by increasing surface disturbance and human-

related disturbance. However, the low level of woodland harvest in the MPA minimizes the adverse impacts to these areas.

Except for Alternative A, NSO areas are avoidance areas for rights of way; closed areas are exclusion areas for rights of way. Rights of way are issued for roads, pipelines, power lines, wind and solar power sites, and communication sites. Rights of way in avoidance areas would only be granted if there are no feasible alternatives. Therefore, the following analyses assume that rights of way would not be placed within NSO or closed areas in any of the action alternatives. Rights of way could be granted in potential Special Designation areas under Alternative A.

Except for Alternative A, where a NSO stipulation does not preclude other surface-disturbing activities, NSO areas are avoidance areas for rights-of-way; closed areas are exclusion areas for rights of way. Rights of way are issued for roads, pipelines, power lines, wind and solar power sites, and communication sites. Rights-of-way in avoidance areas would only be granted if there are no feasible alternatives. Therefore, the following analyses assume that rights-of-way would not be placed within NSO or closed areas in any of the action alternatives. Rights-of-way could be granted in potential Special Designation areas under Alternative A, except where WSAs or designated wilderness exist.

Except for Alternative A, OHV use would be limited to designated routes unless otherwise specified. The following analyses assume that this would have beneficial impacts to the values of areas considered for special designations by eliminating surface disturbance from cross-country travel. Limiting OHV use to designated routes throughout the MPA would also likely result in fewer instances of inadvertent, casual, or deliberate illegal riding off designated routes, and would consequently also decrease the risk of impacts to resources within areas considered for special designations.

4.3.14.2 Areas of Critical Environmental Concern (ACECs)

ACECs are designated to provide special management attention to "relevant and important" values, resources, natural systems, and natural hazards, including the following, which are found in the MPA:

- Rare or relict plant species
- Special status plant, fish, and animal species (designated as threatened, endangered, or candidate by the USFWS, or as sensitive by the BLM)
- Important wildlife habitat
- Riparian areas
- Watersheds and other natural systems (e.g., flash flood hazards)
- Dune systems and sensitive soils
- Cultural resources (historical or prehistoric)
- Paleontological resources
- Scenic (i.e., visual) resources
- Natural hazards

Most of these are also resources in their own right requiring management and planning via this PRMP/FEIS, so they are discussed in greater detail at the planning area-wide level in other sections of this PRMP/FEIS. Therefore, the impacts analysis presented in this section focuses on

comparisons among the alternatives, based largely on the assumptions described in the section above. More detailed analyses of the impacts of particular management decisions on specific relevant and important resource values can be found under each specific resource section. For example, the effects of watershed management decisions on riparian areas can be found in Section 4.3.11 (Environmental Consequences of Alternatives, Riparian).

As stated above, any section(s) of a potential ACEC that falls within a WSA would be managed under the BLM's Interim Management Policy for Lands Under Wilderness Review (IMP), which strictly regulates surface disturbance and impacts that would alter the area's wilderness characteristics (appearance of naturalness and outstanding opportunities for solitude and primitive and unconfined recreation) One of the practical effects of this interim management is that permitted activities in WSAs (except grandfathered uses and valid existing rights) are limited to temporary uses that create no new surface disturbance, nor involve permanent placement of structures. (H-8550-1 Interim Management Policy for Lands Under Wilderness Review; BLM 1995). All prescriptions for ACEC/WSA overlap areas must comply with the IMP. Since the IMP imposes these special management conditions, it is assumed that there would be no impacts to the relevant and important values in the overlap areas and that ACEC management would be duplicative in most instances. Table 4.96 lists the ACECs with the percent of WSA overlap.

Table 4.96. Acres ACEC Designated and % WSA by Alternative

ACECs	Alternative A (No Action)		Alternative B		PROPOSED PLAN		Alternative D	
	Acres	% WSA	Acres	% WSA	Acres	% WSA	Acres	% WSA
Behind the Rocks*	0	NA	17,836	73%	5,201	0%	0	NA
Book Cliffs	0	NA	304,252	81%	0	NA	0	NA
Canyon Rims	0	NA	23,400	0%	0	NA	0	NA
Cisco White-tailed Prairie Dog Complex	0	NA	117,481	0%	0	NA	0	NA
Colorado River Corridor	0	NA	50,483	5%	0	NA	0	NA
Cottonwood-Diamond Watershed	0	NA	35,830	93%	35,830	93%	0	NA
Hwy 279/Shafer Basin/Long Canyon	0	NA	13,500	0%	13,500	0%	0	NA
Labyrinth Canyon	0	NA	8,528	0%	0	NA	0	NA
Mill Creek Canyon*	0	NA	13,501	58%	3,721	0%	0	NA
Ten Mile Wash	0	NA	4,980	0%	4,980	0%	0	NA
Upper Courthouse	0	NA	11,529	0%	0	NA	0	NA

Table 4.96. Acres ACEC Designated and % WSA by Alternative

	Alternative A (No Action)		Alternative B		PROPOSED PLAN		Alternative D	
Westwater	0	NA	5,069	98%	0	NA	0	NA
White Wash	0	NA	2,988	0%	0	NA	0	NA
Wilson Arch	0	NA	3,700	0%	0	NA	0	NA
Total	**0**	**NA**	**613,077**	**50%**	**63,232**	**53%**	**0**	**NA**

*The Behind the Rocks and Mill Creek ACECs differ in size between Alternative B and the Proposed Plan.

Any section(s) of a proposed or existing ACEC that falls within a WSA would be managed under the BLM's *Interim Management Policy for Lands Under Wilderness Review* (IMP), which strictly regulates surface disturbance and impacts that would alter the naturalness, primitiveness and solitude of the area. One of the practical effects of this interim management is that permitted activities in WSAs (except grandfathered and valid existing rights) are limited to temporary uses that create no new surface disturbance, nor involve permanent placement of structures. (H-8550-1 Interim Management Policy for Lands Under Wilderness Review; BLM 1995). All prescriptions for ACEC/WSA overlap areas must comply with or have a greater protective emphasis than those imposed by the IMP. Since the IMP imposes these special management conditions, it is assumed that there would be no impacts to the relevant and important values in the overlap areas and that ACEC management would be duplicative in most instances. Table 4.96 lists the ACECs with the percent of WSA overlap.

No beneficial or adverse impacts to these relevant and important values, resources, natural systems or hazards of the potential ACECs in the MPA would result from management decisions regarding air quality, or fire management.

Twelve of the fourteen Potential ACECs have acreage that is leased for oil and gas under stipulations developed in earlier RMPs. These oil and gas leases would remain valid until they expire (leases are issued for ten years). While all leases do not proceed to development, stipulations developed in this RMP for oil and gas leasing would not apply to leases issued under previous RMPs. Table 4.97 predicts the number of wells that could be drilled under valid existing leases, by Potential ACEC.

Table 4.97. Potential ACECs, Number of Wells Predicted, and Currently Leased Acreage

Name of Potential ACEC	Total Acreage in ACEC	Acreage under Existing Leases	Percentage of Potential ACEC under Lease	RFD Area	Number of Wells Predicted under Existing Leases
Behind the Rocks*	17,836	45	<1.0	Big Flat-Hatch Point	<1.0
Bookcliffs Wildlife	304,252	41,933	14	Bookcliffs	28.9
Canyon Rims	23,400	9,348	39	Big Flat-Hatch Point	1.2
Cisco White-tailed Prairie Dog	117,481	58,846	50	Greater Cisco	53.5

Table 4.97. Potential ACECs, Number of Wells Predicted, and Currently Leased Acreage

Name of Potential ACEC	Total Acreage in ACEC	Acreage under Existing Leases	Percentage of Potential ACEC under Lease	RFD Area	Number of Wells Predicted under Existing Leases
Colorado River Corridor	50,483	1,168	2	Eastern Paradox	0.07
Cottonwood-Diamond Watershed	35,830	1,592	4	Bookcliffs	1.1
Highway 279/Shafer Basin/Long Canyon	13,500	2,944	22	Big Flat-Hatch Point	0.37
Labyrinth Canyon	8,528	41	0.48	Big Flat - Hatch Point	0.005
Mill Creek Canyon*	13,501	130	0.96	Eastern Paradox	0.0078
Ten Mile Wash	4,980	6	0.12	Big Flat-Hatch Point	<.01
White Wash	2,988	1,821	61	Salt Wash	0.43
Wilson Arch	3,700	2,624	71	Lisbon Valley	1.3

* Behind the Rocks and Mill Creek ACECs include the WSA acreage in Alternative B; they do not include the WSA acreage in the Proposed Plan.

Two potential ACECs, Bookcliffs and Greater Cisco, have 28 and 53 wells predicted that could be drilled under valid existing rights. This could adversely impact the relevant and important values found in these ACECs. Three potential ACECs (Canyon Rims, Cottonwood-Diamond and Wilson Arch) have around one well predicted, which could have a minor adverse impact to the relevant and important values found in these ACECs. On the remainder of the ACECs, fewer than one well is predicted. This would not adversely impact the relevant and important values of the ACEC in question.

4.3.14.2.1 Behind the Rocks Potential ACEC (17,836 Acres)

If designated, the Behind the Rocks Potential ACEC would be managed to preserve the relevant and important special status and relict plant species, cultural and scenic values where designated (Alternative B and the Proposed Plan).

The Behind the Rocks Potential ACEC would be managed to preserve the relevant and important values of special status and relict plant species, cultural resources, and scenery where designated (Alternative B and the Proposed Plan).

Approximately 12,836 acres of the potential ACEC overlaps with the Behind the Rocks WSA. This would result in beneficial impacts to the ACEC, as described above. The area would also be within the Colorado Riverway Special Recreation Management Area (SRMA). SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.

4.3.14.2.1.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Behind the Rocks Potential ACEC would not be designated an ACEC. The 5,201 acres of the proposed Behind the Rocks ACEC that do not overlap the Behind the Rocks WSA would not receive any special designation, and would be managed under the following stipulations:

- OHV use would be limited to existing routes.
- Rights-of-way could be approved outside the WSA.
- Manage as VRM inventory class.
- Oil and gas leasing would be closed on 3,652 acres. About 1,958 acres would be managed as no surface occupancy for oil and gas leasing, while about 694 acres would be open under standard lease terms.

Based on projections of oil and gas development in the Big Flat/Hatch Point RFD area, approximately 7.3 acres of surface disturbance within the proposed ACEC are likely to occur over the life of the plan (Table 4.98). This surface disturbance would detract from scenic values.

Table 4.98. Acres of Behind the Rocks Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Behind the Rocks	7.3	0.0	0.0	7.0

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.1.2 Alternative B (17,836 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 17,836 acres proposed would be designated and managed as an ACEC. Of this acreage, 12,635 acres are within the Behind the Rocks WSA, and 4,231 acres of non-WSA lands (in Hunter Canyon and Behind the Rocks) would be managed for wilderness characteristics. This decision would result in the greatest beneficial impacts to the relevant and important values of the ACEC.

Management prescriptions on the entire area of the ACEC would generally be more beneficial than under Alternative A, and would include:

- Limiting OHV use to designated routes.
- Restricting vehicle-based camping to campgrounds and not allowing campfires outside of campgrounds.
- Closing the area to surface-disturbing vegetation treatments except for treatments of noxious weeds and exotics.
- Closing the area to woodland harvest.
- Designating as VRM Class I.
- Prioritizing Class III inventories for cultural resources.
- The 12,635 acres within the Behind the Rocks WSA would be managed under IMP.

- Manage the 12,635 acres within the WSA and the wilderness characteristics acreage (4,231 acres) as closed to oil and gas leasing. About 970 acres outside the WSA or wilderness characteristics area are managed as no surface occupancy for oil and gas leasing which precludes other surface-disturbing activities. The closed area is an exclusion area for rights-of-way, and the NSO area is an avoidance area for rights-of-way.

Prioritizing Class III inventories for cultural resources would have a beneficial impact by identifying significant cultural sites so that management efforts can be taken to prevent damage from activities from other management programs

Alternative B would have the least adverse impacts from oil and gas development (Table 4.98), and from all other surface-disturbing activities.

4.3.14.2.1.3 Proposed Plan (5,201 Acres Proposed for ACEC Designation)

Under the Proposed Plan, 5,201 acres of the potential ACEC would be designated and managed as an ACEC. None of these acres are within the Behind the Rocks WSA. Of these 5,201 acres, 4,231 acres of non-WSA lands are managed for wilderness characteristics. Management of the ACEC is similar to that described for Alternative B, except that the ACEC would be managed as VRM Class II[9] and the 4,231 acres with wilderness characteristics would be managed as NSO for oil and gas leasing as well as precluding other surface-disturbing activities. The impacts to the potential ACEC from the Proposed Plan would be essentially the same as under Alternative B. This is because the portion not designated would continue to be protected as a WSA, and management of the designated area as NSO for oil and gas leasing would also strictly limit all other surface-disturbing activities. As a result, the impacts to the ACEC from the Proposed Plan would be essentially the same as under Alternative B.

4.3.14.2.1.4 Alternative D (0 Acres Proposed for ACEC Designation)

Under Alternative D, zero acres would be designated as Behind the Rocks ACEC Although the WSA portion would be protected by the IMP, the 5,201 acres outside of the Behind the Rocks WSA would not be so protected. Although vehicle travel would be limited to designated routes, which is protective of the surface, in the non-WSA portion approximately 5,000 acres would be available for oil and gas leasing and development, which, along with a VRM Class III designation which allows for noticeable disturbance, could put scenic and cultural values and plant resources at risk in a portion of the potential ACEC. Based on projections of oil and gas development, approximately 7.0 acres of surface disturbance within the proposed ACEC are likely to occur over the life of the plan (Table 4.98). Therefore, Alternative D would have similar, although slightly less, potential for adverse impacts to the relevant and important values and resources of the ACEC than Alternative A.

4.3.14.2.2 Book Cliffs Potential ACEC (304,252 Acres)

If designated, the Book Cliffs Potential ACEC would be managed to preserve the relevant and important cultural resources, and important habitat for wildlife (i.e., Rocky Mountain bighorn sheep, mule deer, and elk) values where designated (Alternative B).

[9] Barring any prior existing rights, no oil and gas related surface disturbance is projected to occur.

Approximately 250,207 acres of the potential ACEC overlap with the Desolation, Flume, Floy, Coal, and Spruce WSAs. All acreage within the WSAs would be managed as VRM I.

4.3.14.2.2.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Book Cliffs ACEC would not be designated. The 54,045 acres of the proposed Book Cliffs ACEC that are not within WSAs would not receive any special designation, and would be managed under the following stipulations:

- Allow woodland harvest.
- Rights-of-way could be approved outside the WSAs.
- OHV use would be managed as open or limited to existing routes.
- Leasable mineral development would be allowed on 15,757 acres with standard lease terms, and on 38,415 acres with timing limitations and controlled surface use stipulations. Other surface-disturbing activities, including salable mineral development, would be precluded.

Based on projections of oil and gas development in the Book Cliffs, Roan Cliffs, Eastern Paradox and Greater Cisco RFD areas, approximately 841 acres of surface disturbance within the proposed ACEC (1.6% of the potential ACEC outside the WSAs) are likely to occur over the life of the plan (Table 4.99). This surface disturbance would impact wildlife habitat values.

Table 4.99. Acres of Book Cliffs Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Book Cliffs	841.0	0.0	805.9	805.9

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.2.2 Alternative B (304,252 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 304,252 acres proposed would be designated and managed as an ACEC. This management decision would result in the greatest beneficial impacts to the relevant and important values of the ACEC. The area would also be within the Bookcliffs and Lower Gray Canyon SRMAs. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC. Alternative B management prescriptions would beneficially impact the ACEC area more than Alternative A by:

- Restricting OHV use to designated routes.
- Closing the area to harvesting woodland products.
- Of the 54,405 acres outside the WSA, 34,363 acres are managed with a no surface occupancy stipulation for oil and gas leasing and other surface-disturbing activities. The remaining 19,901 acres of non-WSA lands (in Coal Canyon, Desolation Canyon, Floy Canyon, Spruce Canyon and Mexico Point) are managed to protect wilderness characteristics and are closed to oil and gas leasing. Thus, no adverse impacts due to oil and gas development are expected under this alternative (Table 4.99).

- Prioritizing Class III inventories for cultural resources.
- The 249,988 acres within the WSAs would be managed under IMP and would be closed to oil and gas leasing.
- Designate the 19,901 acres with wilderness characteristics as VRM Class II. All areas of the proposed ACEC within a WSA would be designated as VRM Class I.

4.3.14.2.2.3 Alternative D and Proposed Plan (0 Acres Proposed for ACEC Designation)

Under Alternative D and the Proposed Plan, the Book Cliffs Potential ACEC would not be designated. The 54,045 acres of the proposed Book Cliffs ACEC that are not within WSAs would not receive any special designation. In addition, no acres would be managed to protect wilderness characteristics. The area would be managed under the same management prescriptions as Alternative A, with the following exceptions:

- Approximately 1,800 acres outside the WSAs along the Green River would be closed to woodland harvest to protect recreational resources.
- All mineral development would be subject to timing restrictions. The total acreage likely to be disturbed by mineral resource development would be 805.9 acres, or 1.5% of the potential ACEC lands that are outside the WSAs (Table 4.99).
- All OHV use would be limited to designated routes.
- Rights-of-way could be granted anywhere outside the WSA.

Because of these exceptions, the overall net impacts to the relevant and important values in this area due to Alternative D and the Proposed Plan would be adverse compared to Alternative B, but beneficial compared to Alternative A. Wildlife values could be adversely impacted by the habitat fragmentation and disruption caused by surface-disturbing activities.

4.3.14.2.3 Canyon Rims Potential ACEC (23,400 Acres)

If designated, the Canyon Rims Potential ACEC would be managed to preserve relevant and important scenic values where designated (Alternative B).

Under all alternatives, the potential Canyon Rims ACEC is within the Canyon Rims SRMA, SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.

4.3.14.2.3.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the proposed Canyon Rims ACEC would not be designated, but would continue to be managed as a SRMA. The majority of the area would be designated as VRM Class II, and mineral development would be allowed with controlled surface use stipulations to protect visual resources.

Based on projections of oil and gas development in the Big Flat/Hatch Point RFD area, approximately 33.2 acres (0.1% of the potential ACEC lands) of surface disturbance within the proposed ACEC are likely to occur over the life of the plan (Table 4.100).

Table 4.100. Acres of Canyon Rims Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Canyon Rims	33.2	0.0	24.0	31.7

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

Adverse impacts to the relevant and important value in this area (i.e., scenic resources) would be caused by mineral, development and the development of rights of way. No adverse impacts to the relevant and important value would result from recreation decisions, since the area is n SRMA; camping would be limited to designated sites, and routes for motorized events and motorized, mechanized, and non-mechanized sight-seeing would be delineated.

4.3.14.2.3.2 Alternative B (23,400 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 23,400 acres proposed would be designated and managed as an ACEC. Of this acreage, 3,417 acres of non-WSA lands (in Harts Point and Hatch/Lockhart) would be managed for wilderness characteristics and would be closed to oil and gas leasing. The remaining area would be managed with a NSO stipulation for oil and gas leasing. Because the entire area is either closed or NSO, no oil and gas development is expected under this alternative (Table 4.100), compared to the 33 acres projected in Alternative A. In addition, other surface-disturbing activities, including salable mineral development, would be precluded in the entire ACEC. Motorized or mechanized vehicles would be limited to designated routes, and no new routes would be allowed. As a result of the above management prescriptions, Alternative B would increase protection of scenic values over Alternative A.

4.3.14.2.3.3 Alternative D and Proposed Plan (0 Acres Proposed for ACEC Designation)

Under Alternative D and the Proposed Plan, none of the Canyon Rims Proposed ACEC would be designated as an ACEC. It would be managed as an SRMA. These alternatives would utilize the same management prescriptions as Alternative A, with the following exceptions:

- A portion of the area (943 acres in the Proposed Plan and 2,266 acres in Alternative D) would be subject to standard lease terms. The remainder of the area would be subject to a controlled surface use stipulation to protect visual resources. The total acreage of ACEC lands likely to be disturbed by oil and gas development would be 24.0 acres under the Proposed Plan and 31.7 acres under Alternative D (Table 4.100).
- A portion of the area (943 acres in the Proposed Plan and 2,266 acres in Alternative D) would be designated VRM Class III. As a result, the viewshed from the top of the canyon could be negatively affected by surface-disturbing activities.
- OHV use would be limited to designated routes.
- Due to the exceptions above, Alternative D and the Proposed Plan would result in less adverse impacts to the relevant and important value of scenery than Alternative A, but greater adverse impacts than Alternative B.

4.3.14.2.4 Cisco White-tailed Prairie Dog Complex Potential ACEC (117,481 Acres)

If designated, he Cisco White-tailed Prairie Dog Complex ACEC would be managed to preserve the relevant and important value of wildlife where designated (Alternative B). White-tailed prairie dog habitat provides important habitat for other important wildlife species such as kit fox and ferruginous hawk.

4.3.14.2.4.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Cisco White-tailed Prairie Dog Complex would not be designated as an ACEC. The area would be managed under the following actions:

- OHV use would be managed as open or as limited to existing routes.
- Leasable and salable mineral development would be primarily open under standard and special stipulations, with less than 1% of lands in this ACEC area being subject to no surface occupancy.
- The area would be open to rights-of-way development
- There are no visual resource management classes.

Based on projections of oil and gas development in the Greater Cisco, Book Cliffs and Eastern Paradox RFD areas, approximately 1,249 acres of surface disturbance (1.1% of the potential ACEC lands) within the proposed ACEC are likely to occur over the life of the plan (Table 4.101).

Table 4.101. Acres of Cisco White-tailed Prairie Dog Complex Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Cisco White-tailed Prairie Dog Complex	1,248.5	0	1,255.4	1,256.5

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area). The acreage of disturbance from oil and gas development includes ancillary facilities such as roads, pipelines, and power lines. There may be loss of individuals due to increased volume and speed of traffic.

4.3.14.2.4.2 Alternative B (117,481 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 117,481 acres proposed would be designated and managed as an ACEC. Management prescriptions would be tailored to enhance habitat for the white-tailed prairie dog. The BLM would work with the UDWR and the USFWS to protect the species. OHV use would be restricted to designated routes, and no new routes for mechanized or mechanical travel would be allowed. Mineral leasing would be managed with a no surface occupancy stipulation. Because the entire area is managed as NSO, no oil and gas development is expected under this alternative (Table 4.101), compared to the 1,249 acres projected in Alternative A. Other surface-disturbing activities, including salable mineral development, would be precluded. Allotment Management Plans for grazing would be revised, which could include changing season of use, to protect prairie dog habitat.

Surveys for prairie dogs would be conducted prior to surface-disturbing activities. The results of these surveys will be used for avoidance and other mitigating measures. These measures would reduce the adverse impacts to prairie dogs and their habitat.

Restricting surface-disturbing activities would be beneficial to the White-tailed Prairie Dog by reducing vegetation loss and disruption of burrows. Managing livestock grazing to maximize seed production would enhance prairie dog forage and have a beneficial impact on the species. Limitation of travel to designated routes would reduce travel- and OHV-related impacts relative to Alternative A.

As a result of the above management prescriptions, Alternative B would offer an increase in the protection of wildlife values over Alternative A.

4.3.14.2.4.3 Proposed Plan (0 Acres Proposed for ACEC Designation)

Under the Proposed Plan, the Cisco White-tailed Prairie Dog Complex ACEC would not be designated. This alternative would apply the same management prescriptions as Alternative A, with the following exceptions:

- The area of the ACEC would be open with standard lease terms and/or a controlled surface use stipulation. A 660-foot buffer would be required around known active prairie dog colonies. The total acreage likely to be disturbed by oil and gas development within this ACEC area would be 1,255.4 acres, or 1.1% of the potential ACEC lands (Table 4.101).
- Rights of way could be authorized throughout the area
- Livestock grazing would be managed to maximize seed production of range vegetation using AMPs (this would be done without changing the season of use).
- OHV use would be limited to designated routes.
- Surveys for prairie dogs would be conducted prior to surface-disturbing activities in addition to other avoidance and other mitigating measures. These measures would reduce the adverse impacts to prairie dogs and their habitat

Because of these exceptions, the overall impacts to the relevant and important values in this area would be less adverse than under Alternative A, but also less protective than Alternative B.

4.3.14.2.4.4 Alternative D (0 Acres Proposed for ACEC Designation)

Alternative D would have the same impacts as the Proposed Plan, except that livestock grazing would not be managed to maximize seed production. This would limit the amount of forage available for the white-tailed prairie dog, possibly adversely impacting their populations.

About 86,295 acres would be open to oil and gas leasing with standard stipulations, rather than leasing with controlled surface use. This could have an adverse impact on the species, although surveys for prairie dogs would be conducted prior to surface-disturbing activities in addition to other avoidance and other mitigating measures. These measures would reduce the adverse impacts to prairie dogs and their habitat. Limitation of travel to designated routes would reduce travel- and OHV-related impacts relative to Alternative A.

The total acreage likely to be disturbed by oil and gas development within this ACEC area would be 1,256 acres (Table 4.101). As in Alternative B and the Proposed Plan, OHV use would be limited to designated routes. Therefore, Alternative D is far less protective than Alternative B,

similar to the Proposed Plan, but slightly more protective than Alternative A, because surface-disturbing activities could adversely impact prairie dogs.

4.3.14.2.5 Colorado River Corridor Potential ACEC (50,483 Acres)

If designated, the Colorado River Corridor ACEC would be managed to protect the relevant and important threatened, endangered, and sensitive plants, threatened and endangered fish, wildlife, and scenery values, where designated (under Alternative B).

Of the 50,483 acres proposed for ACEC designation, approximately 7,280 acres are within the Negro Bill WSA and would be managed under IMP. This acreage would be closed to mineral development and all other surface-disturbing activities under all alternatives. This would result in beneficial impacts to the relevant and important values of the ACEC.

Under all alternatives, impacts from the existing Three Rivers Withdrawal on a total of 18,519 acres of the ACEC would reduce or eliminate impacts to the relevant and important values on that acreage, regardless of whether the ACEC is designated. The withdrawal precludes the development of locatable minerals.

4.3.14.2.5.1 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

The potential Colorado River Corridor ACEC is located within the Colorado Riverway SRMA: recreation in the ACEC area is to be managed in accordance with the management prescriptions outlined in this SRMA. The area of the Three Rivers Withdrawal is NSO for oil and gas leasing and other surface-disturbing activities under all action alternatives

4.3.14.2.5.2 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Colorado River Corridor ACEC would not be designated. The 43,329 acres[10] of the proposed ACEC that are not within the Negro Bill Canyon WSA would have the following management stipulations:

- A small portion of the river corridor would be managed for recreation activities as part of the Colorado River SRMA. A SRMA is established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.
- The 43,329 acres of the proposed ACEC outside the WSA would be open to oil and gas leasing. Of these 43,329 acres, 10,864 acres would be managed with timing limitations and controlled surface use stipulations, 1,189 acres would be managed with a NSO stipulation, and 31,276 acres would be open under standard lease terms.
- Woodland harvest would be limited to the area north of the Colorado River.
- There are no visual resource management classes; VRM would be managed according to inventory class.

Based on projections of oil and gas development in the Eastern Paradox RFD area, approximately 35 acres of surface disturbance within the proposed ACEC are likely to occur

[10] Due to acreage discrepancies between the existing RMP and new GIS data, the acreages for the mineral leasing categories do not match the acreage for the potential ACEC.

over the life of the plan (Table 4.102). This surface disturbance would adversely impact the scenic values and fragment wildlife habitat within the area.

Table 4.102. Acres of Colorado River Corridor Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Colorado River Corridor	34.8	0	26.1	30.4

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.5.3 Alternative B (50,483 Acres Proposed for ACEC Designation)

Under Alternative B, all 50,483 acres proposed would be designated and managed as an ACEC. Of this acreage, 7,280 acres are within the Negro Bill WSA, and 33,548 acres would be managed for wilderness characteristics. Management prescriptions applicable to the entire area would provide far more protection under this alternative than under Alternative A, due to the following prescriptions:

- No vegetation treatments would be allowed except to treat noxious weeds.
- The area would be managed as VRM Class I.
- OHV and mechanized vehicle use would be limited to designated routes and there would be no competitive OHV events.
- Approximately 40,828 acres would be closed to oil and gas leasing (within the Negro Bill WSA and non-WSA lands wilderness characteristics areas in Dome Plateau, Fisher Towers, Mary Jane Canyon and Negro Bill Canyon). The remaining acreage (9,655 acres) would be managed with a no surface occupancy stipulation for oil and gas leasing and would preclude other surface-disturbing activities. Because the entire area is managed as closed or NSO, no oil and gas development is expected under this alternative (Table 4.102), compared to the 35 acres of surface disturbance projected in Alternative A.
- Special Recreation Permit issuance would be adjusted to not interfere with bighorn sheep lambing habitat.
- Vehicular based camping (and associated campfires) would only be allowed in designated sites on the south side of the Colorado River.
- All public lands in the proposed ACEC would be retained in public ownership except for a parcel identified in the Professor Valley land exchange, and acquiring inholdings would be prioritized.
- No woodland harvest would be allowed.

Restricting vehicular camping to the south side of the Colorado River, and timing SRP issuance and livestock grazing seasons of use so as to not interfere with bighorn sheep lambing habitat would have the beneficial effect of reducing human disturbance to ewes and lambs during their most vulnerable periods. This would reduce mortality to newborn lambs.

The on-going Professor Valley land exchange has identified lands for disposal. Should the exchange fall through, the area proposed for exchange would be managed under the proposed

ACEC. No other parcels within the ACEC would be considered for disposal. There would be a beneficial effect to all resources, since the disposed public lands would likely be developed. The same benefit would result from acquiring inholdings within the ACEC.

Alternative B provides the greatest protection for the relevant and important values identified in the Colorado River Corridor Potential ACEC.

4.3.14.2.5.4 Proposed Plan (0 Acres Proposed for ACEC Designation)

The Colorado River Corridor ACEC would not be designated under the Proposed Plan, which would result in some adverse impacts to the relevant and important values of the area (Although T&E species would be protected by law). Overall impacts would be more adverse than under Alternative B. The area would be managed under the following management actions:

- The recreation management prescriptions in the Colorado Riverway SRMA for the Dry Mesa/Cache Valley area north of the Colorado River would be the same as under Alternative B, except that the Proposed Plan does not restrict river-based camping.
- The VRM designation outside the WSA would be VRM Class II.
- Most of the potential ACEC would be managed as closed or with a NSO stipulation for oil and gas leasing as well as precluding other surface-disturbing activities. However, the northwest portion of the potential ACEC would be managed as open with timing limitations and controlled surface use stipulations. As a result, the acreage projected to be disturbed within the area (outside the WSA) would be 26.1 acres (Table 4.102). This represents more disturbance than the 0 acres projected to be disturbed in Alternative B.

Because of the less restrictive VRM class, the Proposed Plan would have slightly less protective effect on scenic resources than would Alternative B. The prescriptions designed to protect desert bighorn would not be as stringent as in Alternative B. There would be less minerals-related surface disturbance than under Alternative A and D, but more than under Alternative B.

Management of the potential ACEC under the Proposed Plan is more beneficial to the relevant and important values than under Alternatives A and D but less than under Alternative B.

4.3.14.2.5.5 Alternative D (0 Acres Proposed for ACEC Designation)

Alternative D would result in nearly the same impacts to relevant and important values as the Proposed Plan, except that it would open the non-WSA, non-withdrawn lands to oil and gas leasing and other surface-disturbing activities with timing limitation and controlled surface use stipulations. This would result in more acreage open to oil and gas development than under Alternative B and the Proposed Plan, thereby resulting in greater adverse impacts to relevant and important values. Oil and gas development is projected to disturb 30.4 acres within the potential Colorado River Corridor ACEC.

Therefore, while many impacts to the relevant and important values would be the same as under the Proposed Plan, impacts from oil and gas development would be more adverse than under Alternative B and the Proposed Plan, although less adverse than Alternative A. Protection of T&E plants would occur under Alternative D.

4.3.14.2.6 Cottonwood-Diamond Watershed Potential ACEC (35,830 Acres)

If designated, the Cottonwood-Diamond Watershed ACEC would be managed to preserve the relevant and important Cottonwood-Diamond watershed value, (under Alternative B and Proposed Plan). This area was severely burned in a 2003 wildfire. Since then, the danger of flash floods and mudslides has posed significant hazards to human life and safety.

Under all alternatives, out of the 35,830 acres of the potential ACEC, a total of 34,004 acres are located within the Flume, Coal Canyon, and Spruce WSAs. This would result in beneficial impacts to the watershed within that acreage, as WSAs are closed to oil and gas leasing and other surface-disturbing activities.

4.3.14.2.6.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Cottonwood-Diamond Watershed ACEC would not be designated. Approximately 1,825 acres of the proposed Cottonwood-Diamond Watershed ACEC that are outside of WSAs would be managed with the following management prescriptions:

- The potential ACEC is located within the Book Cliffs RFD area. Oil and gas development would be subject to timing limitation stipulations on 1,825 acres. On this acreage, it is projected that oil and gas development would result in about 1.1 acres of surface disturbance of the potential ACEC lands.
- Rights-of-way could be granted in this area.
- There are no visual resource management classes; VRM would be managed under the inventory class.
- Livestock grazing would not be available in the Cottonwood, Diamond or Bogart allotments.
- OHV use is limited to existing roads.

4.3.14.2.6.2 Alternative B (35,830 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 35,830 acres proposed would be designated as the Cottonwood Diamond Watershed ACEC until the watershed is restored to a healthy and functioning condition (PFC.) Management prescriptions in Alternative B would provide additional protection to the watershed (compared to Alternative A) by closing all roads except for administrative access, and withholding Special Recreation Permits for the area. The acreage within the WSA would be managed under IMP. Oil and gas leasing is managed as closed in the WSA. In Alternative B, management of non-WSA lands with wilderness characteristics in Flume Canyon and Spruce Canyon would close an additional 1,690 acres to oil and gas leasing with a NSO stipulation in the remaining 135 acres. Because the entire area is managed as either closed or with a NSO stipulation, there would be 0 acres of surface disturbance due to oil and gas development, as compared to 1.1 acres in Alternative A.

Alternative B would also designate the area as part of the Bookcliffs SRMA. A SRMA is established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC. Closing roads and not issuing Special Recreation Permits would have the effect of reducing human presence in the area, thus reducing human impacts that would slow the rehabilitation of the area.

Under Alternative B the area would not be available for grazing, as both the Cottonwood and Diamond allotments are not available. This would have beneficial impacts to the watershed by eliminating the erosion caused by livestock. Under Alternatives B, managing the area as an ACEC would provide more beneficial impacts to the relevant and important values of watershed protection than under Alternatives A and D.

4.3.14.2.6.3 Proposed Plan (35,830 Acres Proposed for ACEC Designation)

Under the Proposed Plan, the entire 35,830 acres proposed would be designated as the Cottonwood Diamond Watershed ACEC until the watershed is restored to a healthy and functioning condition (PFC.) Management prescriptions in the Proposed Plan would provide additional protection to the watershed (compared to Alternative A) by closing all roads except for administrative access, and withholding Special Recreation Permits for the area. The acreage within the WSA would be managed under IMP. Oil and gas leasing is managed as closed in the WSA. The remaining 1,825 acres are NSO in the Proposed Plan. Because the entire area is managed as either closed or with a NSO stipulation, there would be 0 acres of surface disturbance due to oil and gas development, as compared to 1.1 acres in Alternative A.

Under the Proposed Plan, the area would not be available for grazing, as both the Cottonwood and Diamond allotments are not available. This would have beneficial impacts to the watershed by eliminating the erosion caused by livestock. Under the Proposed Plan, managing the area as an ACEC would provide more beneficial impacts to the relevant and important values of watershed protection than under Alternatives A and D.

4.3.14.2.6.4 Alternative D (0 Acres Proposed for ACEC Designation)

Under Alternative D, the area would not be designated as an ACEC. OHV use would be limited to designated routes, which would be a beneficial impact to the relevant and important value of this area. Approximately 1.1 acres would likely be disturbed by oil and gas development. Under Alternative D, the area would be available for grazing, as the Cottonwood and Diamond allotments are available for livestock use. This would cause adverse impacts from the erosion caused by livestock. Adverse impacts, especially from the reinstatement of livestock grazing, to the relevant and important values are more than Alternatives B, A, or the Proposed Plan.

4.3.14.2.7 Highway 279 Corridor/Shafer Basin/Long Canyon Potential ACEC (13,500 Acres)

If designated, the Highway 279 Corridor/Shafer Basin/Long Canyon ACEC would be managed to preserve the relevant and important special status plant species, wildlife, and cultural and scenic resources values (under Alternative B and the Proposed Plan).

Under all alternatives, impacts from the existing Three Rivers Withdrawal on a total of 2,034 acres of the ACEC would reduce or eliminate impacts to the relevant and important values on that acreage, regardless of whether the ACEC is designated. The withdrawal precludes the development of locatable minerals.

The majority of the potential ACEC is located within the Colorado Riverway SRMA; recreation in the ACEC area is to be managed in accordance with the management prescriptions outlined in this SRMA. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC. The area of the Three Rivers

Withdrawal is NSO for oil and gas leasing and other surface-disturbing activities under all action alternatives.

4.3.14.2.7.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the area would not be designated as an ACEC, and would instead be subject to the following management:

- OHV use would be limited to existing routes.
- There are no visual resource management classes. VRM would be managed as inventory class.
- The majority of the potential ACEC would be open to oil and gas leasing under standard lease terms. About 4,606 acres of the potential ACEC would be open subject to special stipulations (controlled surface use or timing limitations). As a result, based on projections of oil and gas development in the Big Flat – Hatch Point, RFD area, approximately 19 acres of surface disturbance within the proposed ACEC are likely to occur over the life of the plan. (Table 4.103).

Table 4.103. Acres of Highway 279/Shafer Basin/Long Canyon Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Highway 279/Shafer Basin/Long Canyon	19.1	0	0.0	18.3

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.7.2 Alternative B (13,500 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 13,500 acres proposed would be designated as an ACEC. In Alternative B only, 3,502 acres of the ACEC would be managed for wilderness characteristics. The following prescriptions would result in beneficial impacts to the ACEC:

- Permitted activities would be confined to main roads within bighorn lambing habitat during lambing season.
- Limit OHV use to designated routes.
- The Wall Street rock art sites would be managed as interpretive sites.
- Vehicle-based camping would be restricted to campgrounds, and campfires would not be allowed outside of campgrounds.
- The area would be designated VRM Class I

The restrictions on permitted activities, vehicle-based camping, and campfires would result in no adverse impacts to the relevant and important values in this ACEC. The adverse impacts from all recreation decisions would be reduced under this alternative as camping would no longer occur.

Under Alternative B, 3,502 acres of non-WSA lands in Dead Horse Cliffs, Goldbar, Gooseneck, and Shafer Canyon that are managed for wilderness characteristics would be closed to oil and gas leasing. On the remaining 9,998 acres, oil and gas leasing would be managed with a NSO

stipulation. Because under Alternative B, the entire potential ACEC would be managed as either closed or with a NSO stipulation, no oil and gas development is projected to occur.

Setting up the Wall Street rock art sites as interpretive sites would have a beneficial effect by educating and enhancing the public's enjoyment of the resource. Although such development brings more human traffic to the sites, the higher level of management can reduce purposeful or inadvertent human-caused damage.

Under Alternative B, managing the areas as an ACEC would provide more beneficial impacts to the relevant and important values than under Alternatives A and D.

4.3.14.2.7.3 Proposed Plan (13,500 Acres Proposed for ACEC Designation)

Under the Proposed Plan, the entire 13,500 acres proposed would be designated as an ACEC.

The following prescriptions would result in beneficial impacts to the ACEC:

- Permitted activities would be confined to main roads within bighorn lambing habitat during lambing season.
- Limit OHV use to designated routes.
- The Wall Street rock art sites would be managed as interpretive sites.
- Vehicle-based camping would be restricted to campgrounds, and campfires would not be allowed outside of campgrounds.
- The area would be designated VRM Class I and VRM Class II under the Proposed Plan.

The restrictions on permitted activities, vehicle-based camping, and campfires would result in no adverse impacts to the relevant and important values in this ACEC. The adverse impacts from all recreation decisions would be reduced under this alternative as camping would no longer occur.

The entire ACEC would be managed with a NSO stipulation under the Proposed Plan. Because under Proposed Plan, the entire potential ACEC would be managed with a NSO stipulation, no oil and gas development is projected to occur.

Setting up the Wall Street rock art sites as interpretive sites would have a beneficial effect by educating and enhancing the public's enjoyment of the resource. Although such development brings more human traffic to the sites, the higher level of management can reduce purposeful or inadvertent human-caused damage.

Under the Proposed Plan, managing the areas as an ACEC would provide more beneficial impacts to the relevant and important values than under Alternatives A and D.

4.3.14.2.7.4 Alternative D (0 Acres Proposed for ACEC Designation)

This area would not be designated as an ACEC under Alternative D. Management prescriptions under this alternative would generally be the same as under Alternative A, with a few exceptions. Under Alternative D, limiting travel to designated routes would benefit the relevant and important values by protecting these values from the damage caused by cross-country travel. Therefore, Alternative D would have slightly less adverse impacts to the potential values of the ACEC than Alternative A, but greater adverse impacts than Alternative B and the Proposed Plan.

4.3.14.2.8 Labyrinth Canyon Potential ACEC (8,528 Acres)

If designated, the Labyrinth Canyon ACEC would be managed to preserve the relevant and important special status fish species and scenic resource values (under Alternative B).

Under all alternatives, impacts from the existing Three Rivers Withdrawal on the potential ACEC would reduce or eliminate impacts to the relevant and important values on that acreage, regardless of whether the ACEC is designated. The withdrawal precludes the development of locatable minerals.

4.3.14.2.8.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the area would not be designated as an ACEC. It would be managed with the following stipulations:

- OHV use would be limited to existing roads.
- There would be no visual resource management classes; VRM would be managed as inventory class.
- The majority of the area is open to oil and gas leasing under standard lease terms. Based on projections of oil and gas development in the Big Flat – Hatch Point, RFD area, approximately 12 acres of surface disturbance within the proposed ACEC (0.1% of the potential ACEC lands) are likely to occur over the life of the plan. (Table 4.104).

Table 4.104. Acres of Labyrinth Canyon Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Labyrinth Canyon	12.1	0	10.1	11.5

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.8.2 Alternative B (8,528 Acres Proposed for ACEC Designation)

Under Alternative B, 8,528 acres would be designated as an ACEC. Of the 8,528 acres, 5,492 acres would be managed for wilderness characteristics. Management prescriptions would provide more protection of the relevant and important values under this alternative than under Alternative A, due to the following prescriptions:

- OHV use would be limited to designated routes.
- No new roads or trails for mechanized or motorized use would be authorized.
- Approximately 5,943 acres of non-WSA lands in Labyrinth Canyon and Horsethief Point managed for wilderness characteristics and would be closed to oil and gas leasing. The remaining 3,036 acres would be managed with a NSO stipulation for oil and gas leasing as well as precluding other surface-disturbing activities, including ROWs. Because the entire area is either closed or NSO, no oil and gas development is projected to occur under this alternative (Table 4.104), compared to the 12 acres projected in Alternative A.
- Manage as VRM Class I

Not allowing any new road construction would prevent the resultant erosion and sediment/salt travel to the Green River. This could have a beneficial effect on threatened and endangered fish by reducing negative impacts to water quality. The same effect would be achieved by the closed and NSO stipulation for oil and gas leasing and other surface-disturbing activities.

Changing the VRM Class from no management (under Alternative A) to VRM I (under this alternative) would preclude most surface-disturbing activities. This would have a protective effect for threatened and endangered fish by preventing erosion that could negatively affect water quality in the Colorado River system.

As a result of the above management prescriptions, Alternative B would offer an increase in the protection of scenic and threatened and endangered fish values over Alternative A.

4.3.14.2.8.3 Alternative D and Proposed Plan (0 Acres Proposed for ACEC Designation)

This area would not be designated as an ACEC under Alternative D and Proposed Plan. The area's management prescriptions would generally be the same as under Alternative A, with a few exceptions. Under Alternative D and Proposed Plan, OHV use would be limited to designated routes, and the area would be designated as VRM Class II. Route designation would beneficially impact the relevant and important values by preventing the visual scarring of multiple travel routes, and the more stringent VRM class would slightly reduce adverse, surface-disturbance impacts Therefore, Alternative D and Proposed Plan would have similar impacts as Alternative A, with the exceptions stated above. Approximately 10-11 acres are likely to be disturbed by oil and gas development under these two alternatives. Thus, Alternative D and Proposed Plan are not as protective of the relevant and important values as is Alternative B, but they are more protective than Alternative A.

4.3.14.2.9 Mill Creek Canyon Potential ACEC (13,501 Acres)

If designated, the Mill Creek Canyon ACEC would be managed to protect the relevant and important cultural resources, fish and wildlife habitat, riparian/watershed and scenery values (under Alternative B and the Proposed Plan).

Under Alternative B and Proposed Plan, the potential Mill Creek Canyon ACEC is located within the South Moab SRMA. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.

Approximately 9,780 acres of the potential ACEC (13,501 acres) are located within the Mill Creek Canyon WSA. This would result in beneficial impacts to the relevant and important values within that acreage because management under IMP would preclude surface-disturbing activities.

4.3.14.2.9.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the Mill Creek Canyon ACEC would not be designated. The 9,780 acres within the WSA would continue to be managed under IMP. The 3,721-acre area proposed for designation that is outside the Mill Creek Canyon WSA would be subject to the following management:

- Vehicles are limited to existing/designated routes.

- There are no visual resource management classes; VRM would be managed under the inventory class.
- The area would be managed as open to oil and gas leasing under standard lease terms. Based on projections of oil and gas development in the Eastern Paradox RFD area, approximately 3 acres of surface disturbance (0.1% of the potential ACEC lands outside the WSA) are likely to occur over the life of the plan. (Table 4.105).

Table 4.105. Acres of Mill Creek Canyon Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Mill Creek Canyon	2.8	0	0.0	2.7

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

Despite the restrictions on surface-disturbing activities in riparian areas, the surface-disturbing activities allowed under Alternative A may result in erosion and water quality impacts. Although limiting camping to designated areas would help reduce human disturbances, the continued use of hiking and OHV routes for recreation would result in adverse impacts to the relevant and important values. Therefore, the overall impacts of this alternative to the area's relevant and important values would result in more adverse impacts than Alternative B and the Proposed Plan, and similar to Alternative D.

4.3.14.2.9.2 Alternative B (13,501 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 13,501 acres proposed, including the WSA acreage (9,780 acres) would be designated as an ACEC, with these specific prescriptions:

- Only day-use recreation facilities could be developed.
- Closed to vehicle-based camping, recreational mining, and woodland harvest.[11]
- Prioritized for Class III cultural inventories to protect Native American traditional cultural areas.
- Maintenance of a 3 cfs flow in the South Fork of Mill Creek below the Sheley diversion.
- Designate as VRM Class I.
- Manage 2,335 acres of Mill Creek Canyon non-WSA lands with wilderness characteristics as closed to oil and gas leasing and other surface-disturbing activities.
- The portion of the ACEC that is within the Mill Creek WSA would be managed under IMP.
- The area would be unavailable for grazing.

This alternative would offer the greatest protection to cultural resources, scenery, and natural systems. Alternative B offers the greatest protection of all alternatives for the relevant and important values in the potential Mill Creek Canyon ACEC.

[11] Exceptions would be made for backpacking fires in the uplands; however, no campfires would be allowed in riparian areas.

4.3.14.2.9.3 Proposed Plan (3,721 Acres Proposed for ACEC Designation)

Under the Proposed Plan, only the 3,721 acres outside the Mill Creek Canyon WSA would be designated as an ACEC. Impacts under the Proposed Plan would be essentially the same as under Alternative B, except that there would be slightly greater potential for surface disturbance (including ROWs) due to the designation as VRM Class II under the Proposed Plan. Therefore, the Proposed Plan is more protective of relevant and important values than are Alternatives A and D, but slightly less protective than is Alternative B.

4.3.14.2.9.4 Alternative D (0 Acres Proposed for ACEC Designation)

Alternative D has impacts similar to Alternative A, and is more adverse than Alternative B and the Proposed Plan. However, it would result in slightly fewer adverse impacts than Alternative A, due to the following decisions under Alternative D:

- All vehicles would be limited to designated routes.
- Designate as VRM Class II.
- The area would be unavailable for grazing.

4.3.14.2.10 Ten Mile Wash Potential ACEC (4,980 Acres)

If designated, the Ten Mile Wash ACEC would be managed to preserve the relevant and important values of cultural resources, riparian/watershed and wildlife values under Alternatives B and C.

4.3.14.2.10.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the potential Ten Mile Wash ACEC area would not be designated as an ACEC. The areas would be subject to the following management:

- OHV use would be limited to existing routes
- Woodland harvest would be allowed.
- There would be no visual resource management classes; VRM would be managed as inventory class.
- Oil and gas leasing would be open under standard lease terms. Based on projections of oil and gas development in the Big Flat – Hatch Point RFD area, approximately 7 acres of surface disturbance within the potential ACEC are likely to occur over the life of the plan. (Table 4.106).

Table 4.106. Acres of Ten Mile Wash Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Ten Mile Wash	7.0	0	0.0	6.7

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.10.2 Alternative B (4,980 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 4,980 acres would be designated as an ACEC, with the following prescriptions:

- Woodland harvest, livestock grazing, and vehicular travel would not be allowed.
- Voluntary relinquishment of grazing privileges allowed.
- Apply a NSO stipulation for oil and gas leasing and other surface-disturbing activities. Close 232 acres of non-WC lands with wilderness characteristics in Labyrinth Canyon to oil and gas leasing.
- Campfires and camping limited to Dripping Springs.
- Designate as VRM Class II.
- The area would be an avoidance area for ROWs.
- Prioritize for Class III cultural inventories, riparian restoration, and scientific research.

Restricting livestock grazing would have beneficial effects to riparian areas due to reduced trampling. Because the route in the wash is within the riparian area, closing the area to vehicular traffic would protect riparian areas and wildlife habitat, as well as making the area less accessible to human activity, reducing the safety hazard from flash flooding.

A no surface occupancy leasing stipulation would preclude oil and gas development and other surface-disturbing activities. This action would protect natural resource values. Therefore, Alternative B is more protective of relevant and important values than are Alternative A and D. It is slightly more protective than is the Proposed Plan.

4.3.14.2.10.3 Proposed Plan (4,980 Acres Designated as ACEC)

The Proposed Plan would designate the Ten Mile Wash area as an ACEC. The Proposed Plan proposes the same management prescriptions as Alternative B except that vehicular travel would be allowed on the designated route within the wash. Adverse effects from this travel could include vandalism and looting of cultural sites. Travel within the bottom the wash could also increase the risk to human safety from flash flooding. The presence of the road could result in loss of riparian vegetation and increased erosion, thereby adversely impacting riparian/watershed resource values. Therefore, the Proposed Plan would be slightly less protective than Alternative B of the relevant and important values.

4.3.14.2.10.4 Alternative D (0 Acres Designated as ACEC)

Under Alternative D, the area would not be designated as an ACEC, and would there therefore be subject to more adverse effects than under Alternative B and Proposed Plan. Alternative D would result in slightly less adverse impacts than Alternative A, due to the following management:

- Motorized travel would be limited to designated routes.
- No campfires would be allowed outside of designated sites.
- The area would be managed for oil and gas leasing with a timing limitation on 2,558 acres. The remaining 2,422 acres are open under standard lease terms. Oil and gas development would likely disturb 6.7 acres, or ~0.1% of the potential ACEC lands (see Table 4.106).

- The area would be available for ROWs.

4.3.14.2.11 Upper Courthouse Potential ACEC (11,529 Acres)

If designated, the Upper Courthouse ACEC would be managed to preserve the relevant and important cultural resources, paleontological resources, and relict and special status plant species values, where designated (under Alternative B).

The potential Upper Courthouse ACEC is within the Labyrinth Rims/Gemini Bridges SRMA under Alternatives B and C. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.

Under all alternatives, harvesting of woodland products would be prohibited. This management decision would eliminate potential adverse impacts from woodland harvest by eliminating the cross country travel that occurs in association with woodcutting.

4.3.14.2.11.1 Alternatives A (0 Acres Proposed for ACEC Designation)

Under Alternatives A, this area would not be designated as an ACEC, and would be subject to the following management:

- Vehicle use would be managed as limited to existing routes.
- There would be no visual resource management classes in Alternative A.
- Oil and gas leasing would be managed as open under standard lease terms. Based on projections of oil and gas development in the Big Flat – Hatch Point RFD area, approximately 16 acres of surface disturbance (0.1% of the potential ACEC lands) within the potential ACEC are likely to occur over the life of the plan (Table 4.107).

Table 4.107. Acres of Upper Courthouse Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Upper Courthouse	16.3	0	11.9	15.6

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.11.2 Alternative B (11,529 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 11,529 acres proposed would be designated as an ACEC. This alternative would be more beneficial than any other alternative due to the following protective prescriptions:

- OHV use would be limited to designated routes.
- Restriction of vehicle-based camping to campgrounds and prohibiting campfires outside of campgrounds.
- Closing the area to vegetation treatments except to treat noxious weeds and exotics or to restore riparian areas.

- Apply a NSO stipulation for oil and gas leasing as well as precluding other surface-disturbing activities. The area would be an avoidance area for ROWs.
- Prohibiting new range improvements.
- Prohibition of petrified wood collection.
- Protection of archaeological sites from livestock grazing.
- Prioritization of Class III cultural resources inventories.

Precluding surface-disturbing activities would protect relevant and important values because cultural and paleontological resources and relict plants would not be subject to inadvertent disturbance. Treatment of noxious weeds and exotics could benefit native vegetation, including relict vegetation. Alternative B would be the most protective of all alternatives of relevant and important values.

4.3.14.2.11.3 Proposed Plan (0 Acres Proposed for ACEC Designation)

Under the Proposed Plan, the area would not be designated as an ACEC. The Proposed Plan would be less protective than Alternative B, but would be slightly more protective than Alternatives A and D (largely because special stipulations are provided for relict plant communities), due to the following management:

- In order to protect relict plant communities, mesa-top areas would be subject to a NSO stipulation for oil and gas leasing and other surface-disturbing activities.
- The remainder of the area (outside of the mesa-tops) would be subject to NSO and timing limitation stipulations. The total acreage likely to be disturbed by oil and gas development would be 11.0 acres, or 0.1% of the potential ACEC lands (see Table 4.107).
- Motorized travel would be limited to designated routes.
- The area would be designated as VRM Classes II, III and IV.
- The Proposed Plan is more protective of relevant and important values than Alternatives A and D, but less protective than Alternative B.

4.3.14.2.11.4 Alternative D (0 Acres Proposed for ACEC Designation)

Under Alternatives D, this area would not be designated as an ACEC, and would be subject to the following management:

- Vehicle use would be managed as limited to designated routes.
- Designate as VRM Class III.
- Oil and gas leasing would be managed as open under standard lease terms. Based on projections of oil and gas development in the Big Flat – Hatch Point RFD area, approximately 16 acres of surface disturbance (0.1% of the potential ACEC lands) within the potential ACEC are likely to occur over the life of the plan (Table 4.107). This would be more acres of surface disturbance than under Alternatives B or C.

4.3.14.2.12 Westwater Canyon Potential ACEC (5,069 Acres)

If designated, the Westwater Canyon ACEC would be managed to preserve the relevant and important special status fish species and scenery values where designated (under Alternative B).

The area proposed for designation as the Westwater ACEC is entirely within the Westwater WSA. As such, it is managed under IMP in its entirety and closed to oil and gas leasing and other surface-disturbing activities. Woodland harvest is also precluded. As long as the area remains a WSA, these resources management prescriptions would result in no impacts to the relevant and important values.

If the ACEC is designated, impacts from the acquisition and management of inholdings within that designated ACEC would be beneficial to the relevant and important values as surface-disturbing activities could be prevented on these parcels. The continuation of the existing withdrawal from locatable minerals development would continue to reduce impacts to the relevant and important values.

4.3.14.2.12.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternative A, the potential Westwater ACEC area would not be designated as an ACEC, and the area would continue to be managed under IMP. However vehicle use on existing routes could result in adverse impacts to scenery as routes proliferate.

4.3.14.2.12.2 Alternative B (5,069 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 5,069 acres proposed would be designated as an ACEC. In addition to the protections that WSA status confers upon this area and their attendant beneficial impacts for the relevant and important values (see above), all motorized travel would be limited to designated routes, and inholdings would be acquired.

Designation of routes would reduce miles of routes in the area and could therefore result in a slight decrease in erosion of sediments that could be carried to the Colorado River. This alternative would result in the greatest beneficial impacts to relevant and important values.

4.3.14.2.12.3 Alternative D and Proposed Plan (0 Acres Proposed for ACEC Designation).

Under Alternative D and Proposed Plan, the area proposed as the Westwater ACEC would not be designated. Impacts would be the same as under Alternative A because it is a WSA under all alternatives, except that travel would be limited to designated routes rather than the more loosely defined existing route categorization. Alternatives A, D, and Proposed Plan are slightly less protective of relevant and important values than Alternative B.

4.3.14.2.13 White Wash Potential ACEC (2,988 Acres)

If designated, the White Wash ACEC would be managed to preserve the relevant and important riparian dune systems value, where designated (under Alternative B).

Under all action alternatives, the potential White Wash ACEC is within a SRMA. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC.

4.3.14.2.13.1 Alternative A (0 Acres Proposed for ACEC Designation)

The potential White Wash ACEC would not be designated. It would be managed with the following stipulations:

- The area would be open to cross country OHV travel and to woodland harvest.
- Competitive motorized events would be allowed.
- There would be no visual resource management classes; VRM is managed as inventory class.
- The area would be subject to a NSO stipulation and open under standard lease terms for oil and gas leasing. Based on projections of oil and gas development in the Salt Wash RFD area, approximately 10.5 acres of surface disturbance (0.3% of the potential ACEC lands) are likely to occur over the life of the plan. (Table 4.108).

Table 4.108. Acres of White Wash Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
White Wash	10.1	0	9.4	10.2

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.13.2 Alternative B (2,988 Acres Proposed for ACEC Designation)

Under Alternative B, all 2,988 acres would be designated as the White Wash ACEC Management under Alternative B would be more protective than under Alternative A, primarily due to the prohibition of cross country OHV use and surface-disturbing activities, due to the following prescriptions:

- The area would be managed with a NSO stipulation for oil and gas leasing as well as precluding other surface-disturbing activities. The area would be an avoidance area for ROWs. No surface disturbance due to oil and gas development is likely to occur (Table 4.108).
- Motorized travel would be limited to designated routes.
- Vehicle-based camping would be allowed in campgrounds only.
- No wood gathering or campfires would be allowed.
- The area would be managed for primitive, non-motorized recreation as part of the Labyrinth/Gemini SRMA.

4.3.14.2.13.3 Proposed Plan (0 Acres Proposed for ACEC Designation)

Under the Proposed Plan, the area would not be designated as an ACEC. Management of the area would be similar to Alternative A, with the following exceptions:

- The area would be designated as VRM Class III.
- About 1,866 acres would be open to cross country OHV travel. The remaining 1,122 acres would be limited to designated routes.
- Harvesting of woodland products would not be allowed.
- Oil and gas leasing would be managed as open under standard lease terms. Oil and gas development would likely disturb 9.4 acres, or 0.3% of potential ACEC lands (Table 4.108).

This alternative would be more protective of the relevant and important values than Alternatives A and D, primarily because a portion of the area would be limited to designated routes, rather than be open to cross country motorized travel. About 1,866 acres would be open to OHV use under this alternative, making this alternative less protective than Alternative B. Alternatives A, D, and Proposed Plan are less restrictive to oil and gas development than Alternative B.

4.3.14.2.13.4 Alternative D (0 Acres Proposed for ACEC Designation)

Under Alternative D, the area would not be designated as an ACEC. Management prescriptions would be similar to Alternative A, except:

- The area would be designated as VRM Class III.
- The entire area would be managed for open OHV use as part of the Dee Pass SRMA.

As a result, Alternative D would have more adverse impacts to relevant and important values than Alternative B because cross country OHV travel and surface-disturbing activities could alter the riparian dune system. Alternative D would have similar adverse impacts to relevant and important values as Alternative A and Proposed Plan, with surface-disturbing activities, including open OHV travel, potentially altering the riparian dune system.

4.3.14.2.14 Wilson Arch Potential ACEC (3,700 Acres)

If designated, the Wilson Arch ACEC would be managed to preserve the relevant and important value of scenery where designated (under Alternative B). Under all alternatives, the potential Wilson Arch ACEC is within the Cameo Cliffs SRMA. SRMAs are established to provide for intensive management of recreation activities, potentially benefiting the resource values of concern in the ACEC. Under all alternatives, travel is limited to designated routes.

4.3.14.2.14.1 Alternative A (0 Acres Proposed for ACEC Designation)

Under Alternatives A and D, the area would not be designated as an ACEC. The following management prescriptions would apply:

- There would be no VRM management for Alternative A; the area would be managed under the VRM inventory.
- Under Alternative A, the area is open to oil and gas leasing with standard lease terms Based on projections of oil and gas development in the Lisbon Valley and Big Flat – Hatch Point RFD areas, approximately 26 acres of surface disturbance (0.7% of the potential ACEC lands) are likely to occur over the life of the plan (Table 4.109). This would be more acres of surface disturbance than under Alternative B and approximately equal to the Proposed Plan.

Impacts would be very similar under these two alternatives, with slightly less adverse impacts under Alternative D because of a more restrictive VRM Class. Due to the potential impacts from oil and gas development, impacts to the relevant and important value of scenery would be similar under Alternatives A, D, and Proposed Plan and greater than under Alternative B.

Table 4.109. Acres of Wilson Arch Potential ACEC Likely to be Impacted by Oil and Gas Development*, by Alternative

ACEC	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Wilson Arch	25.9	0	25.6	25.7

*Based on leasing stipulations and number of wells in the RFD scenario (pro-rated by the area of ACEC designated in each RFD area)

4.3.14.2.14.2 Alternative B (3,700 Acres Proposed for ACEC Designation)

Under Alternative B, the entire 3,700 acres proposed would be designated an ACEC, with the following prescriptions:

- Both mechanical and motorized traffic would be limited to designated routes, and one hiking trail would be built up to Wilson Arch.
- The area would be designated as VRM Class I.
- Oil and gas leasing would be managed with a NSO stipulation, it would be an avoidance area for ROWs, and the area would be closed to woodland harvest. Alternative B would offer the highest level of protection of scenic resources of all the alternatives.

4.3.14.2.14.3 Proposed Plan (0 Acres Proposed for ACEC Designation)

The Proposed Plan would differ from Alternative A in that the area would be managed with timing limitations and controlled surface use stipulations for oil and gas leasing and other surface-disturbing activities. The area would be designated as VRM Class II. Therefore, this alternative would provide a higher level of scenic resource protection than Alternatives A and D, but less than Alternative B. Approximately 25.6 acres are projected to be disturbed by oil and gas development in the potential ACEC during the life of the plan, which is similar to Alternatives A and D, but more than Alternative B. This surface-disturbing activity would adversely impact the scenic values of the ACEC.

4.3.14.2.14.4 Alternative D (0 Acres Proposed for ACEC Designation)

Under Alternative D, the area would not be designated as an ACEC. The following management prescriptions would apply:

- The area would be managed as VRM Class III.
- The area is open to oil and gas leasing with timing limitations. Based on projections of oil and gas development in the Lisbon Valley and Big Flat – Hatch Point RFD areas, approximately 26 acres of surface disturbance (0.7% of the potential ACEC lands) are likely to occur over the life of the plan (Table 4.109).

4.3.14.3 National Historic Trail – Old Spanish Trail

In all alternatives, the Old Spanish Trail would be managed to enhance historic interpretation and public enjoyment and understanding of the Old Spanish National Historic Trail consistent with

the Old Spanish Trail Comprehensive Management Plan. This would minimize adverse impacts to the historic integrity of the trail.

4.3.14.4 Wild and Scenic Rivers (WSRs)

4.3.14.4.1 Impacts Common to All Action Alternatives (B, D, and the Proposed Plan)

In all action alternatives (B, D, and Proposed Plan), where eligible rivers are determined suitable, the BLM would manage these segments to protect or enhance the outstandingly remarkable values, tentative classification, and free-flowing nature of these rivers with specific protection allocations within the river corridor (1/4 mile of the high water mark on each side of the river). BLM management is limited to public lands, and is subject to valid existing rights.

The free-flowing character of eligible river segments would be protected to the extent that modifications such as stream impoundments, channelization, and/or riprapping would not be permitted along BLM shorelines. However, depending upon the alternative, values may be at risk from potential mineral development, OHV activity, or other surface-disturbing activities. Also, the protection is limited because there are no Federal reserved water rights established for in-stream flow purposes due to eligibility or suitability determinations. In addition, unless BLM land is involved in a proposed action, BLM has no control of potential modifications of the shoreline or other development (including development related to the perfection of water rights) on non-public lands. Because of these factors, there would be no effect on the Colorado River Compact from protective management of eligible/suitable segments. BLM's management authority only extends to public lands within the river corridor, and there are no water rights associated with suitability determinations. A suitability determination also has no effect on existing water compacts.

Table 4.110 outlines the segments of rivers that would be determined suitable by alternative.

Table 4.110. River Segments that would be Determined Suitable and Total River Miles by Alternative

River/River Segment	Alternative A (River Miles)[1]	Alternative B (River Miles)	PROPOSED PLAN (River Miles)	Alternative D (River Miles)
Beaver Creek				
Segment # 1	0.0	6.7	0.0	0.0
Segment # 2	0.0	1.0	0.0	0.0
Colorado River				
Segment # 1	1.2	1.2	0.0	0.0
Segment # 2	14.4	14.4	14.4	0.0
Segment # 3	11.2	11.2	0.0	0.0
Segment # 3(a)	0.0	0.0	9.3	0.0
Segment # 3(b)	0.0	0.0	1.9	0.0
Segment # 4	0.0	33.1	33.1	0.0
Segment # 5	0.0	5.7	5.7	0.0

Table 4.110. River Segments that would be Determined Suitable and Total River Miles by Alternative

River/River Segment	Alternative A (River Miles)[1]	Alternative B (River Miles)	PROPOSED PLAN (River Miles)	Alternative D (River Miles)
Segment # 6	0.0	3.7	3.7	0.0
Cottonwood Canyon	0.0	10.4	0.0	0.0
Dolores River				
Segment # 1	5.9	5.9	5.9	0.0
Segment # 2	6.3	6.3	6.3	0.0
Segment # 3	9.9	9.9	9.9	0.0
Green River				
Segment # 1	0.0	7.7	0	0.0
Segment # 1(a)	0.0	0.0	15.8	0.0
Segment # 2	0.0	8.1	0.0	0.0
Segment # 3	0.0	1.5	0.0	0.0
Segment # 3(a)	0.0	0.0	0.0	0.0
Segment # 4	0.0	12.9	0.0	0.0
Segment # 4(a)	0.0	0.0	49	0.0
Segment # 5	0.0	15.8	0.0	0.0
Segment # 6	0.0	29.3	0.0	0.0
Mill Creek				
Segment # 1	0.0	1.4	0.0	0.0
Segment # 2	0.0	4.6	0.0	0.0
Negro Bill Canyon				
Segment # 1	0.0	7.2	0.0	0.0
Segment # 2	0.0	0.2	0.0	0.0
North Fork Mill Creek	0.0	11.2	0.0	0.0
Onion Creek				
Segment # 1	0.0	2.8	0.0	0.0
Segment # 2	0.0	9.7	0.0	0.0
Professor Creek	0.0	7.3	0.0	0.0
Rattlesnake Canyon	0.0	31.6	0.0	0.0
Salt Wash	0.0	0.3	0.0	0.0
Thompson Canyon	0.0	5.5	0.0	0.0
Totals	**0.0**	**266.6**	**155.0**	**0.0**

[1]All river segments are eligible under Alternative A; those listed are considered suitable under Alternative A.

Valid Existing Rights and WSRs

Six of rivers listed above have acreage that is leased for oil and gas under stipulations developed in earlier RMPs. These oil and gas leases would remain valid until they expire (leases are issued for ten years). While all leases do not proceed to development, stipulations developed in this RMP for oil and gas leasing would not apply to leases issued under previous RMPs. Table 4.111 predicts the number of wells that could be drilled under valid existing leases, by river.

Table 4.111. WSRs, Number of Wells Predicted, and Currently Leased Acreage

River	Total Acreage	Acreage under Existing Leases	Percentage of WSR under Lease	RFD Area	Number of Wells Predicted under Existing Leases
Beaver Creek	2,268	39	1.7	Eastern Paradox	<1
Colorado River	23,623	3,786	1.6	Eastern Paradox/Big Flat	<1
Cottonwood Canyon	2,938	907	30.0	Bookcliffs	<1
Dolores River	6,823	1,584	23.0	Eastern Paradox	<1
Green River	13,734	415	3.0	Big Flat	<1
Mill Creek	1,864	153	8.0	Eastern Paradox	<1

Fewer than one well is predicted because of current valid oil and gas leases on any river proposed for Wild and Scenic status. This would not adversely impact the outstandingly remarkable values of the WSR in question.

4.3.14.4.2 ALTERNATIVE A

Under Alternative A, portions of the Colorado and Dolores Rivers were found suitable as part of the Wild and Scenic River Study Final EIS (NPS 1979). For the remaining river segments, a suitability determination would not be made, but the other river segments that were determined eligible in the *Wild and Scenic Rivers Review Eligibility Determination* for the MFO would remain eligible under this alternative (BLM 2004g). Where BLM manages the shoreline or other lands within the river corridors, they would be managed to maintain the free-flowing nature, outstandingly remarkable values, and tentative classification. Because the eligible river corridors would be subject to the existing land-use plan as far as resource allocations are concerned, they may be subject to case-by-case actions. These would be addressed through the NEPA process with mitigation applied if appropriate. If any proposed actions would affect the eligibility of the river segment, it is BLM policy to deny the action until suitability can be considered.

All river segments not closed to oil and gas leasing due to WSA designation or management for other resources would be subject to leasing under standard lease terms or timing limitations and controlled surface use stipulation. This could result in surface disturbance to these river corridors. These segments include Beaver Creek, segments of the Colorado River below the Dolores River confluence, the Green River, Mill Creek, Onion Creek, Professor Creek and Thompson Canyon.

All segments except for those in the Three Rivers withdrawal (the Green, Colorado, and Dolores Rivers) would be open to mining claims for locatable minerals. Generally, impacts to riparian corridors would be avoided under standard lease terms and BLM riparian policy. Therefore, regardless of the leasing category, these areas would be protected from development. However there is an exception to allow for development in riparian areas if there are no other practical alternatives. In areas where the 1/4 mile WSR corridor extends beyond the riparian corridor, surface-disturbing activities may occur such as oil and gas or salable mineral development. These types of activities could adversely impact the outstandingly remarkable values of these rivers. Adverse impacts would include loss of vegetation, habitat fragmentation, and loss of scenic values.

Under Alternative A, portions of the Colorado River (parts of segments #2, #3, and #4) would be managed as the Colorado River SRMA. This management would enhance this segment's recreational values by providing boating opportunities, and would not affect the other outstandingly remarkable values. It would not affect the free-flowing nature of the river, and would be in keeping with the tentative classifications of scenic, recreational and wild.

Beaver Creek (Segment #2), the Colorado River (segments #2, #3(a), #3(b), and #4), Cottonwood Canyon, the Dolores River (Segments #1, #2, and #3), the Green River (Segments #3, #4(a), and #4(b)), Mill Creek (Segments #1 and #2), the North Fork Mill Creek, Onion Creek (Segments #1 and #2), Professor Creek, Rattlesnake Canyon, and Thompson Canyon would be open to cross-country OHV use, in part. Temporary impacts to their outstanding and remarkable values could occur from vehicular surface disturbance and noise. All the remaining eligible river segments would be in a limited or closed OHV category thereby protecting them from disturbance related to OHV activity.

4.3.14.4.3 ALTERNATIVE B

Under Alternative B, 266.6 river miles involving the Beaver Creek (Segments #1 and #2), Colorado River (Segments #1–6), Cottonwood Canyon, Dolores River (Segments #1-3), Green River (Segments #1–6), Mill Creek (Segments #1 and #2), Negro Bill Canyon (Segments #1 and #2), North Fork Mill Creek, Onion Creek (Segments #1 and #2), Professor Creek, Rattlesnake Canyon, Salt Wash, and Thompson Canyon river segments would be recommended as suitable for designation into the National Wild and Scenic River System (see Table 4.112). Overall, because of the increased acreage identified and managed as suitable, and because other resource allocations would be consistent with management of the rivers' suitability, this alternative would provide greater protection to outstanding remarkable values than does Alternative A.

All of the segments recommended as suitable would be managed as closed or with a NSO stipulation for oil and gas leasing as well as precluding other surface-disturbing activities, including ROWs. All segments except for those in the Three Rivers Withdrawal (the Green, Colorado, and Dolores Rivers) would be open to mining claims for locatable minerals. Since the entire area is either closed or NSO, the risks to the outstanding and remarkable values are negligible.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Beaver Creek Segment #1	RM: 6.7 Acres: 2,061	Suitability not considered. Oil and gas leasing: open with standard stipulations.	Recommendation: Suitable-Wild. Within the Dolores River Canyon SRMA. All 6.7 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: Closed.	Recommendation: Not Suitable. Within the Dolores River Canyon SRMA. All 6.7 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Oil and gas leasing: NSO.
Beaver Creek Segment #2	RM: 1.0 Acres: 207	Suitability not considered. Oil and gas leasing: open with standard stipulations.	Recommendation: Suitable-Scenic. Within the Dolores River Canyon SRMA. All managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: Closed.	Recommendation: Not Suitable. Within the Dolores River Canyon SRMA. All managed to preserve non-WSA lands with wilderness characteristics (Beaver Creek WIA). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Oil and gas leasing: open with special stipulations.
Colorado River Segment #1	RM: 1.2 Acres: 525	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: open with special stipulations.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: open with special stipulations.
Colorado River Segment #2	RM: 14.4[a] Acres: 4,531	Suitability not considered. Overlaps the Westwater WSA. Within the Colorado River SRMA. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Wild. Overlaps the Westwater WSA. Overlaps the Two Rivers SRMA. Overlaps the Westwater Canyon ACEC. Withdrawn from mineral entry. Oil and gas leasing: closed.	Recommendation: Suitable-Wild. Overlaps the Westwater WSA. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps the Westwater WSA. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Open with special stipulations. Oil and gas leasing: closed.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Colorado River Segment #3	RM: 11.2 Acres: 4,200	Suitability not considered. Within the Colorado River SRMA. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry. Oil and gas leasing: NSO.	N/A	Recommendation: Not Suitable. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry. Oil and gas leasing: NSO.
Colorado River Segment #3(a)	RM: 9.3 Acres: 3,535	Not proposed under this Alternative.	Not proposed under this Alternative.	Recommendation: Suitable-Scenic. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Not proposed under this Alternative.
Colorado River Segment #3(b)	RM: 1.9 Acres: 665	Not proposed under this Alternative.	Not proposed under this Alternative.	Recommendation: Suitable-Recreational. Overlaps the Two Rivers SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Not proposed under this Alternative.
Colorado River Segment #4*	RM: 33.1[b] Acres: 12,151	Suitability not considered. Partially within the Colorado Riverway SRMA. Withdrawn from mineral entry. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Recreational. Within the Colorado Riverway SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Partially within the Colorado River Corridor ACEC. Oil and gas leasing: NSO.	Recommendation: Suitable-Recreational. Within the Colorado Riverway SRMA. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Partially within the Colorado Riverway SRMA. Oil and gas leasing: NSO.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Colorado River Segment #5	RM: 5.7 Acres: 1,275	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Suitable-Recreational. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.
Colorado River Segment #6	RM: 3.7 Acres: 941	Suitability not considered. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Wild. Overlaps the Hwy 279 Corridor/ Shafer Basin/Long Canyon ACEC. Within the Colorado Riverway SRMA. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Overlaps the Hwy 279 Corridor/ Shafer Basin/Long Canyon ACEC. Within the Colorado Riverway SRMA. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. Oil and gas leasing: Open with standard stipulations.
Cottonwood Canyon	RM: 10.4 Acres: 2,938	Suitability not considered. Canyon bottom is the border between the Spruce Canyon and Coal Canyon WSAs. Oil and gas leasing: Closed.	Recommendation: Suitable-Scenic. Canyon bottom is the border between the Spruce Canyon and Coal Canyon WSAs. 0.08 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: closed.	Recommendation: Not Suitable. Canyon bottom is the border between the Spruce Canyon and Coal Canyon WSAs. Oil and gas leasing: closed.	Recommendation: Not Suitable. Canyon bottom is the border between the Spruce Canyon and Coal Canyon WSAs. Oil and gas leasing: closed.
Dolores River Segment #1	RM: 5.9[c] Acres: 1,889	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Suitable-Recreational. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal).

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Dolores River Segment #2	RM: 6.3[d] Acres: 2,035	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Wild. Withdrawn from mineral entry (Three Rivers Withdrawal). Portion managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: closed.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Portion managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.
Dolores River Segment #3	RM: 9.9 Acres: 2,899	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Within Two Rivers SRMA. Portion managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Suitable-Recreational. Withdrawn from mineral entry (Three Rivers Withdrawal). Within Two Rivers SRMA. Portion managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Within Two Rivers SRMA. Oil and gas leasing: NSO.
Green River Segment #1	RM: 7.7 Acres: 1,060	Suitability not considered. Partially within the Desolation Canyon WSA. Withdrawn from mineral entry. Oil and gas leasing: mostly closed.	Recommendation: Suitable-Wild. Partially within the Desolation Canyon WSA. Withdrawn from mineral entry (Three Rivers Withdrawal). Partially within Lower Gray Canyon SRMA. Oil and gas leasing: NSO and closed.	N/A because of differing segmentation. (see below).	Recommendation: Not Suitable. Partially within the Desolation Canyon WSA. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO and closed.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Green River Segment #1(a)		Not proposed under this Alternative.	Not proposed under this Alternative.	Recommendation: Suitable-Scenic. Partially within the Desolation Canyon WSA. Withdrawn from mineral entry (Three Rivers Withdrawal). Partially within the Lower Gray Canyon SRMA. Oil and gas leasing: closed and NSO.	Not proposed under this Alternative.
Green River Segment #2	RM: 8.1 Acres: 1,471	Suitability not considered. Oil and gas leasing: mostly open with standard stipulations.	Recommendation: Suitable-Recreational. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	N/A.	Recommendation: Not Suitable.
Green River Segment #3	RM: 1.5 Acres: 341	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: open with standard stipulations.	Recommendation: Suitable-Recreational. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO
Green River Segment #4	RM: 12.9 Acres: 2,905	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: mostly open with standard stipulations.	Recommendation: Suitable-Scenic. Overlaps Labyrinth Canyon ACEC. Withdrawn from mineral entry (Three Rivers Withdrawal). Overlaps Labyrinth Rim/Gemini Bridges SRMA. Oil and gas leasing: NSO.	N/A because of river segmentation (see below).	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Overlaps Dee Pass SRMA. Oil and gas leasing: NSO.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Green River Segment #4(a)	RM: 49	Not proposed under this Alternative.	Not proposed under this Alternative.	Recommendation: Suitable-Scenic. Overlaps East bank in Labyrinth Canyon ACEC. Withdrawn from mineral entry (Three Rivers Withdrawal). Overlaps Labyrinth Rim/Gemini Bridges SRMA. Oil and gas leasing: NSO.	Not proposed under this Alternative.
Green River Segment #5	RM: 15.8 Acres: 2,577	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: mostly open with standard stipulations.	Recommendation: Suitable-Wild. Withdrawn from mineral entry (Three Rivers Withdrawal). East bank in Labyrinth Canyon ACEC. Overlaps Labyrinth Rim/Gemini Bridges SRMA. About 7.1 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	N/A because of river segmentation (see above).	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.
Green River Segment #6	RM: 29.3 Acres: 5,380	Suitability not considered. Withdrawn from mineral entry. Oil and gas leasing: open with standard stipulations.	Recommendation: Suitable-Scenic. Withdrawn from mineral entry (Three Rivers Withdrawal). Overlaps Labyrinth Canyon ACEC. Overlaps Labyrinth Rim/Gemini Bridges SRMA. Oil and gas leasing: NSO.	N/A because of river segmentation (see above).	Recommendation: Not Suitable. Withdrawn from mineral entry (Three Rivers Withdrawal). Oil and gas leasing: NSO.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Mill Creek Segment #1	RM: 1.4 Acres: 572	Suitability not considered. Oil and gas leasing: NSO.	Recommendation: Suitable-Recreational. Overlaps Mill Creek ACEC. Within the South Moab SRMA. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Mill Creek ACEC. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Oil and gas leasing: open with special stipulations.
Mill Creek Segment #2	RM: 4.6 Acres: 1,292	Suitability not considered. Overlaps Mill Creek WSA. Oil and gas leasing: NSO.	Recommendation: Suitable-Scenic. Overlaps Mill Creek WSA. Overlaps Mill Creek ACEC. Within the South Moab SRMA. 3 managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Mill Creek WSA. Overlaps Mill Creek ACEC. Within the South Moab SRMA. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Overlaps Mill Creek WSA. Oil and gas leasing: open with special stipulations.
Negro Bill Canyon Segment #1	RM: 7.2 Acres: 1,687	Suitability not considered. Overlaps Negro Bill WSA. Oil and gas leasing: closed.	Recommendation: Suitable-Wild Overlaps Negro Bill WSA. Between the Sand Flat and Colorado Riverway SRMAs. Within Colorado River Corridor ACEC. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Negro Bill WSA. Between the Sand Flat and Colorado Riverway SRMAs. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Negro Bill WSA. Between the Sand Flat and Colorado Riverway SRMAs. Oil and gas leasing: closed.
Negro Bill Canyon Segment #2	RM: 0.2 Acres: 262	Suitability not considered. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Recreational. Between the Sand Flat and Colorado Riverway SRMAs. Within Colorado River Corridor ACEC. 0.08 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Between the Sand Flat and Colorado Riverway SRMAs. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Between the Sand Flat and Colorado Riverway SRMAs. Oil and gas leasing: NSO.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
North Fork Mill Creek	RM: 11.2 Acres: 3,027	Suitability not considered. Oil and gas leasing: closed.	Recommendation: Suitable-Wild. Overlaps Mill Creek WSA. Within the South Moab SRMA. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Mill Creek WSA. Within the South Moab SRMA. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Mill Creek WSA. Oil and gas leasing: closed.
Onion Creek Segment #1	RM: 2.8 Acres: 726	Suitability not considered. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Wild. Within the Colorado Riverway SRMA. Managed to preserve wilderness characteristics. Overlaps Colorado River Corridor ACEC. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. Managed to preserve wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. Oil and gas leasing: open with special stipulations.
Onion Creek Segment #2	RM: 9.7 Acres: 2,420	Suitability not considered. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Recreational. Within the Colorado Riverway SRMA. 7.06 miles managed to preserve non-WSA lands with wilderness characteristics. Within Colorado River Corridor ACEC. Oil and gas leasing: closed.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. 7.06 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. gas leasing: open with special stipulations.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Professor Creek	RM: 7.3 Acres: 1,936	Suitability not considered. Oil and gas leasing: open with special stipulations.	Recommendation: Suitable-Wild Within the Colorado Riverway SRMA. 7.3 miles managed to preserve non-WSA lands with wilderness characteristics. Within Colorado River Corridor ACEC. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. 7.3 miles managed to preserve non-WSA lands with wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Within the Colorado Riverway SRMA. Oil and gas leasing: open with special stipulations.
Rattlesnake Canyon	RM: 31.6[e] Acres: 8,371	Suitability not considered. Overlaps Desolation Canyon WSA. Oil and gas leasing: closed.	Recommendation: Suitable-Wild. Overlaps Desolation Canyon WSA. Overlaps Book Cliffs Wildlife Area ACEC. Within the Book Cliffs SRMA. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Desolation Canyon WSA. Oil and gas leasing: closed.	Recommendation: Not Suitable. Overlaps Desolation Canyon WSA. Oil and gas leasing: closed.
Salt Wash	RM: 0.3 Acres: 96	Suitability not considered. Oil and gas leasing: open with special stipulations.	(Eligibility Determination Deferred)	(Eligibility Determination Deferred)	(Eligibility Determination Deferred)
Thompson Canyon	RM: 5.5 Acres: 1,620	Suitability not considered. Oil and gas leasing: open with standard stipulations.	Recommendation: Suitable-Wild. Within the Dolores River Canyon SRMA. Managed to preserve wilderness characteristics. Oil and gas leasing: closed.	Recommendation: Not Suitable. Within the Dolores River Canyon SRMA. Managed to preserve wilderness characteristics. Oil and gas leasing: NSO.	Recommendation: Not Suitable. Oil and gas leasing: open with special stipulations.

Table 4.112. Management Proposed for River Segments Considered for WSR Designation, by Alternative

Segment	BLM River Miles (RM) and Acres	Alternative A	Alternative B	PROPOSED PLAN	Alternative D

N/A = Not applicable or not considered under that alternative.

*Alternative D includes only the portion from Hittle Bottom to Take Out Beach.

a. Includes 2.0 miles of the Little Delores River, 0.5 miles of Marble Canyon, and 0.3 miles of Star Canyon.

b. Includes 0.3 miles of Kane Springs Creek.

c. Includes 0.3 miles of Fisher Creek.

d. Includes 0.4 miles of Granite Creek.

e. Includes 10.9 miles of Flat Nose George Canyon.

f. Includes 11.2 miles of Flat Nose George Canyon.

Under Alternative B, Beaver Creek (Segment #1), Colorado River (Segments #2 and #6), Dolores River (Segment #2), Green River (Segments #1 and #5), Negro Bill Canyon (Segment #1), North Fork Mill Creek, Onion Creek (Segment #1), Professor Creek, Salt Wash, and Thompson Canyon would be designated as VRM Class I. The remaining segments would be designated as VRM II. Thus, all segments would have direct beneficial protection to their scenic values and indirect benefits to other resource values because VRM Class I and VRM Class II designation impose limits on surface disturbance.

Beaver Creek (Segments #1 and #2), Colorado River (Segments #2, 3, 4, and 6), Dolores River (Segment #3), Green River (Segments #1 and #4-6), Mill Creek (Segments #1 and #2), Negro Bill Canyon (Segments #1 and #2), North Fork Mill Creek, Onion Creek (Segments #1 and #2), Professor Creek, Rattlesnake Canyon, and Thompson Canyon would be managed within SRMAs under Alternative B. The SRMAs would manage recreational activities and enhance these segment's recreational values, and would not affect the other outstandingly remarkable values. SRMA management would not affect the free-flowing nature of the river, and would be in keeping with the tentative classification of scenic.

Beaver Creek (Segments #1 and #2), the Dolores River, Onion Creek, Professor Creek and Thompson Creek would be managed to protect wilderness characteristics under Alternative B. The management of these lands to maintain wilderness characteristics would protect outstandingly remarkable values and would not affect the free-flowing nature of the river.

All river segments would be in a closed or limited to designated routes OHV category River corridors would thus largely be protected from disturbance related to OHV activity. No loss of outstandingly remarkable values from OHV use would therefore be anticipated during the life of the plan.

4.3.14.4.4 PROPOSED PLAN

Under the Proposed Plan, 155 river miles involving the Colorado River (Segments #2, 3(a), 3(b), 4, 5, and 6), Dolores River (Segments #1-3), and Green River (Segments #1(a) and 4(a)) segments would be recommended as suitable for designation into the National Wild and Scenic River System (see Table 4.112). This alternative would be more protective to their outstanding and remarkable values than Alternative D, but less so than Alternative B. Since Alternative A protects the eligibility of all the river segments, it may be more protective than the Proposed Plan.

All remaining river segments not recommended as suitable would be managed as either NSO or closed for oil and gas leasing, as well as precluding other surface-disturbing activities. This would result in no surface disturbance. All of the segments recommended as suitable for designation would also be managed as NSO or closed to oil and gas leasing. All segments except for those in the Three Rivers withdrawal (the Green, Colorado, and Dolores Rivers) would be open to mineral entry.

Under the Proposed Plan, Colorado River (Segment #2) would be designated as VRM Class I and Colorado River (Segments #3(a), 3(b), 4, 5, and 6), Dolores River (Segments #1-3), and Green River (Segments #1(a) and 4(a)), would be designated as VRM Class II. These segments would have beneficial direct protection to scenic and other resource values because the classifications limit surface disturbance. The remaining river segments not recommended would

be at risk for adverse impacts to their outstanding and remarkable values because surface-disturbing activities could be allowed.

Beaver Creek (Segments #1 and #2), Colorado River (Segments #2, 3(a), 3(b), 4, and 6), Dolores River (Segment #3), Green River (Segments #1(a) and 4(a)), Mill Creek (Segment #2), Negro Bill Canyon (Segments #1 and #2), North Fork Mill Creek, Onion Creek (Segments #1 and #2), Professor Creek, and Thompson Canyon would be managed as SRMAs. This would enhance these segments' recreational values as opportunities would be provide for recreation, and would not affect the other outstandingly remarkable values. It would not affect the free-flowing nature of the river, and would be in keeping with the tentative classification of scenic.

Areas within Beaver Creek (Segments #1 and #2), the Dolores River, Onion Creek, Professor Creek and Thompson Creek would be managed to protect wilderness characteristics under the Proposed Plan. The protection, preservation, and management of these lands to enhance wilderness characteristics would also enhance outstandingly remarkable values because surface-disturbing activities would be precluded. It would not affect the free-flowing nature of the river. It should be noted that of the eligible rivers managed as suitable for designation under the Proposed Plan, only the Dolores River is within an area managed to preserve, protect, and maintain wilderness characteristics. This area is Beaver Creek, which contain Dolores River WSR mileage.

All river segments would be in a limited to designated routes or closed OHV category, with most of the segments limited to designated routes. River corridors would largely be protected from disturbance related to OHV activity. No loss of outstandingly remarkable values from OHV use would be anticipated during the life of the plan.

4.3.14.4.5 ALTERNATIVE D

No segments would be recommended for designation under this alternative. This alternative would offer the least protections to the WSRs in comparison to Alternatives A, B, and C.

All river segments outside WSAs and outside of the Three Rivers Withdrawal area would be subject to oil and gas leasing under standard lease terms or with timing limitations and controlled surface use stipulations. These segments include Beaver Creek, Segment #6 of the Colorado River, Mill Creek, Onion Creek, Professor Creek and Thompson Creek. All segments except for those in the Three Rivers withdrawal (the Green, Colorado, and Dolores Rivers) would be open to mining claims for locatable minerals. However, as noted under Alternative A, riparian corridors would be avoided based on BLM Riparian Policy and through standard lease terms for oil and gas.

Under Alternative D, all segments not specifically designated VRM Class I or II under other resource decisions would be designated as VRM Class III or IV. Unless other management prescriptions limit surface disturbance in these areas, river segments designated as VRM Class III or IV would be at risk for adverse impacts to their outstanding and remarkable values from surface disturbance, loss of vegetation, habitat fragmentation, and loss of scenery.

Under Alternative D, parts of Colorado River (Segments # 2, 3, 4, and 6), Dolores River (Segment #3), Green River (Segment #4), Negro Bill Canyon (Segment #2), Onion Creek (Segments #1 and # 2), and Professor Creek would be managed as SRMAs. This would control recreational activities and would enhance these segments' recreational values. SRMA

management would not affect the other outstandingly remarkable values. It would not affect the free-flowing nature of the river.

All river segments would be in a limited to designated routes or closed OHV category, with most of the segments limited to designated routes. River corridors would largely be protected from disturbance related to OHV activity. No loss of outstandingly remarkable values from OHV use would be anticipated during the life of the plan.

4.3.14.5 Wilderness Study Areas (WSAs) and Wilderness Areas (WAs)

4.3.14.5.1 WSAs

In all alternatives, WSAs are managed under the Interim Management Plan for Lands Under Wilderness Review (IMP), which directs the BLM to manage an area so as not to impair its suitability for preservation as wilderness. IMP applies to all uses and activities except those specifically exempted from this standard, such as grandfathered uses (BLM 1995). In this PRMP, decisions about OHV designations and VRM designation within WSAs will be made. There would be no impacts to WSAs from other resources from implementation of this plan. Table 4.113 presents WSA acreages within the MPA.

Table 4.113. WSA Acreages within the MPA

WSA	Acreage
Behind the Rocks	12,635
Black Ridge Canyons	52
Coal Canyon	60,755
Desolation Canyon	81,603
Floy Canyon	72,605
Flume Canyon	50,800
Lost Spring Canyon	1,624
Mill Creek Canyon	9,780
Negro Bill Canyon	7,820
Spruce Canyon	20,990
Westwater Canyon	31,160
Total	**349,824**

4.3.14.5.1.1 Impacts to WSAs from Travel Management Decisions

Table 4.114 presents the OHV designation, by WSA and by alternative. For WSAs in the "Limited" category, Alternative A limits travel to inventoried routes. Alternative D and Proposed Plan limits travel to a subset of the inventoried routes, which would be designated.

Table 4.114. OHV Designations in WSAs, by Alternative

WSA	Acres	Alt. A	Alt. B	PROPOSED PLAN	Alt. D
Behind the Rocks	12,635	Limited	Closed	Limited	Limited
Black Ridge	52	Limited	Closed	Limited	Limited
Coal Canyon	60,755	Limited	Closed	Closed	Limited
Desolation Canyon (MFO)	81,603	Limited	Closed	Closed	Limited
Floy Canyon	72,605	Limited	Closed	Closed	Limited
Flume Canyon	50,800	Limited	Closed	Closed	Limited
Lost Spring Canyon	1,624	Limited	Closed	Limited	Limited
Mill Creek Canyon	9,780	Limited	Closed	Closed	Limited
Negro Bill Canyon	7,820	Limited	Closed	Closed	Limited
Spruce Canyon	20,990	Limited	Closed	Closed	Limited
Westwater Canyon	31,160	Limited	Closed	Limited	Limited

Table 4.115 presents the miles of route designated, by WSA, by alternative:

Table 4.115. Miles of Route Designated, by WSA and by Alternative

WSA	Acres	A	B	PROPOSED PLAN	D
Behind the Rocks	12,635	3.55	0	0.9	0.9
Black Ridge	52	0	0	0	0
Coal Canyon	60,755	8.0	0	0	1.5
Desolation Canyon (MFO)	81,603	8.2	0	0	0
Floy Canyon	72,605	23.5	0	0	1.55
Flume Canyon	50,800	10.13	0	0	0
Lost Spring Canyon	1,624	0.25	0	0.8	1.0
Mill Creek Canyon	9,780	1.83	0	0	1.48
Negro Bill Canyon	7,820	3.54	0	0	1.12
Spruce Canyon	20,990	1.0	0	0	0
Westwater Canyon	31,160	22.5	0	0	8.4
Totals	**349,824**	**82.5**	**0**	**1.7**	**16.0**

Travel management decisions which close WSAs to motorized travel promote opportunities for primitive and unconfined recreation, prevent additional intrusions, and enhance supplemental values; within the designated OHV category, those decisions which allow the least number of miles open to motorized travel are the most beneficial to these values and WSA management. Alternative B is the most restrictive of motorized travel within WSAs because all WSAs are closed to travel; Alternative B adversely impacts wilderness values the least. The Proposed Plan

is less restrictive of motorized travel than is Alternative B, but it is more restrictive than Alternatives A and D.

4.3.14.5.1.2 Impacts to WSAs from Visual Resource Management Decisions

Under all alternatives, WSAs would be designated as VRM Class I. Therefore, the impacts to WSAs from VRM decisions would be the same for all alternatives. VRM Class I allows no change to the existing landscape, thereby preserving the naturalness of the WSAs.

4.3.14.5.2 WAs

In all alternatives, the Black Ridge WA (5,200 acres) would be managed as part of the McInnis Canyons National Conservation Area. Management prescriptions would prevent impacts to the wilderness values of the area.

4.3.14.6 Summary of Impacts

4.3.14.6.1 ACECs

The management prescriptions for ACECs that would have the greatest impacts upon the relevant and important values in ACEC areas would be oil and gas leasing category, VRM designations and OHV/travel management. All fourteen of the potential ACECs (613,077 acres) would be designated under Alternative B, and would be managed with greater protection of their relevant and important values (see Table 2.2 of Chapter 2, Impact Summary Table). The Proposed Plan would designate five of the potential ACECs (63,232 acres), and provides protection of the relevant and important values within those areas. Alternatives A and D would not designate new ACECs, and would be the least protective of relevant and important values. Adverse impacts to potential the relevant and important values could occur under Alternatives A and D.

Acreages within the potential ACECs in the Greater Cisco and Lisbon Valley RFD areas that are open to oil and gas leasing with standard lease terms or timing limitations or controlled surface use stipulations would be vulnerable to development that could degrade or eliminate relevant and important values proposed for protection. The potential Cisco White-tailed Prairie Dog Complex and the Book Cliffs ACECs would be most impacted by oil and gas development (see Table 2.2).

4.3.14.6.2 National Historic Trail

The Old Spanish Trail would be managed to provide for public understanding and enjoyment under all alternatives.

4.3.14.6.3 WSRs

In all action alternatives (B, D, and Proposed Plan), where eligible rivers would be determined suitable, the BLM would manage these segments to protect or enhance the outstandingly remarkable values, tentative classification, and free-flowing nature of these rivers with specific protection allocations within the river corridor (1/4 mile of the high water mark on each side of the river). BLM management is limited to public lands, and is subject to valid existing rights.

Under Alternative A, a suitability determination would not be made, but those river segments that were determined eligible in the *Wild and Scenic Rivers Review Eligibility Determination* for the MFO would remain eligible under this alternative (BLM 2004g. Where BLM manages the shoreline or other lands within the river corridors, they would be managed to maintain the free-flowing nature, outstandingly remarkable values, and tentative classification. Under Alternative B, 267 miles of river would be recommended as suitable, with the greatest beneficial impacts to WSRs. The Proposed Plan would recommend 155 miles of river as suitable. Alternative D would not find any segments suitable.

4.3.14.6.4 WSAs

The management of WSAs would be the same under all alternatives, except for OHV management. Alternative B is the most beneficial to WSA management, followed by the Proposed Plan and Alternatives D and A. WSAs would be managed under the Interim Management Plan (IMP), which directs the BLM to manage the area so as not to impair their suitability for preservation as wilderness.

4.3.15 Special Status Species

This section discusses impacts to special status species from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning special status species are described in Chapter 3.

Because of the large number of special status species—including Threatened, Endangered, and Sensitive species—in some cases, it was determined that the most effective way to disclose impacts at the programmatic level would be to analyze the impacts to the habitat cover types used by these species (see Chapter 3, Affected Environment) for species and habitat descriptions). Accordingly, for the purposes of analysis, the special status species described in Chapter 3, Section 3.3.16 are grouped here by habitat type, as shown in Table 4.116 below. Impacts to Federally listed species are also analyzed by habitat type, with the exception of some species for which site-specific population or other similar fine-scale data are available. In some areas, based on the limited impact varying by species type, impacts are discussed by alternative to give a more overall description of the impacts resulting from the management action.

4.3.15.1 Analysis Assumptions

In all of the following sections, management actions discussed for each of the management alternatives are in addition to those discussed under Impacts Common to All Alternatives. Furthermore, management actions discussed for Alternatives B, D, and the Proposed Plan are in addition to those discussed under both Impacts Common to All Alternatives and Impacts Common to All Action Alternatives. The Proposed Action and alternatives have the potential for adverse impacts on special status species through management actions such as travel management, recreational use of the land, vegetation treatments, and oil or gas development.

Air quality management does not directly result in additional emissions or air quality degradation. Potential impacts to air quality from actions, such as the construction of access roads to oil and gas development sites, would be analyzed as part of the energy and minerals program in the environmental analysis prepared for that action. Appropriate Section 7 consultation with USFWS would be conducted as a part of the environmental process. Therefore,

any potential impacts to air quality would result from implementing aspects of the energy and minerals program Given the objectives and goals of the air quality program and the support function for maintenance of appropriate air quality standards, implementation of the air quality program would have not effect any of the listed threatened or endangered plant, fish, and animal species analyzed in this report and would not effect any of the designated critical habitat of the threatened or endangered fish and animal species analyzed in this report within the MPA.

It was determined that quantitative analyses would be made for Federally listed species as well as a few BLM Sensitive species selected as representative of a variety of vegetation types. These species include southwestern willow flycatcher (SWFL), endangered Colorado River fishes, Mexican spotted owl (MSO), bald eagle (nesting and wintering), Jones cycladenia, yellow-billed cuckoo, greater and Gunnison sage-grouse, and White-tailed and Gunnison prairie dog. The habitats associated with these species are representative of the habitats of the other special status species (Table 4.116). All habitat impacts analyzed in this section are approximations based on assumptions regarding the potential locations of facilities, vegetation treatments, grazing, and other management decisions. The black-footed ferret is not known to occur in the MPA. However, the possibility exists that at some point in time the introduction of experimental non-essential populations of ferrets may be considered. Because there are no specific plans or time frames for re-introductions, potential re-introductions are not analyzed and potential impacts to black-footed ferrets are not analyzed.

Acreage calculations used for analysis for SWFL and yellow-billed cuckoo habitat were made using riparian vegetation acreages. Because both species utilize micro-habitats within riparian habitat, all habitat acreage calculations are likely over-estimations for these species.

All references to the Colorado River fishes are specifically referring to the Federally endangered bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*). These four species are managed similarly, and impacts can typically be analyzed as a group.

The alternatives have the potential for both adverse and beneficial impacts on special status species through management actions such as travel management, recreational use of the land, vegetation treatments, and oil or gas development. Wherever possible, this document quantifies the amount and types of habitats that would be directly disturbed or reclaimed due to such actions. However, it is often difficult to quantify the loss or improvement of quality or condition of a habitat. Subtle increases or decreases in weeds, shrubs, forbs, water availability, undisturbed areas, or birthing or wintering grounds can greatly affect the distribution, health, and survival of a diversity of sensitive plant and animal species. The degree to which these impacts could occur varies by alternative, with alternatives that increase the amount of surface disturbance within special status species' habitats generally having greater potential adverse impacts on these species. Attempts are made to address potential impacts within each action analysis, but the discussions are often qualitative due to the difficulty in measuring such changes.

Additional assumptions for this chapter include the following: (1) implementation of all of the alternatives would be in accordance with existing laws, regulations, and standard management guidelines; (2) actions associated with emergency or public safety would be performed at the discretion of the Authorized Officer; (3) though impacts resulting from implementation of any of the alternatives may extend beyond MPA boundaries, they will be analyzed to their logical conclusion even if they extend beyond MPA boundaries (an example of this would be analyzing

impacts to aquatic species, including downstream impacts beyond the MPA boundaries); and that, (4) public land users will comply with the decisions and allocations contained in the alternatives.

Table 4.116. Special Status Species in the MPA, by Habitat Type

Habitat Type	BLM Special Status Species	Federally Listed Species	Designated Critical Habitat
Desert Shrub	**Wildlife** Allen's big-eared bat (*Idionycteris phyllotis*), big free-tailed bat (*Nyctinomops macrotis*), fringed myotis (*Myotis thysanodes*), spotted bat (*Euderma maculatum*), Gunnison prairie dog (*Cynomys gunnisoni*), White-tailed prairie dog (*Cynomys leucurus*), burrowing owl (*Athene cunicularia*) (Map 2-22), short-eared owl (*Asio flammeus*), ferruginous hawk (*Buteo regalis*) (Map 2-22), desert night lizard (*Xantusia vigilis*).	**Wildlife** None.	**Wildlife** None.
	Plants Peabody's milkvetch (*Astragalus pubentissimus* var. *peabodianus*), Cisco milkvetch (*Astragalus sabulous* var. *sabulous*), stage-station milkvetch (*Astragalus sabulous* var. *vehiculus*), Cataract Canyon gilia (*Gilia latifolia* var. *imperialis*), Entrada rushpink (*Lygodesmia grandiflora* var. *entrada*), Shultz' stickleaf (*Mentzelia shultziorum*), Trotter's oreoxis (*Oreoxis trotteri*), Paradox breadroot (*Pediomelum aromaticum* var. *tuhyi*), Jane's globemallow (*Sphaeralcea janeae*), San Rafael globemallow (*Sphaeralcea psoraloides*).	**Plants** Jones cycladenia (*Cycladenia humilis* var. *jonesii*) (T).	**Plants** None.
Sagebrush and Perennial Grassland	**Wildlife** Fringed myotis, Gunnison prairie dog, White-tailed prairie dog (Map 2-21), Gunnison sage-grouse, Greater sage-grouse (Map 2-20), burrowing owl, short-eared owl, ferruginous hawk.	**Wildlife** Black-footed ferret (*Mustela nigripes*) (E)[12].	**Black-footed ferret** No critical habitat rules have been published for the black-footed ferret.
	Plants Cataract Canyon gilia *(Gilia latifolia var. imperialis),* Dolores rushpink *(Lygodesmia doloresensis)*	**Plants** None.	**Plants** None.

[12]The black-footed ferret does not occur in the MPA, but is included here due to its potential to occur in association with prairie dog habitat. See Sections 4.3.15.1 Analysis Assumptions and 4.3.15.2.9 Impacts Common to All Alternatives for further discussion.

Table 4.116. Special Status Species in the MPA, by Habitat Type

Habitat Type	BLM Special Status Species	Federally Listed Species	Designated Critical Habitat
Oak/Mountain Shrub	**Wildlife** Gunnison prairie dog, short-eared owl.	**Wildlife** None.	**Wildlife** None.
	Plants None.	**Plants** None.	**Plants** None.
Piñon-Juniper Woodland	**Wildlife** Allen's big eared bat, fringed myotis, Townsend's big-eared bat (*Corynorhinus townsendii*), Lewis's woodpecker (*Melanerpes lewis*), short-eared owl, Western toad (*Bufo boreas*), Eureka mountainsnail (*Oreohelix eurekensis*).	**Wildlife** Mexican spotted owl (MSO; *Strix occidentalis lucida*) (T).	**MSO** Portions of Grand and San Juan Counties. 55,645 acres of designated critical habitat exists within the MPA (Map 2-18).
	Plants Peabody's milkvetch (*Astragalus pubentissimus* var. *peabodianus*), Dolores rushpink (*Lygodesmia doloresensis*), Entrada rushpink (*Lygodesmia grandiflora* var. *entrada*), Trotter's oreoxis (*Oreoxis trotteri*), Paradox breadroot (*Pediomelum aromaticum* var. *tuhyi*), Canyonlands lomatium (*Lomatium latilobum*).	**Plants** Jones cycladenia (T).	**Plants** None.
Conifer and Mountain Shrub	**Wildlife** Allen's big eared bat, big free-tailed bat, fringed myotis, spotted bat, Townsend's big-eared bat, Lewis's woodpecker, three-toed woodpecker (*Picoides tridactylus*), northern goshawk (*Accipiter gentilis*).	**Wildlife** Mexican Spotted Owl (T).	**Wildlife** None.
	Plants None.	**Plants** None.	**Plants** None.

Table 4.116. Special Status Species in the MPA, by Habitat Type

Habitat Type	BLM Special Status Species	Federally Listed Species	Designated Critical Habitat
Riparian and Wetland	**Wildlife** Allen's big eared bat, big free-tailed bat, fringed myotis, cornsnake (*Elaphe guttata*), smooth greensnake (*Opheodrys vernalis*), American white pelican (*Pelecanus erythrorhyanchos*), Bobolink (*Dolichonyx oryzivorus*), northern goshawk, Arizona toad (*Bufo microscaphus*), Western toad, Bald eagle (*Haliaeetus leucocephalus*) (Map 2-19).	**Wildlife** Southwestern willow flycatcher (SWFL; *Empidonax traillii)* (E), Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (C).	**Southwestern willow flycatcher** Designated critical habitat for the SWFL includes portions of Washington County in southwestern Utah (USFWS 2005).
	Fish Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), bluehead sucker (*Catostomus discobolus*), roundtail chub (*Gila robusta*), flannelmouth sucker (*Catostomus latipinnis*).	**Colorado River Fishes** Bonytail (*Gila elegans*) (E), Colorado pikeminnow (*Ptychochelius lucius*) (E), humpback chub (*Gila cypha*) (E), razorback sucker (*Xyrauchen texanus*) (E).	**Endangered Colorado River Fishes** Designated critical habitat includes portions of the Green River downstream from the Yampa and Colorado Rivers; along the San Juan River from Shiprock, NM to the inflow of Lake Powell; and the 100-year floodplain (Map 2-17).
	Plants Alcove bog orchid (*Habenaria zothecina [Platanthera zothecina]*), alcove rock daisy (*Perityle specuicola*).	**Plants** None.	**Plants** None.
Caves and Rock Crevices	**Wildlife** Allen's big eared bat, big free-tailed bat, fringed myotis, spotted bat, Townsend's big-eared bat, Yavapai mountainsnail (*Oreohelix yavapai*).	**Wildlife** Mexican Spotted Owl (T), California condor (E; Experimental).	**Wildlife** California condor: Potential nesting habitat occurs within the MPA; however, any individuals in Utah are part of an experimental, non-essential population.
	Plants Alcove rock daisy (*Perityle specuicola*), Canyonlands lomatium (*Lomatium latilobum*).	**Plants** None.	**Plants** None.

Table 4.116. Special Status Species in the MPA, by Habitat Type

Habitat Type	BLM Special Status Species	Federally Listed Species	Designated Critical Habitat
Rocky Slopes and Canyons	**Wildlife** Yavapai mountainsnail, common chuckwalla (*Sauromalus ater*).	**Wildlife** Mexican Spotted Owl (T).	**Wildlife** None.
	Plants Canyonlands lomatium (*Lomatium latilobum*).	**Plants** None.	**Plants** None.

(C) = Candidate for Federal listing.

(T) = Federally listed as threatened.

(E) = Federally listed as endangered.

4.3.15.2 Impacts Common to All Alternatives

Under all alternatives, the BLM would comply with management plans and conservation agreements for special status species as detailed in Chapter 2. Additionally, all special status species-related measures outlined in the BLM's Oil and Gas Stipulations (Appendix C), Conservation Measures and Best Management Practices for Federally Listed Species (Appendix K), and Best Management Practices and Recommended Buffers and Nesting Periods for Raptors (Appendix O) would be followed. Many of the special status species' habitat listed in Table 4.116 would be indirectly protected by the restrictions and buffers in place for the SWFL, yellow-billed cuckoo, endangered Colorado River fishes, MSO, bald eagle, California condor, Jones cycladenia, greater and Gunnison sage-grouse, White-tailed and Gunnison prairie dogs, the black-footed ferret, burrowing owl, and ferruginous hawk. Specific protections that are in place for these special status species are outlined below.

4.3.15.2.1 Southwestern Willow Flycatcher (SWFL)

In Southwestern willow flycatcher (SWFL) riparian habitat, there would be no surface-disturbing activities within 100 feet of suitable riparian habitat under all alternatives, which would reduce long-term adverse impacts to riparian special status species and their habitats within those buffer zones by eliminating disturbance and habitat degradation. Construction and other disruptive activities would not be permitted within a 0.25 mile buffer of occupied SWFL breeding habitat from May 1 through August 15. These requirements would help reduce disturbance levels for breeding birds during the breeding and nesting season. As discussed in the MSO section below, these requirements would help to mitigate the adverse effects of human disturbance on sensitive bird species during breeding and roosting seasons.

4.3.15.2.2 Yellow-billed Cuckoo

In yellow-billed cuckoo habitat, there would be no surface-disturbing activities within 100 meters of riparian habitat, which would have long-term beneficial impacts on riparian special status species and their habitats within those buffer zones by eliminating disturbance and habitat degradation. Construction and other disruptive activities would not be permitted within a 100 meter buffer of occupied breeding habitat from May 15 through July 20. These requirements would help reduce disturbance levels for breeding birds during the breeding and nesting season. As discussed in the MSO section, these requirements would help to mitigate the adverse impacts of human disturbance on sensitive bird species during breeding and roosting seasons.

4.3.15.2.3 Endangered Colorado River Fishes

The BLM will continue to cooperate with the UDWR and USFWS to protect habitat for the endangered Colorado River fishes. All water depletions from any portion of the Upper Colorado River drainage basin above Lake Powell have been determined to adversely affect or modify the critical habitat of the four resident endangered fish species (Table 4.116). Any new depletions would require formal Section 7 consultation with the USFWS, and would require implementation of the Conservation Measures dictated in the Programmatic Biological Opinion for depletions to the Colorado River system (USFWS 1987).

Surface-disturbing activities are precluded within the 100-year floodplain of the Colorado River, Dolores River, and at the confluence of the Dolores and Colorado Rivers, as well as backwaters

(47,840 acres; see Map 2-17, fish habitat map). Surveys and monitoring would be implemented for authorized exceptions to this stipulation that take place within the 100-year floodplain. Loss or degradation of these riparian habitats and all designated critical habitat would require Section 7 consultation with the USFWS. Any exceptions to the stipulation could affect, but are not likely to adversely affect, the endangered Colorado River fishes. The Utah Oil and Gas Pipeline Crossing Guidance would be implemented for all activities occurring near riparian areas (see Appendix H). These requirements would minimize adverse impacts on special status fish species within the MPA because of the associated reductions in human impacts such as grazing and surface-disturbing activities (Lentsch and Converse 1997).

4.3.15.2.4 Mexican Spotted Owl (MSO)

There would be no ground disturbing activities allowed within a 0.5-mile radius of known MSO nests. Because healthy, native vegetation is a key component of suitable habitat (food source and shelter for owl prey species), these restrictions would have long-term beneficial impacts on MSOs and other special status species in the same habitat type within the MSO nest buffer zones. MSO Protected Activity Centers (PACs) would be protected as outlined in the MSO Recovery Plan (USFWS 1995). MSO Designated Critical Habitat (55,645 acres) and suitable habitat would also be protected as outlined in the MSO Recovery Plan (USFWS 1995) and would be avoided or use restrictions would be implemented. Within suitable habitat, these would include staying on designated routes or revegetating access routes created by a project, which would help mitigate the adverse impacts of any surface disturbance associated with road construction on MSO prey habitat.

In addition, surveys would be required for temporary activities taking place within 0.5 miles of suitable MSO habitat (see Map 2-18, MSO habitat) during breeding season (March 1 through August 31). For all long-term actions, two years of surveys would be required prior to commencement of the activity. If owls were found during the surveys, no disturbing actions during breeding season, or permanent structures, would be allowed within 0.5 miles of any identified nest sites or PACs. Additionally, noise emissions would be reduced below 45 dBA at 0.5 miles from suitable habitat. This would help reduce the stress of noise on MSOs during the breeding season. Various studies have shown that human presence and noise disturbance leads to a significant reduction in prey handling and delivery by females, which would reduce nest success (Frid 2002; Swarthout and Steidl 2003). These requirements would help to reduce the adverse impacts of human disturbance on MSOs during breeding season.

4.3.15.2.5 Bald Eagle

Activities on BLM lands containing nesting or winter roosting habitat for the bald eagle would be avoided or restricted (depending on the duration and timing of the activity). Raptors would be managed according to the USFWS Guidelines for Raptor Protection from Human and Land-use Disturbances (Romin and Muck 2002) and BLM BMPs. These management requirements would include restrictions and avoidance measures and would include required surveys prior to activity, monitoring during the activity, implementation of seasonal and spatial buffers during the breeding season of January 1 through August 31 and avoidance of disturbance in riparian areas unless impracticable. No ground disturbing activities or permanent structures would be authorized within one mile of known bald eagle nest sites year-round (2,439 acres). Deviations may be allowed only after appropriate levels of consultation and coordination with the USFWS.

Also, no permanent above-ground structures would be allowed within 0.5 miles of a winter roost site, if the structure would result in the habitat becoming unsuitable for future winter roosting by bald eagles.

As discussed in the MSO section, these requirements would help to mitigate the adverse impacts of human disturbance on bald eagles during breeding and roosting seasons.

4.3.15.2.6 CALIFORNIA CONDOR

Current threats to California Condors include collisions with man-made structures, including power lines. In addition, illegal shooting, poisoning, and habitat loss continue to threaten the species (USFWS 1996b). California condors and their habitat would be protected as outlined in the Recovery Plan for the California condor (USFWS 1996). If California condors are found to nest in the MPA, there would be no roads or permanent structures allowed within 1 mile of the nest. In addition, no surface-disturbing activities or special use permit groups would be allowed within 1 mile of the nest during breeding season. These requirements would help to mitigate the adverse impacts of human disturbance on nesting California condors.

4.3.15.2.7 JONES CYCLADENIA

Site-specific plant inventories would be required prior to any proposed surface-disturbing projects in suitable Jones cycladenia habitat. Activities that would be avoided in suitable habitat include road construction, land disposal and approval of right-of-way (ROW) corridors, and grazing activities (trailing, salting, trailing, watering, and herding). All motorized travel would be limited to designated routes in suitable Jones cycladenia habitat. The use of herbicide and chemical treatments would be restricted. These avoidance measures and restrictions would help to mitigate the adverse impacts of habitat degradation and fragmentation for the Jones cycladenia.

4.3.15.2.8 GUNNISON AND GREATER SAGE-GROUSE

Major threats to sage-grouse include the installation of roads which leads to destruction of vegetation and increased human activity, and fences and power poles that provide perches and viewing areas for raptors, which leads to an increase in predation levels in these areas (Connelly et al. 2000; Crawford et al. 2004). Additional threats to sage-grouse include reduction in native vegetation, fragmentation of suitable lekking and nesting habitat, and human disturbance during breeding and nesting season. The following plans would be implemented in suitable habitat in the MPA: BLM's National Sage-grouse Habitat Conservation Strategy (BLM 2004c), Strategic Management Plan for Sage-grouse (UDWR 2002), Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004), and the Gunnison Sage-grouse Range-wide Conservation Plan (GSRSC 2005). Adherence to BLM plans would reduce adverse impacts to Gunnison sage-grouse and other sensitive sagebrush species in the MPA because of the habitat protections and restrictions on human disturbance specified in these plans. These restrictions include surface disturbance and permanent structures and other human activity in or near leks. Specific spatial and temporal stipulations for sage-grouse are discussed in Section 4.3.15.13.2.1 below.

4.3.15.2.9 WHITE-TAILED AND GUNNISON PRAIRIE DOGS

Prairie dog habitats would be managed in accordance with UDWR and USFWS guidance and the White-tailed Prairie Dog Conservation Assessment. Additionally, cooperative agreements would be developed with other agencies to inventory prairie dog densities and identify suitable habitat for expansion. Adherence to the Conservation Assessment Plan would have beneficial impacts on White-tailed and Gunnison prairie dogs and other special status species in associated habitats in the MPA because of the habitat protection recommendations relevant to oil and gas development (including buffers around colonies), livestock grazing, and other potential threats.

4.3.15.2.10 BLACK-FOOTED FERRET

No critical habitat rules have been published for the black-footed ferret. However, the 1988 Recovery Plan states "direct reduction in the area occupied by prairie-dogs has been shown to reduce the number of black-footed ferrets linearly" (USFWS 1988). Therefore, it can be assumed that critical habitat for the black-footed ferret coincides with prairie-dog habitat including areas of short vegetation and bare ground, and that impacts described in this chapter for prairie dogs would be the same for the black-footed ferret. Sagebrush shrubs are among the largest plants found in the areas of preferred black-footed ferret and prairie-dog habitat (UDWR 2002).

4.3.15.2.11 BURROWING OWL

No surface-disturbing activities would be allowed within 0.25 mile of a known burrowing owl nest from March 1 through August 31 due to the stipulations developed in cooperation with USFWS (USFWS Guidelines for Raptor Protection from Human and Land-use Disturbances, Appendix O) for oil and gas leasing and other surface disturbance activities. Additionally, no domestic sheep camps, temporary watering sites, or salt and mineral blocks would be allowed within 0.25 mile during the same time period to avoid the congregation of domestic sheep and activity around the nests. Ground squirrel and prairie dog colonies would be maintained to provide habitat and nesting burrows for burrowing owls. As discussed in the MSO section, these requirements would help to mitigate the adverse impacts of human disturbance on burrowing owls during breeding and roosting seasons.

4.3.15.2.12 FERRUGINOUS HAWK

Management actions and impacts for ferruginous hawk would be identical to those described under burrowing owl except that no surface-disturbing activities would be allowed within 0.5 mile of a known ferruginous hawk nest from March 1 though August 1, and the activities described above would not be allowed within 0.5 mile during the same time period. This spatial buffer would reduce human disturbances to nesting ferruginous hawks.

4.3.15.3 IMPACTS OF CULTURAL RESOURCE DECISIONS ON SPECIAL STATUS SPECIES

4.3.15.3.1 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

Under Alternatives B, D, and the Proposed Plan, all land-disturbing activities within Traditional Cultural Properties would be designated to avoid or minimize impacts, where reasonable. Proposed projects or actions would be modified to avoid the site or area, avoid time of use by Native American groups, or would be eliminated altogether. Cultural sites may be closed to visitation if it is determined that visitation is endangering the integrity of the site.

Implementation of these criteria would reduce negative impacts to special status species and their habitats in the MPA by reducing surface-disturbing activities and visitor use associated with cultural resources. Implementation of these criteria would reduce negative impacts to special status species and their habitats in the MPA by reducing surface-disturbing activities and visitor use associated with cultural resources.

Under alternatives B, D, and the Proposed Plan, camping would be prohibited within archaeological and historic sites eligible for listing on the National Register of Historic Places. Eligible cultural sites would be protected from grazing activities when it is determined that they are being impacted, and any impacts would be mitigated.

Class III cultural resources inventory would be conducted on designated ATV, and motorcycle and mountain bike routes that are 48 inches wide or less, based on potential resource conflicts. Routes identified for survey would be prioritized based on landscape level overviews, cultural resource predictive models, and available site location, environmental, and contextual information. If it is shown that eligible archaeological sites along these routes are being adversely affected by continued route use, impacts would be mitigated. Additionally, the BLM would cooperate with counties to ensure that county road and trail construction and maintenance activities minimize impacts to cultural resources.

Cultural resource program-related actions include the development of interpretive sites, identification of cultural resources, increased vehicular traffic, the use of hand and power tools, the establishment of temporary camp sites, the building of fences, and the stabilization of deteriorating buildings. These actions have the potential to temporarily disturb or displace special status species due to the human activity associated with cultural resource actions.

4.3.15.3.2 Piñon-Juniper Woodland and Desert Shrub Habitats

Under the Proposed Plan, cultural resource related actions may occur within Jones' cycladenia and other special status plant occupied or potential habitat that could negatively affect the species through inadvertent trampling of individuals or habitats. The use of power tools and heavy machinery has the potential to crush and destroy individuals, populations and habitat. The proposed action is likely to adversely affect Jones cycladenia due to potential for surface disturbance within known or potential habitat. Occupied or potential MSO special status wildlife habitats may also be negatively affected by increased noise and visual stimulation. The Proposed Plan is likely to adversely affect the MSO where interpretive sites or preservation actions that result in public advertisement result in long-term adverse effects as a result of human presence.

4.3.15.3.3 Conifer and Mountain Shrub Habitat

Occupied or potential MSO habitats may be negatively affected by increased noise and visual stimulation. Human activities in viable habitats may disrupt nesting and foraging behaviors and result in individual owls leaving the area or abandoning nests. The Proposed Plan is likely to adversely affect the MSO where interpretive sites or preservation actions that result in public advertisement result in long-term adverse effects as a result of human presence.

4.3.15.3.4 Riparian, Wetland, and Stream Habitats

Cultural resource program-related actions under the Proposed Plan are likely to adversely affect the SWFL where interpretive sites or any preservation actions that result in public advertisement

result in long-term adverse effects as a result of human presence. The Proposed Plan is likely to adversely affect the endangered Colorado River fishes due to the potential for water quality degradation and aquatic habitat modification during cultural resource activities.

4.3.15.3.5 CAVES AND ROCK CREVICES/ ROCKY SLOPES AND CANYONS HABITATS

Cultural resource program-related actions under the Proposed Plan are likely to adversely affect the MSO where interpretive sites or preservation result in public advertisement and associated long-term adverse effects as a result of human presence.

4.3.15.4 IMPACTS OF FIRE MANAGEMENT DECISIONS ON SPECIAL STATUS SPECIES

4.3.15.4.1 IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, the Reasonable and Prudent Measures and Terms and Conditions identified in consultation with the USFWS for the Utah Land-use Plan Amendment for Fire and Fuels Management (BLM 2005c) would be implemented in fire-related actions. Maintenance of existing healthy ecosystems and protection of special status species are two of the criteria for establishing fire management priorities. Implementation of these criteria would reduce negative impacts to special status species and their habitats in the MPA by preserving native plant species and assuring that special status species would not be directly affected by fire.

Fuels management actions would occur under all of the alternatives. Wildland fire use may be authorized for special status species habitats, which could negatively impact special status species by burning or cutting of vegetative cover, reducing the overall quantity or quality of habitat or forage, or mortality of individuals due to fire, trampling, or crushing. Indirect impacts to special status species and their habitats could include increased exposure to predators due to reduced vegetation cover, increased soil erosion, or other impacts to habitat quality.

Wildland fire use would not be authorized in the following areas unless reasonable resource protection measures were in place: areas that are known to be highly susceptible to post-fire cheatgrass or other weed invasion, important terrestrial and aquatic habitats, and non-fire adapted vegetation communities (see Special Status Species section of Table 2.2, Summary of Impacts). This measure would also have beneficial impacts on special status species habitat by reducing the spread of weeds and preserving native plant species, thereby ultimately preserving the quality of special status species habitats.

Fuels management actions include surface-disturbing treatments on 5,000 to 10,000 acres annually (dependent on budgetary and time constraints). Over the life of the plan, this would result in a maximum of 75,000 to 150,000 acres of land subject to fuels management. Impacts would be analyzed with site-specific NEPA once it is determined where individual treatments would occur. Fuels management actions include: mechanical and manual treatments, prescribed fire, chemical or biological vegetation control, and aerial/ground seeding.

The LUP Amendment for Fire and Fuels Management indicates that the majority of treatments would occur in piñon-juniper woodland and sagebrush habitats and would impact the species dependent upon those habitats (Table 4.116). In the long term, however, vegetation treatments would benefit special status species habitat in an area by removing competition from weedy natives and invasive species. Once the competition is removed, a diverse native community has

the potential to establish itself in the area, which means more available forage and cover for sensitive wildlife species and potential habitat for sensitive plant species (Stevens 2004).

4.3.15.4.2 Desert Shrub Habitat

Under all alternatives, wildland fire use or fuels management actions and associated surface-disturbing treatments would not be authorized in desert shrub habitats, which are known to be highly susceptible to post-fire cheatgrass or other weed invasion, unless reasonable Resource Protection Measures were in place. Protective measures would result in beneficial impacts because fire management activities that promote weed invasion could adversely impact special status plant species through direct impacts to individuals, competition from weed species, and indirectly impact special status wildlife through short and long-term changes in vegetation composition and structure, and weed-induced destabilization of biological soil crusts.

4.3.15.4.3 Sagebrush and Perennial Grassland and Piñon-Juniper Woodland

The LUP indicates that the majority of fuels management treatments would occur in piñon-juniper woodland and sagebrush habitats. Impacts would be analyzed with site-specific NEPA once it is determined where individual treatments would occur. Under all alternatives, fuels management actions would include surface-disturbing treatments on 5,000 to 10,000 acres annually within the MPA. Over the life of the plan, this would result in a maximum of 75,000 to 150,000 acres of land subject to fuels management.

Impacts to special status species would include trampling or removal of vegetation and associated disturbance to sensitive wildlife species from fire and human presence. In the long term, however, vegetation treatments would potentially benefit special status species habitat by removing competition from weedy natives and invasive species. Under the Proposed Plan, fire management decisions are likely to adversely affect the MSO and its habitat due to the loss of forage in piñon-juniper woodland habitat associated with wildland fire and prescribed fire.

4.3.15.4.4 Riparian and Wetland Habitats

Direct, adverse impacts from fire management actions include aquatic habitat degradation and modification including sedimentation and salinization resulting from soil erosion and stream bank destabilization, changes in water chemistry, changes in flow pattern, and possible water withdrawals (USFWS 2002a, BLM 2005c; Trombulak and Frissell 2000). Indirect, beneficial effects of fire management on special status species and their habitats include the reduction of catastrophic wildland fires that cause habitat modification, soil erosion, stream sedimentation, and water quality degradation. Indirect, adverse effects of fire management in riparian areas include the potential for alteration of plant community structure, species composition, and relative abundance of species. Fire is an imminent threat to special status species riparian habitats, as native riparian plants are neither fire-adapted nor are they fire-regenerated, whereby fires in riparian habitats can cause catastrophic, immediate and drastic changes in riparian plant density and species composition (USFWS 2002a). Under all alternatives, wildland fire and fuels management actions would not be authorized in potential special status species riparian habitats (see Section 4.3.15.1). Under the Proposed Plan, fire management decisions are likely to adversely affect the southwestern willow flycatcher and Colorado River fishes due to the potential for water quality degradation and habitat destruction or modification associated with fire and fuels treatments in riparian habitats.

4.3.15.4.5 All Other Habitats in the MPA

Under all other habitat types, wildland fire use would not be authorized unless reasonable Resource Protection Measures were in place if the habitat is deemed susceptible to post-fire cheatgrass or other weed invasion, important as terrestrial and aquatic habitat for special status species, or a non-fire adapted vegetation community.

4.3.15.5 Impacts of Health and Safety Decisions on Special Status Species

4.3.15.5.1 Impacts Common to All Alternatives

Under all alternatives, abandoned mine lands (AMLs) would be prioritized for area reclamation and mitigation. Site-specific NEPA analysis would be completed on all potential AML projects, thereby preventing adverse impacts to special status species.

4.3.15.5.2 Riparian and Wetland Habitats

Hazardous waste contamination from AML sites could directly or indirectly impact special status species in the short and long-term. Special status fish and amphibian species may be particularly vulnerable to adverse impacts to water quality, which could result in mortality of individuals, reduced forage or prey availability, or impacts to other habitat qualities. Any impacts to water quality could indirectly impact sensitive wildlife species that utilize affected riparian or wetland habitats through exposure to contaminants or impacts to prey availability or habitat quality. Under the Proposed Plan, health and safety management decisions are likely to adversely affect the endangered Colorado River fishes due to impacts to the primary constituent elements for their designated critical habitat. Actions associated with health and safety management decisions also have the potential to adversely impact the SWFL due to surface disturbance impacts resulting in temporary, localized and down-stream water quality degradation, and increased human activities during mine reclamations.

Under all alternatives, some abandoned mine lands sites would be prioritized due to hazardous waste contamination and water quality issues. The top criteria used to prioritize water-quality-based AML programs include threats to the environment (see special status section of Table 2.2, Summary of Impacts), which takes into account habitat quality for all special status fish species (see Table 4.116). These actions are conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authority and follow CERCLA processes. These reclamations would help to mitigate for the adverse impacts of poor water quality on special status fish species because the threat of groundwater contamination would be removed. Long-term water quality monitoring would be required.

4.3.15.5.3 Caves and Rock Crevices

In addition to naturally occurring caves and rock crevices, abandoned mining structures are often used as roosting habitat by bats, including sensitive bat species. Of the 18 bat species in Utah, 14 species regularly occur in abandoned mines. One State special status species (Townsend's big-eared bat) has been found exclusively in abandoned mines (Grandison 2004). Of the special status bat species occurring in the MPA (see Table 4.116), three are known to use caves as winter, day, or night roosts (Townsend's big-eared bat, fringed myotis, and spotted bat; Oliver 2000). These species have the highest potential for being adversely affected by reclamation and

mitigation of AMLs. Completely sealing off AML entrances could have direct adverse impacts to roosting individuals and populations, which could include the reduction of suitable roosting habitats. Under all alternatives, potential mitigations to avoid and/or minimize impacts to special status bat species would include pre-construction surveys and the installation of bat compatible mine gates and cupolas, which allow bats to pass through but prohibit human entrance. Use of mitigation structures and monitoring would lessen adverse impacts of mine closures on bats.

Under the Proposed Plan, hazardous materials management activities is likely to adversely affect the MSO due to negative impacts to primary constituent elements of MSO designated critical habitat, and disturbance associated with the presence of humans and equipment.

4.3.15.5.4 All Other Special Status Species Habitats in the MPA

Under all alternatives, impacts to all other special status species from health and safety decisions would be negligible because they do not occur in areas that would be impacted by abandoned mine reclamation.

4.3.15.6 Impacts of Lands and Realty Decisions on Special Status Species

4.3.15.6.1 Impacts Common to All Alternatives

Lands and realty decisions that could potentially impact special status species include the following: access, easements, leases and permits, utility/transportation systems, exchanges, disposals and withdrawals. Under all alternatives, Wilderness Study Areas (WSAs) and Wilderness Areas would be exclusion areas for ROWs, and ACECs would be avoidance areas. In addition, the withdrawal of 78,333 acres from mineral entry within the MPA would be continued. Under all alternatives, the 65,037 acres from the Three Rivers Withdrawal and 8,096 acres from the Westwater Withdrawal includes critical riparian habitat and would be managed as NSO. These actions would contribute to the avoidance of both long-term and short-term adverse impacts to riparian-associated special status species (see Table 4.116) in withdrawal areas by removing threats from the surface-disturbing actions associated with lands and realty decisions.

All areas not identified as avoidance or exclusion would be available for ROWs and could be subject to multiple-use terms on a case-by-case basis (BLM 2004a). The use of ROWs for utility and communication infrastructure could have direct, long term, adverse impacts on special status plant and wildlife species habitat due to surface disturbance for utility lines, communication sites, solar and wind energy sites, or pipeline installation, trampling by workers and vehicles during construction activities, impacts to special status bird or bat species and migration routes from wind turbines, and construction of maintenance access roads. Additionally, noise and human presence associated with infrastructure installation could have adverse impacts on special status wildlife species in the MPA.

4.3.15.6.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Applications for filming permits would have to meet criteria to avoid or minimize impacts to special status species and their habitats. Accordingly, implementation of these minimum impact criteria would help reduce adverse impacts to special status species from filming activities, such as surface disturbance due to vehicle use, noise and other human impacts, and an increased risk of fire.

4.3.15.6.3 Desert Shrub, Sagebrush and Perennial Grassland and Oak/Mountain Shrub Habitats

Under all alternatives, the installation of power poles in these habitats would increase raptor predation on Gunnison prairie dog, White-tailed prairie dog, Greater sage-grouse, and Gunnison sage-grouse by providing hunting perches. Although this is a negative impact on these prey species, it would provide a short-term positive impact on special status raptor species in the MPA (Jacobsen 2005). Utility and communication infrastructure ROWs are also likely to fragment habitat, increase human access and increase invasive plants. These impacts would affect special status species, including prairie dogs and sage-grouse. Alternative A would impact the fewest acres of habitat (26,695 acres), followed by Alternative B (55,408 acres). Greater impacts to special status species would occur under the Proposed Plan (128,293 acres) and Alternative D (156,328 acres) (see Section 4.3.17.4, Table 4.137). Under the Proposed Plan, lands and realty management actions are likely to adversely affect Jones' cycladenia individuals or potentially suitable desert shrub habitats.

4.3.15.6.4 Piñon-Juniper Woodland Habitat

Potential impacts to special status species from utility corridor development in piñon-juniper woodland habitat would be greatest under the Proposed Plan (41,672 acres) and D (44,189 acres), followed by Alternative B (8,808 acres) and Alternative A (5,345 acres). Under the Proposed Plan, lands and realty management actions are likely to adversely affect Jones' cycladenia individuals or potentially suitable habitat, and the MSO and its designated critical habitats.

4.3.15.6.5 Conifer/Mountain Shrub Habitat

Potential impacts to special status species from utility corridor development in conifer/mountain shrub habitat would be limited to a maximum of 19 acres under Alternative D and Proposed Plan, with 9 acres potentially impacted under Alternative A, and no acres impacted under Alternative B. Under the Proposed Plan, lands and realty management actions are likely to adversely affect the MSO and its designated critical habitats.

4.3.15.6.6 Riparian and Wetland Habitats

For Federally listed species, changes in utility corridor widths among alternatives would primarily affect riparian habitat, which is utilized by wintering bald eagles, the four endangered Colorado River fishes, Southwestern willow flycatcher and yellow-billed cuckoo, and as foraging habitat by the Mexican spotted owl, and riparian-associated BLM special status species (see Table 4.116). Table 4.117 below details the acreage and percentage of habitat for these species that is included within utility corridors by alternative. Some overlap may exist among species. Specific adverse impacts of utility corridors on special status species are as described above.

Table 4.117. Federally Listed Species' Riparian Habitat Proposed for Utility Corridors, in Acres and Percent of Total Habitat in the MPA, by Alternative

Species	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
	Acres	%	Acres	%	Acres	%	Acres	%
SWFL and Yellow-billed Cuckoo Habitat	143	1	324	2	1,031	8	1,139	8
Colorado River Fish Habitat	41	<1	281	1	565	1	571	1
MSO Foraging Habitat	4,609	1	8,979	2	41,301	7	44,491	8
Total Habitat Impacted	**9,402**	**<4**	**13,806**	**<6**	**59,854**	**23**	**63,341**	**25**

Under Alternative A, utility corridor widths would remain 1 mile throughout. Under Alternative B, an I-70 utility corridor would be designated with a 100-foot width on each side of the widest ROW corridor. Under the Proposed Plan, a 0.5-mile disturbance width on either side of the I-70 utility corridor would be designated. Also, under the Proposed Plan, a Moab Canyon Utility Corridor would be designated and expanded onto Gold Bar Rim, and two corridors south of Spanish Valley would be combined with 2–3 miles separating the segments, which would increase the number of acres in the MPA with potential to be adversely affected. Under Alternative D, allowable surface disturbance associated with the I-70 utility corridor would be a 1-mile width on each side of the widest ROW corridor, which would further increase the number of acres in the MPA with potential to be adversely affected by surface disturbance associated with these management decisions. Overall, Alternative A would impact the fewest acres of riparian habitat, and would therefore have the lowest potential impacts to riparian special status species, followed by Alternative B, the Proposed Plan, and Alternative D, in ascending order (see Table 4.117).

Under the Proposed Plan, lands and realty management decisions are likely to adversely affect the endangered Colorado River fishes due to direct and indirect impacts to designated critical habitat. Actions associated with health and safety management decisions are also likely to adversely affect the southwestern willow flycatcher due to habitat fragmentation and degradation resulting from surface-disturbing activities associated with utility corridor development.

4.3.15.6.7 All Other Special Status Species Habitats in the MPA

No utility corridors are proposed for caves and rock crevices or rocky slopes and canyons habitats. Overall, Alternative A would potentially impact the lowest number of acres across all special status species habitats of the alternatives, followed by Alternative B, the Proposed Plan, and Alternative D.

ROW exclusion areas will be managed for wilderness characteristics by alternative, and would include no exclusions for wilderness characteristics under Alternatives A or D, 233,745 acres under Alternative B, and 47,761 acres under the Proposed Plan. Accordingly, the lowest potential impacts to special status species from ROWs in wilderness characteristics areas would occur under Alternative B, followed by the Proposed Plan, and Alternatives A and D, respectively.

4.3.15.7 Impacts of Livestock Grazing Decisions on Special Status Species

4.3.15.7.1 Impacts Common to All Alternatives

Livestock grazing allotments occupy approximately 2,329,900 acres (95% of all lands) within the MPA. Detrimental impacts from grazing could include loss of biodiversity, lowering of population densities, disruption of some ecosystem functions, changes to community organization, and changes to the physical characteristics of both terrestrial and aquatic habitats (Chaneton and Lavado 1996; Fleischner 1994; Olff and Ritchie 1998). Within grazing allotments, special status species may be impacted by trampling, reduced forage or cover vegetation, reduced quality of riparian and wetland habitats, and other impacts to habitat quality or quantity. Those allotments that remain unavailable for grazing are not subject to these impacts to special status species.

Under all alternatives, livestock grazing would be managed according to the Guidelines for Grazing Management to achieve the Standards for Rangeland Health. By adhering to these Standards, the impacts from livestock grazing on special status species are expected to be minimal. Grazing use would not be authorized on approximately 48,220 acres in the MPA, wherein negative impacts to special status species by livestock would be reduced or eliminated.

4.3.15.7.2 Desert Shrub

Grazing can increase salinity in already saline soils (Chaneton and Lavado 1996) and lead to inhibited plant diversity, especially in arid and relatively infertile soils (Olff and Ritchie 1998). Further, changes in salinity in bodies of water such as the Colorado River have been shown to modify species composition within an ecosystem (Galindo-Bect and Glenn 1999; Hart et al. 1998). For these reasons, grazing eventually would reduce the habitat quality for special status species associated with riparian, desert shrub, and sagebrush habitats (see Table 4.116). Accordingly, Alternative B would exclude grazing from the greatest number of acres of potentially saline soils in desert shrub and sagebrush habitats (Table 4.118) and would have the greatest beneficial impacts to special status species, followed by Alternative A, the Proposed Plan, and Alternative D, in descending order.

Table 4.118. Acres of Grazing Exclusions in Special Status Species Habitats, by Alternative

Habitat	Alternative A	Alternative B	Proposed Plan	Alternative D
Desert shrub	13,697	23,880	23,280	13,324
Sagebrush and perennial grassland	3,806	5,569	5,569	1,767
Conifer and mountain shrub	23,155	23,404	22,579	587
Piñon-juniper woodland	84,301	98,628	77,548	35,369
Riparian/Wetland	1,568	1,852	1,556	862
Agriculture, Developed, Disturbed, Water	316	388	291	238
Invasive Species and Noxious Weeds	64	76	68	67
Total	**126,907**	**153,797**	**132,047**	**52,214**

Under the Proposed Plan, actions related to livestock grazing decisions are likely to adversely affect Jones' cycladenia individuals and desert shrub habitats due to direct effects from trampling and grazing, and indirect negative effects from soil compaction, incursion of weeds, and ground disturbance.

4.3.15.7.3 Sagebrush and Perennial Grassland and Piñon-Juniper Woodland Habitats

The recommendations of the National Sage-grouse Habitat Conservation Strategy (BLM 2004c) and the Strategic Management Plan for Sage-grouse (UDWR 2002) would be followed under all alternatives as applicable. These plans are designed to benefit sage-grouse species, and would also help avoid adverse impacts to all species associated with the sagebrush and perennial grassland habitat type by setting forth objectives and strategies aimed to retain the quality of these habitats. See Section 4.3.15.2.7, above, for details.

Vegetation treatments for rangeland improvement in piñon-juniper woodland habitat are proposed under all alternatives. These treatments include plowing and seeding, chaining and seeding, drill seeding, and prescribed fire and seeding. See Table 4.116 to determine which special status species would be impacted by treatments to piñon-juniper woodland habitat. Potential short-term adverse impacts include mortality of individuals, displacement, and disturbance of habitat. However, in the long term, treatments would open canopy vegetation in or near special status species habitat, thereby improving conditions for re-colonization by native species. For example, the restoration of sagebrush habitats from piñon-juniper woodland encroachment can be done by cutting or chaining combined with post-treatment seeding (BLM 2004c). Rangeland improvements like this would generally benefit sagebrush habitats and sagebrush dependent species such as the greater and Gunnison sage-grouse.

Under Alternative A, vegetation treatments would be continued on 67,125 acres of piñon-juniper woodland habitat, including mechanical treatments on 11 allotments (52,976 acres) and prescribed fire treatments on 14,149 acres. Seeding would be done to ensure that forage would be created and enhanced for both wildlife and livestock. Special status wildlife species would likely have fewer adverse impacts with additional AUMs available, and sagebrush-dependent species would experience reduced impacts due to expanded habitat. Alternative B proposes 46,307 acres for vegetation treatments in piñon-juniper woodland habitat, which is 20,818 acres less than Alternative A. Alternative D and Proposed Plan would conduct the same vegetation treatments as Alternative B, with an additional 6,900 acres of new vegetation treatment areas.

Because the degree of direct and indirect impacts on special status species depends upon the quality of the treatment and the success rate of revegetating, differences among the alternatives are difficult to quantify. Alternative B would treat the fewest number of acres, followed by the Proposed Plan and Alternative D, with the largest treatment area under Alternative A. However, it is likely that Alternative B would have fewer improvements on special status species sagebrush habitat than the other Alternatives. Under the Proposed Plan, actions related to livestock grazing decisions are likely to adversely affect Jones' cycladenia individuals and piñon-juniper woodland habitats due to direct effects from trampling and grazing, and indirect negative effects from soil compaction, incursion of weeds, and ground disturbance. Livestock grazing under the Proposed Plan is likely to adversely affect the MSO and its habitats due to decreased habitat quality for MSO prey species.

4.3.15.7.4 Riparian and Wetland Habitats

Although exclusions would help mitigate the adverse impacts of livestock grazing on water quality and riparian habitat in some areas, each alternative could result in direct and indirect, adverse impacts on riparian special status species in other areas. Indirect adverse impacts include loss of riparian habitat as a result of grazing of palatable native plant species, including vulnerable shrubs and tree saplings. Once disturbed, these areas are more susceptible to invasion by noxious and introduced weeds, which tend to be low value forage and cover species for sensitive wildlife (Popolizio et al. 1994; Kauffman et al. 1983; Sarr et al. 1996). Sensitive bird species relying on riparian habitat (e.g., bald eagles, SWFL, yellow-billed cuckoo) are typically adversely affected by the replacement of native vegetation with introduced species (Saab et al. 1995), as they rely on native riparian trees for nesting and roosting sites and protection from predators. There could also be adverse impacts on endangered and special status fish and amphibian species habitats due to increased overland flow associated with upland soil compaction. Cattle hooves compact the soil on upland slopes, which results in less rainwater infiltration into soils and more overland flows. The result is large, short-lived flows rather than small, perennial flows (Trimble and Mendel 1995).

Under Alternative A, grazing would continue to be excluded from 126,907 acres including 1,568 acres of riparian habitat (see Table 4.118 above). Alternative B would exclude grazing on 153,797 acres including 1,852 acres of riparian habitat which would have the lowest potential for adverse impacts to special status species from grazing under all alternatives. An additional 4,422 acres of riparian habitat would be evaluated to determine if exclusion from grazing would improve riparian functioning condition under Alternative B. This would help mitigate the adverse effects of livestock grazing in riparian areas discussed under Impacts Common to All Alternatives. Under the Proposed Plan, grazing would be excluded from 114,235 acres including five riparian areas totaling 1,556 acres. An additional 1,169 riparian acres would also be evaluated to determine if exclusion from grazing would improve riparian functioning condition. Under Alternative D, grazing would be excluded from 52,214 acres, including 862 acres of riparian habitat. Under the Proposed Plan, impacts associated with livestock grazing in riparian areas are likely to adversely affect the SWFL due to potential habitat degradation. Livestock grazing under the Proposed Plan is also likely to adversely affect the endangered Colorado River fishes due to direct and indirect impacts to water quality and habitat degradation.

4.3.15.7.5 Conifer and Mountain Shrub Habitat

The elimination of grazing could potentially provide short- and long-term benefits to special status species occupying conifer and mountain shrub habitats. As indicated by the acres of grazing exclusions listed in Table 4.118, there would be similar levels of impacts to special status species under all Alternatives, with Alternatives A and B being the least impactful, followed by the Proposed Plan and Alternative D. Livestock grazing under the Proposed Plan is likely to adversely affect the MSO and its habitats due to decreased habitat quality for MSO prey species.

4.3.15.7.6 All Other Special Status Species Habitats in the MPA

Livestock grazing would likely have negligible impacts on caves and rock crevices, or rocky slopes and canyons habitats. Nevertheless, the allotments that would be available for grazing in Alternative D, and not in Alternatives A, B and Proposed Plan, include potential canyon nesting

and potential breeding habitat for MSO, as well as riparian habitat in the Cottonwood, Diamond and Nash watersheds. Accordingly, Alternative D would have more grazing-related adverse impacts on riparian-, piñon-juniper woodland-, mountain shrub-, and desert shrub-dependent special status species than Alternatives A, B and Proposed Plan. Overall, Alternative B would impact the fewest acres of special status species habitats, followed by the Proposed Plan and Alternatives D and A (Table 4.118).

4.3.15.8 Impacts of Mineral and Energy Development Decisions on Special Status Species

4.3.15.8.1 Impacts Common to All Alternatives

Impacts to special status species associated with minerals exploration include loss and fragmentation of habitats, noise impacts to breeding and foraging activities, crushing or trampling of individuals, and changes in habitat structure or composition due to the introduction and spread of invasive and weedy plant species. In addition to specific protections for special status species (Section 4.3.15.1), approximately 358,806 acres of WSAs and Wilderness Areas would be closed to mineral leasing and development. This would eliminate loss of habitat and disturbance impacts to special status species using piñon-juniper and desert shrub habitats. All alternatives include the withdrawal of 65,037 acres along the Colorado, Dolores and Green Rivers from mineral entry, thereby eliminating surface-disturbing impacts to special status species riparian habitats in this area. Mineral exploration activities would also lead to greater road density, potentially creating greater opportunity for OHV and other human disturbance.

Acreages under the categories Standard Stipulations and Timing Limitations and Controlled Surface Use (special conditions) reflect the total BLM-administered areas within the MPA open to surface-disturbing activities (Table 4.1 Predicted Oil and Gas Development and Associated Surface Disturbance for Each RFD Area within the MPA). The impacts of surface-disturbing oil and gas activities on native vegetation (present and potential special status species habitat) are discussed in Section 4.3.17.6.

The oil and gas leasing stipulations (Appendix C) apply to all surface-disturbing activities, including the disposal of salable minerals. Closed and NSO restrictions do not apply to locatable minerals, although timing limitations and controlled surface stipulations are applicable. Under all alternatives, the projected development of salable and locatable minerals is expected to be minor and similar across all alternatives. A total of 27 acres per year of disturbance is expected due to the extraction of salable minerals and a total of 25 acres per year of disturbance is expected due to the extraction of locatable minerals. The impacts on special status species are therefore minor across all alternatives.

4.3.15.8.2 Desert Shrub, Sagebrush and Perennial Grassland, Piñon-Juniper Woodland, Conifer and Mountain Shrub Habitats

4.3.15.8.2.1 General Impacts

Potential direct adverse effects of oil and gas development on special status species in desert shrub, sagebrush and perennial grassland, piñon-juniper woodland, and conifer and mountain shrub habitats (see Table 4.116 and species-specific analysis section below) include placement of facilities or roads within occupied habitat or potential habitat necessary for recovery, resulting in

an overall reduction in suitable and potentially suitable habitat and an increase in habitat fragmentation (see Habitat Fragmentation and Road Impacts Analysis, below, and Table 4.123), as well as noise disturbance from construction and operation activities. Additional impacts include potential for spills, mortality from reserve pits, increased OHV access, and road mortality (see Section 4.3.19.6). The acreage of proposed surface disturbance differs by habitat type and alternative.

Overall, Alternative B would pose the least potential impact from salable minerals on these special status species habitats (Tables 4.109 through 4.112; see Table 4.116 for special status species). The Proposed Plan would pose the second lowest impacts, followed by Alternative D. Alternative A would have the greatest impacts, based upon the large number of acres subject to standard stipulations and no limits on timing and/or controlled surface use or surface occupancy.

Table 4.119. Salable Minerals Acres of Desert Shrub Habitat by Alternative

Salable Minerals Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard stipulations	613,154	148,613	229,437	402,178
Timing limitations and/or controlled surface use	0	195,559	281,105	164,370
No surface occupancy	0	249,975	92,081	46,646
Closed to leasing	147,717	166,724	158,249	147,677

Table 4.120. Salable Minerals Acres of Sagebrush and Perennial Grassland Habitat by Alternative

Salable Minerals Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard stipulations	105,679	25,614	39,544	69,317
Timing limitations and/or controlled surface use	0	33,705	48,449	28,330
No surface occupancy	0	43,084	15,870	8,040
Closed to leasing	25,460	28,735	27,275	25,453

Table 4.121. Salable Minerals Acres of Piñon-Juniper Woodland Habitat by Alternative

Salable Minerals Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard stipulations	607,166	147,162	227,196	398,250
Timing limitations and/or controlled surface use	0	193,650	278,360	162,765
No surface occupancy	0	247,534	91,182	46,191
Closed to leasing	146,275	165,096	156,703	146,235

Table 4.122. Salable Minerals Acres of Conifer and Mountain Shrub Habitat by Alternative

Salable Minerals Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard stipulations	57,974	14,051	21,693	38,026
Timing limitations and/or controlled surface use	0	18,490	26,579	15,541
No surface occupancy	0	23,635	8,706	4,410
Closed to leasing	13,967	15,764	14,963	13,963

Implementation of minerals management decisions under the Proposed Action is likely to adversely affect Jones' cycladenia individuals and potentially suitable habitat due to 48% of the species piñon-juniper woodland and desert shrub habitats open to minerals exploration and extraction, and the likelihood of direct and indirect effects associated with these activities.

4.3.15.8.2.2 Habitat Fragmentation and Road Impacts Analysis for Sage-Grouse

Construction of roads and utility corridors related to oil and gas exploration and extraction fragments habitat for special status species. This fragmentation has various impacts, including direct mortality from construction activities and increased vehicular traffic. Indirect impacts include loss of ecosystem function due to decreases in undisturbed habitat size, barriers to migration, and loss of buffers around key habitat. In terms of special status species, this particularly impacts predators, migratory animals, and habitat specialists (HSUS 2006).

For the purposes of this analysis, and as an example, the impacts of fragmentation were analyzed for greater and Gunnison sage-grouse. These species were analyzed for four reasons: First, they are species of high interest; second, manuscripts exist to analyze habitat fragmentation for these species; third, our GIS data could support such analyses for these species; and fourth, they represent a dominant habitat type in the RFD areas of the MPA.

Methodology

The first step in analyzing the impacts of human-caused fragmentation on greater and Gunnison sage-grouse species required calculating the total number of acres of BLM-managed suitable habitat available for these species in the MPA. This was done by referring to habitat acreage proposed under Alternative B, which is the most inclusive of BLM-proposed habitat.

Next, the projected number of miles of road open in suitable greater and Gunnison sage-grouse habitats for the life of the plan was calculated for each alternative (see Section 4.3.19.18, Habitat Fragmentation). The existing condition was calculated by analyzing fragmentation from the existing travel plan (Alternative A), which presents the current locations of known roads in the MPA.

The final step calculated the number of acres of greater and Gunnison sage-grouse habitat that could be impacted by vehicle and pedestrian traffic for all alternatives. It was assumed that the potential area of impact consisted of a 400 m area along each side of all proposed roads in the designated habitat. This number is an averaged distance based on applicable literature (Clark and Karr 1979; Connelly et al. 2000; Crawford et al. 2004; UDWR 2002). Note that this analysis could result in an overestimation of habitat degradation because road class and road use were not taken into account. It is possible that infrequently used roads would cause a disturbance less than 400 m for sage-grouse species. It is also possible that the analysis could underestimate habitat degradation because more frequently used roads could cause disturbance greater than 400 meters from the road.

Impacts

Table 4.123 displays the percentage of greater and Gunnison sage-grouse habitat that would be affected by vehicle and pedestrian traffic under each alternative.

Table 4.123. Percentage of Species Habitat Affected by Habitat Fragmentation, by Alternative

Species	Existing Condition	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Gunnison Sage-grouse	75%	76%	69%	74%	74%
Greater Sage-grouse	37%	38%	33%	35%	35%

For both species of sage-grouse, Alternative A would affect the greatest percentage of habitat. Alternative A would have virtually identical impacts as currently exist. Alternative B, which places the most restrictions on oil and gas activity, would reduce impacted habitat from the existing condition by 6% (15,276 acres) for Gunnison sage-grouse and 4% (484 acres) for Greater sage-grouse. The Proposed Plan and Alternative D have identical results for both species: 1% and 2% reductions from the existing condition for the Gunnison and sage-grouse species, respectively.

Sage-grouse species are sagebrush habitat specialists. They require sagebrush for food year-round and for cover during the nesting and brood-rearing periods. Because of this relationship, small increments of habitat degradation can lead to disproportionate effects on sage-grouse populations. Conversely, seemingly small amounts of intact (unfragmented) habitat can greatly benefit populations.

Although all alternatives propose oil and gas restrictions around specified distances from active leks (strutting grounds), none of the alternatives propose protection for nesting and/or brood rearing habitat. These activities have been documented an average of 0.6–3.9 miles from the lek, with some females nesting more than 12.5 miles away from a lek (as cited in UDWR 2002).

These numbers imply that sage-grouse species need a core of unaffected sagebrush habitat for breeding, nesting, and brood-rearing. Fragmentation of this core by roads can effectively reduce the suitable nesting area for this species by means of human-caused noise and physical disturbances to nesting and brooding females. As shown in Table 4.123, the existing project area condition includes a large proportion of fragmented habitat. Of the action alternatives, Alternative B would result in the least amount of fragmented habitat, followed by the Proposed Plan and Alternatives D and A, in ascending order.

4.3.15.8.3 Riparian and Wetland Habitats

Under the Stipulations Applicable to Oil and Gas Leasing and Other Surface Disturbance Categories (Appendix C), surface-disturbing activities are not allowed in riparian zones. However, this stipulation could be waived if there are no practical alternatives (such as a utility line to private property). Because of this restriction, combined with the spatial and temporal buffers for surface disturbance for SWFL and the yellow-billed cuckoo (see Section 4.3.15.2 and Appendix C), it is likely that these species and their habitat will experience minimal direct impacts from oil and gas development. However, indirect effects such as sedimentation, displacement, and the reduction of prey availability could still occur. Table 4.124 lists salable minerals acres in riparian habitat by alternative.

Table 4.124. Salable Minerals Acres of Riparian Habitat by Alternative

Salable Minerals Category	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Standard stipulations	17,235	4,177	6,449	11,305
Timing limitations and/or controlled surface use	0	5,497	7,901	4,620
No surface occupancy	0	7,026	2,588	1,311
Closed to leasing	4,152	4,686	4,448	4,151

Development of oil and gas wells requires on average 2.4 acre-feet of water per well for drilling and extraction, which could adversely affect riparian habitat. Each contracting company would identify its own water source and disposal methods for waste products. If this water is taken from sources that feed the Colorado River system, they will contribute to the cumulative water depletions affecting the endangered fish species of the Colorado River system. These impacts would require the implementation of conservation measures required by the Programmatic Biological Opinion for water depletions from the Upper Colorado River system. In spite of this, some indirect, adverse impacts to water quality due to sedimentation associated with soil compaction could occur. Road construction and use on upland slopes results in soil compaction, which results in less rainwater infiltration and more overland flows (Trimble and Mendel 1995). However, the relative amount of reasonably foreseeable mineral development in the MPA, in conjunction with BMPs to minimize erosion, would likely result in relatively minor impacts on these species.

Table 4.125, below, details the projected average acre-feet of water used for each alternative over the life of the plan (15 years). These projections were calculated by multiplying the average water requirement per well (2.4 acre-feet) by the average amount of wells projected for each

alternative. Alternative B would have the least amount of water-withdrawal effects on riparian special status species because 42% less water would be withdrawn for drilling and extractions for oil and gas activities, followed by the Proposed Plan and Alternatives D and A, respectively.

Table 4.125. Average Acre-Feet of Water Required for Drilling and Extraction by Alternative, Over the Life of the Plan

Alternative A	Alternative B	PROPOSED PLAN	Alternative D
1,082	634	1,037	1,078

These impacts would require the implementation of conservation measures required by the Programmatic Biological Opinion for water depletions from the Upper Colorado River system (see Section 4.3.15.2.3). In spite of this, some indirect, adverse effects to water quality due to sedimentation associated with soil compaction could occur. Road construction and use on upland slopes results in soil compaction, which results in less rainwater infiltration and more overland flows (Trimble and Mendel 1995). However, the relative amount of reasonably foreseeable mineral development in the MPA, in conjunction with BMPs to minimize erosion, would likely result in relatively minor impacts on these species. Under the Proposed Plan, implementation of minerals management decisions is likely to adversely affect the SWFL due to the potential for habitat degradation and modification in riparian areas. Adverse affects to the endangered Colorado River fishes are also likely due to the potential for water depletion and water quality degradation.

4.3.15.8.4 Rocky Slopes and Canyons Habitats

MSO are known to occupy the rocky slope/canyon habitat in the MPA. This habitat would be subject to mineral development; however, development activities would not be allowed in potential habitats until presence/absence determinations surveys are complete and lack of MSO occupancy is determined, or during the owl breeding season (March 1 through August 31). Additionally, no permanent disturbing actions would be allowed within 0.5 miles of areas where MSO surveys have found nesting individuals. These measures would reduce disturbance to individual species from oil and gas development, but habitat degradation may occur within MSO suitable habitat. Under the Proposed Plan, actions related to minerals management decisions are likely to adversely affect the MSO due to the large amount of habitat open to oil and gas leasing.

4.3.15.8.5 All Other Special Status Species Habitats in the MPA

Mineral and energy development would likely have negligible impacts on remaining special status species habitats in the MPA. Overall, Alternative B would impact the fewest acres of special status species habitats, followed by the Proposed Plan and Alternatives D and A, respectively.

4.3.15.8.6 Species-specific Analysis

Table 4.126 below lists the acreage and percentage of protected species habitat that is designated as Closed or NSO by alternative. Note that the total habitat acreage used to calculate percentages differs by alternative. Spatially explicit protected habitat information is only available for these 12 special status species. Qualitative impacts to these species could also affect other special

status species utilizing similar habitat. See habitat groupings below and Table 4.116 to relate the species listed below with other species within habitat types. All acreages are approximate.

Alternative B proposes the greatest amount of special status species habitat as NSO or closed to oil and gas leasing activities which would benefit special status species, followed by the Proposed Plan and Alternatives D and A, in descending order.

Table 4.127 below displays the estimated annual acreage of oil and gas-related surface disturbance to special status species habitat by alternative. Annual habitat disturbance was estimated by multiplying the percentage of species habitat that is open to minerals leasing by the total acres of predicted annual surface disturbance under each alternative. Because exact well locations are not known at this time, this table serves to show the relative potential for disturbance among alternatives and does indicate exact disturbance acreages for each habitat type. Note that Alternative A does not designate habitat for Gunnison prairie dog, White-tailed prairie dog, Greater sage-grouse, or Gunnison sage-grouse. Additionally, no habitat acreage calculations for SWFL and yellow-billed cuckoo are shown in the table below because all riparian habitat is designated as NSO (see Appendix C).

Table 4.126. Existing Protected Special Status Species Habitat, and Acres and Percentage of This Total Habitat Proposed as Closed to Leasing or NSO, by Alternative

Species	Total Habitat	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
		Acres	%	Acres	%	Acres	%	Acres	%
Desert Shrub Habitat									
Jones cycladenia	26,232	692	3	26,203	100	26,203	100	13,192	50
Sagebrush and Perennial Grassland Habitat									
Greater sage-grouse	11,309	0	0	9,380	83	1,103	58	46	6
Gunnison sage-grouse	244,497	0	0	69,345	28	9060	5	2,670	6
Gunnison prairie dog	12,573	0	0	335	3	159	1	0	0
White-tailed prairie dog	197,361	0	0	132,193	67	304	<1	0	0
Riparian and Wetland Habitat									
SWFL and yellow-billed cuckoo[1]	13,454	5,115	100	10,737	100	8,833	100	7,297	100
Colorado River fish	47,843	19,074	40	44,366	93	42,224	88	38,392	80
Bald eagle (nesting)	2,394	1,523	64	1,635	68	869	36	840	35
Bald eagle (wintering)	141,756	15,829	11	66,756	45	28,137	20	18,591	13
Piñon-Juniper Woodland (Conifer/Mountain Shrub, Caves/Rock Crevices, Rocky Slopes/ Canyons									
Mexican spotted owl (designated critical habitat-DCH)	55,645	3,606	6	36,758	66	10,974	20	1,189	2

Table 4.126. Existing Protected Special Status Species Habitat, and Acres and Percentage of This Total Habitat Proposed as Closed to Leasing or NSO, by Alternative

Species	Total Habitat	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
		Acres	%	Acres	%	Acres	%	Acres	%
Mexican spotted owl (potential breeding)	335,936	155,423	46	272,843	81	220,080	66	172,002	51
Mexican Spotted Owl (potential foraging)	590,302	179,360	30	327,953	56	230,887	39	184,397	31

[1] Due to the Oil and Gas Stipulations (Appendix C) all riparian areas are managed as NSO.

Table 4.127. Acres of Predicted Special Status Species' Habitat Disturbance in the MPA, by Alternative

Species	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
	Acres of Habitat Open to Leasing (%)	Adjusted Predicted Annual Habitat Disturbance (acres)	Acres of Habitat Open to Leasing (%)	Adjusted Predicted Annual Habitat Disturbance (acres)	Acres of Habitat Open to Leasing (%)	Adjusted Predicted Annual Habitat Disturbance (acres)	Acres of Habitat Open to Leasing (%)	Adjusted Predicted Annual Habitat Disturbance (acres)
Colorado River fish	28,416 (60%)	270	3,498 (7%)	19	5,616 (12%)	51	9,446 (20%)	89
MSO designated critical habitat	51,972 (94%)	422	18,887 (34%)	90	44,671 (80%)	347	54,448 (98%)	439
MSO (potential breeding)	179,952 (54%)	242	63,093 (19%)	50	115,835 (34%)	149	163,933 (48%)	219
MSO (potential foraging)	410,056 (70%)	314	262,349 (44%)	117	359,380 (61%)	263	405,917 (69%)	309
Bald eagle nesting	868 (36%)	164	759 (32%)	84	1,525 (64%)	275	1,554 (65%)	291
Bald eagle wintering	125,859 (89%)	401	75,019 (55%)	144	113,633 (80%)	346	123,180 (87%)	390
Jones cycladenia	25,513 (97%)	439	29 (<1%)	0	65 (1%)	1	13,040 (50%)	223
Greater sage-grouse	NMA (100%)	NA	1,928 (17%)	45	806 (42%)	182	781 (94%)	424
Gunnison sage-grouse	NMA (100%)	NA	175,152 (72%)	191	166,312 (95%)	410	38,769 (94%)	420
Gunnison prairie dog	NMA (100%)	NA	12,238 (97%)	257	12,414 (99%)	427	NMA (100%)	NA
White-tailed prairie dog	NMA (100%)	NA	65,502 (33%)	88	124,989 (100%)	431	29,446 (100%)	449

NMA = No Management Actions; NA = Not applicable.

Predicted Annual Surface Disturbance from Oil and Gas Development in MPA (acres): 451 acres under Alternative A, 264 acres under Alternative B, 432 acres under the Proposed Plan, 449 acres under Alternative D.

4.3.15.8.7 Summary of Minerals Impacts by Alternative

4.3.15.8.7.1 Alternative A

Under Alternative A, a total of 1,038,344 acres of land would be open for oil and gas leasing under standard stipulations, and 389,605 acres would be open for oil and gas leasing with special conditions. Much of the increased oil and gas mineral development within BLM administered lands in the MPA would occur primarily in the Greater Cisco Area, and secondarily in the Book Cliffs area. A total of 6,772 acres of surface disturbance is projected for the MPA over the life of the plan (or 451 acres annually). Possible adverse effects are described above under Impacts Common to All Alternatives.

This disturbance would impact SWFL and yellow-billed cuckoo, Colorado River fish, wintering bald eagle, Jones cycladenia, and MSO potential breeding and foraging habitats. Additionally, all Gunnison prairie dog, White-tailed prairie dog and Greater sage-grouse, and Gunnison sage-grouse habitats would be open to oil and gas activities under Alternative A. These actions would lead to the greatest potential for negative effects on these species in comparison with the other alternatives. Similarly, Alternative A allows for the second largest number of acres of disturbance for MSO designated critical habitat and would, therefore, have the largest potential impacts after Alternative D. However, Alternative A would have fewer acres disturbance in bald eagle nesting habitat than Alternative D and the Proposed Plan, and more than Alternative B (see Table 4.127).

4.3.15.8.7.2 Alternative B

Under Alternative B, a total of 264,344 acres of land would be open for oil and gas leasing under standard stipulations, and 543,751 acres would be open for oil and gas leasing with special conditions. A total of 3,963 acres of surface disturbance is projected for the MPA over the life of the plan, which is 2,809 acres less than Alternative A. Much of the increased oil and gas mineral development on BLM-administered lands in the MPA would occur primarily in the Greater Cisco RFD Area, and secondarily in the Book Cliffs RFD Area. Under Alternative B, 92 and 66 acres of annual surface disturbance are projected for these areas, respectively—considerably less surface disturbance than is projected under Alternative A. Alternative B would allow the least amount of predicted surface disturbance for all species listed in Table 4.127. Therefore, this alternative would have the fewest negative impacts on special status species when compared to all other Alternatives (see Table 4.127).

4.3.15.8.7.3 Proposed Plan

Under the Proposed Plan, there would be a total of 427,273 acres of land open for oil and gas leasing-standard stipulations, and 806,994 acres open for oil and gas leasing with special conditions. A total of 6,483 acres of surface disturbance is projected for the MPA over the life of the plan, which is 289 acres less than Alternative A. The Proposed Plan proposes the second least amount of predicted special status species habitat disturbance for all species except bald eagle nesting. Therefore the Proposed Plan has the potential to negatively affect special status species more than Alternative B, but less than Alternatives A and D (see Table 4.127).

4.3.15.8.7.4 Alternative D

Under Alternative D, there would be a total of 797,031 acres of land open for oil and gas leasing-standard stipulations and 590,442 acres open for oil and gas leasing with special conditions. A total of 6,739 acres of surface disturbance is projected for the MPA over the life of the plan, which is 33 acres less than Alternative A. Among alternatives, acres of predicted annual disturbance are highest under Alternative D for nesting bald eagle, MSO designated critical, and Jones cycladenia habitats. Acreages of predicted surface disturbance would be the second highest for all other species (see Table 4.127). Furthermore, there would be no management actions proposed for the Gunnison prairie dog. Accordingly, this alternative would have the second greatest adverse impacts on special status species compared to Alternative A.

4.3.15.9 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Special Status Species

Management decisions regarding non-WSA lands with wilderness characteristics would generally reduce adverse impacts to the special status species that occur within their boundaries. Impacts to special status species vary among alternatives based on the acreage managed for wilderness characteristics and the oil and gas leasing stipulations assigned within them.

4.3.15.9.1 Impacts Common to All Alternatives

There are no impacts common to all alternatives for lands with wilderness characteristics.

4.3.15.9.2 Alternative A

Alternative A would not manage any non-WSA lands to protect wilderness characteristics, and would therefore have potentially adverse long-term impacts to special status species and their habitats.

4.3.15.9.3 Alternative B

Alternative B would manage 266,485 acres to protect wilderness characteristics. These lands would be managed as closed to oil and gas leasing and woodland harvest, and other surface-disturbing activities would also be precluded. Alternative B would protect the largest number of acres with wilderness characteristics and therefore have the fewest adverse impacts to special status species.

4.3.15.9.4 Proposed Plan

The Proposed Plan would manage 47,761 acres to protect wilderness characteristics. These lands would be managed as NSO for oil and gas leasing as well as precluding other surface-disturbing activities. These actions would reduce adverse impacts to special status species habitat within this acreage, but would have greater adverse impacts than Alternative B.

4.3.15.9.5 Alternative D

Alternative D would not manage any non-WSA lands to protect wilderness characteristics, and would therefore have the same potentially adverse long-term impacts to special status species and their habitats as Alternative A.

4.3.15.10 Impacts of Paleontological Resources Decisions on Special Status Species

4.3.15.10.1 Impacts Common to All Alternatives

Management actions associated with paleontological resources program include survey and inventory, development of interpretive sites, establishment of temporary campgrounds, and construction of fences and erosion stabilization structures. Hand tools, power tools, and heavy machinery are used during these actions. Impacts to special status species may result from surface disturbance, foot traffic, soil erosion and compaction, and human presence. These actions can also result in increased potential for weed invasion or other changes to habitat structure and composition. Paleontological resource excavation or preservation actions are typically less than one acre in size and disturbances are generally isolated and short-term. Under all management alternatives, the collection of vertebrate fossils and associated activities would be limited to qualified individuals and would thereby limit surface-disturbing activities to permitted activities. Under the Proposed Plan and Alternatives B and D, surface disturbance could occur in association with recreational collection of vertebrate fossils and personal collection of invertebrate or plant fossils.

4.3.15.10.2 Piñon-Juniper Woodland and Desert Shrub Habitats

Under the Proposed Plan and other management alternatives, implementation of the paleontological resource management program is likely to adversely affect Jones' cycladenia due to the potential for surface disturbance associated with discovery activities within known or potential piñon-juniper woodland and desert shrub habitats. Paleontological activities are also likely to adversely affect MSO designated critical habitat in piñon-juniper woodlands due to paleontology related actions such as digging, fencing, and excavations that could alter the habitats utilized by MSO prey and disrupt foraging behaviors.

4.3.15.10.3 Conifer and Mountain Shrub Habitat

Under the Proposed Plan and other management alternatives, paleontological activities are likely to adversely affect MSO designated critical habitat in conifer and mountain shrub habitats due to paleontology related actions such as digging, fencing, and excavations that could alter the habitats utilized by MSO prey and disrupt foraging behaviors.

4.3.15.10.4 Riparian, Wetland and Stream Habitat

Under the Proposed Plan and other management alternatives, paleontological activities are likely to adversely affect the SWFL due to actions such as digging, fencing, excavations, or establishment of temporary camp sites in riparian habitats. Associated human activities may disrupt nesting and foraging behaviors and result in reduced reproductive success. Paleontological activities may also adversely affect the endangered Colorado River fishes due to potential for water quality degradation and aquatic habitat modification during paleontologic activities.

4.3.15.10.5 ALL OTHER SPECIAL STATUS SPECIES HABITATS IN THE MPA

The impacts of paleontological resource management decisions on all other special status species habitats are expected to be negligible. Potential impacts are discussed in Section 4.3.15.11.1 Impacts Common to All Alternatives.

4.3.15.11 IMPACTS OF RECREATION DECISIONS ON SPECIAL STATUS SPECIES

4.3.15.11.1 IMPACTS COMMON TO ALL ALTERNATIVES

Impacts to special status species from recreation include direct impacts from use of mechanized and non-mechanized vehicles, ground disturbance from trail development, trampling of individuals, habitat fragmentation, and increased access to fragile habitats and species vulnerable to illegal collection. Increased visitor use of recreational areas may also adversely impact special status species through increased noise and human presence. Indirect adverse impacts to riparian areas from recreation could include alternation of plant community structure and species composition, reduction in the relative abundance of species, and changes to stream channel morphology, all of which may contribute to habitat degradation. Management of recreational areas which includes measures to reduce surface disturbance and resource degradation would also reduce these negative impacts on special status species.

The adverse impacts of recreation decisions would be partially mitigated by the required reclamation of disturbed areas to meet the Utah Standards for Public Land Health and Guidelines for Recreation Management (Appendix R) and protective measures outlined for Federally listed species in Appendix C. Off-highway vehicle (OHV) use, non-motorized vehicle use, and dispersed camping are emphasized here due to the emphasis on these activities in the MPA and the potential for direct adverse impacts to Sensitive species and their habitats from these activities throughout the MPA.

Under all alternatives, the Colorado River SRMA would be replaced with the Two Rivers, Colorado Riverway and Dolores River Canyons SRMAs to provide for more focused management. In addition, a River Management Plan, for the Dolores River, and for the Colorado River from the Colorado State Line to Castle Creek would be completed. The recreation restrictions outlined in the Management Plan would lessen the adverse impacts of visitor traffic on special status riparian species. Nevertheless, there would still be surface disturbance associated with the potential trampling and crushing of special status plant species and wildlife habitat by humans, horses, and vehicles. The surface disturbance associated with foot and vehicle traffic could also lead to the introduction of invasive plant species, which can have long-term, adverse impacts on special status species plant and animal habitats as discussed in previous sections. Additional impacts on special status species and their habitat include direct and indirect disturbance of individual wildlife species by human visitors. Wildlife species, birds in particular, are sensitive to traffic and other human-related noise. Traffic noise has been shown to directly interfere with bird vocal communication, which affects territorial behavior and mating success (Reijnen and Foppen 1994). Increased road traffic would also potentially increase the risk of direct mortality to some special status species due to vehicle impacts; carrion-eating raptors are especially vulnerable.

Under all alternatives, dispersed camping would be allowed where not specifically restricted. Dispersed camping could lead to an increase in trampling and noise impacts to special status

species and their habitats, which could have an adverse effect on individuals and populations. Dispersed camping may be closed seasonally or as impacts or environmental conditions warrant. Management actions limiting camping, wood gathering, firewood cutting, and requiring the use of fire pans and portable toilets would be carried forward in all alternatives.

4.3.15.11.2 Desert Shrub, Sagebrush and Perennial Grassland, Oak/Mountain Shrub, Piñon-juniper Woodland and Conifer and Mountain Shrub Habitats

All alternatives would establish focus areas for motorized and multi-use recreation. Recreational OHV and mechanized travel would be consistent with area and route designations described in the travel management plan. The short and long term adverse effects of OHV use are varied and complex. Short-term adverse effects include human presence and noise disturbances (some species have become habituated to certain noises). Long-term adverse effects include habitat fragmentation from roads and cross-country riding, soil compaction, increased erosion, and reduced air quality. These impacts can reduce habitat quantity and quality for special status species. These effects can occur within any habitat type, and can affect a diverse range of species. For an annotated bibliography of the environmental effects of OHV use, see Stokowski and LaPointe (2000). Table 4.123, above, provides a relative comparison of the amount of habitat disturbance and fragmentation that would occur in the dominant sagebrush steppe habitat type under each alternative.

Some of the SRMAs (and one area within the Moab ERMA) within the MPA would include special "non-motorized focus areas" under some of the alternatives. Not all of the SRMAs would contain these focus areas, and for those that would contain them, the size of the areas would vary by alternative. These non-motorized focus areas would be set aside for recreational activities that do not require motorized vehicles. Each area would have a slightly different emphasis; in general, these activities could potentially include hiking, mountain biking (including specialized speed events), ecological study, equestrian use, mountain climbing, and BASE jumping. The restriction of motorized vehicles from these focus areas would alleviate both short- and long-term impacts on special status species in these areas by decreasing human traffic, noise, and habitat disturbance resulting from OHV use (Table 4.128).

Table 4.128. Acres of Designated Non-motorized Focus Areas, by Alternative

SRMA Area	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Canyon Rims SRMA	0	3,642	3,642	0
Colorado Riverway SRMA	0	37,277	33,451	1,287
Labyrinth Rims/Gemini Bridges SRMA	0	43,561	38,013	0
South Moab SRMA	0	39,646	39,646	0
Two Rivers SRMA	0	23,479	23,479	0
Moab ERMA (Book Cliffs Area)	0	335,457	335,457	141,679
Total	**0**	**483,062**	**473,688**	**142,966**

Under Alternative A, the Book Cliffs area, Cameo Cliffs SRMA, and the White Wash Sand Dunes would remain open to OHV use. These areas consist of piñon-juniper, conifer and mountain shrub, and sagebrush and perennial grasslands habitats. Special status species utilizing these habitats would be adversely impacted by OHV use in these areas (see Table 4.116) as described in Impacts Common to All Alternatives, above. In the Colorado Riverway SRMA, Labyrinth Rims/Gemini Bridges area, Sand Flats SRMA, South Moab area, and the Moab Extensive Recreation Management Area (ERMA), motorized and mechanized travel would be restricted to designated routes, partially mitigating for the adverse impacts of OHV use in piñon-juniper and desert shrub habitats (see Table 4.116). Areas that exclude motorized recreation would reduce adverse impacts to special status species because they help to mitigate the impacts of OHV use. While Alternative A limits some OHV use to designated routes, it does not set aside any acreage specifically for non-motorized recreation. Therefore, any of the other alternatives would be more beneficial for special status species in this respect.

Under Alternative A, management aspects of the South Moab area would limit camping to designated sites and wood gathering would not be allowed, thereby limiting impacts to special status species in piñon-juniper woodland habitats. Adverse impacts of wood gathering are discussed under Section 4.3.15.18 of this chapter.

Under Alternative B, a total of 483,062 acres would be designated non-motorized focus areas (see Table 4.128) and the Book Cliffs SRMA, Colorado Riverway SRMA, and Dolores River Canyon SRMA would be managed with an emphasis on non-mechanized recreation. The Cameo Cliffs SRMA would provide opportunities for motorized, mechanized, non-mechanized hiking, and equestrian activities. Additionally, the Moab Slickrock Bike Trail would be closed to all motorized vehicles. The remainder of BLM lands not established under this alternative as an SRMA would be managed as a Moab Extensive Recreation Management Area (ERMA), where 335,457 acres would be managed for non-mechanized recreation. The majority of these areas consist of piñon-juniper woodland and desert shrub habitats; therefore the exclusion of motorized vehicles from these areas would help to avoid both short- and long-term impacts resulting from OHV use for special status species utilizing these habitats (see Table 4.116). Alternative B would pose the least adverse impacts to special status species from OHV use of the alternatives.

Under Alternative B, Special Recreation Permits (SRP) would be given to groups with an emphasis on supporting conservation of natural and cultural resource values. Organized group permits would be required for groups with 15 or more vehicles, which would help to reduce adverse effects associated with visitor use. Adverse impacts due to heavy vehicle use described above under Impacts Common to All Alternatives would likely be incurred, although they would be fewer than under any other alternative. In the Colorado Riverway SMRA, Labyrinth Rims/Gemini Bridges SMRA would provide designated camping sites. The Bartlett/Tusher/Courthouse/Ten Mile area would be closed to camping. These actions would help to avoid the adverse effects of dispersed camping on piñon-juniper woodland and desert shrub associated species (see Table 4.116).

Under the Proposed Plan, a total of 473,688 acres would be designated non-motorized focus areas (see Table 4.128). Impacts from the Cameo Cliffs SRMA, Canyon Rims SRMA, and Dolores River Canyon SRMA, would be the same as under Alternative B. In the Colorado River SMRA, a non-motorized focus area would be established on 33,573 acres, which is 3,740 acres less than Alternative B. The Labyrinth Rims/Gemini Bridges SMRA (300,650 acres) would be

managed the same as under Alternative B with the following differences: 27,893 acres of non-motorized focus area would be established, and 53,740 acres would be established for either motorized backcountry touring, motorized sport venues, or open OHV areas. Impacts from the Sand Flats SRMA would be the same as under Alternative B except that the high-use Moab Slickrock Bike Trail would be closed to all four-wheeled vehicles and ATVs (motorcycles would be allowed). The South Moab SRMA would be established and managed similarly to Alternative A, except for an additional emphasis on non-motorized trails. Under this alternative, 39,646 acres of non-motorized focus areas and a 41-acre motorized focus area would be established. ERMA lands would be managed identically to Alternative B, except that the Upper Fisher Mesa (1,365) would also be managed to emphasize mountain biking. The Proposed Plan would pose greater impacts to special status species from OHV use than Alternative B, but less than Alternatives D or A, respectively.

Under the Proposed Plan, special recreation permits would be given for a wide variety of uses. Organized group permits would be required for groups with 25 or more vehicles, which would create an increased risk of adverse impacts to special status species habitats relative to Alternative B. Under the Proposed Plan, implementation of recreation management decisions is likely to adversely affect Jones' cycladenia due to the potential for direct and indirect effects on individuals or potential piñon-juniper and desert shrub habitats. Recreation management decisions are also likely to adversely affect the MSO due to the high potential for human disturbance and indirect negative effects on prey habitat in piñon-juniper woodland and conifer and mountain shrub habitats.

Under Alternative D, a total of 142,966 acres would be designated non-motorized focus areas (see Table 4.128). Impacts on special status species and their habitat in the Book Cliffs area and Cameo Cliffs area would be the same as under the Proposed Plan. Instead of establishing a Labyrinth Rims/Gemini Bridges SRMA, the Dee Pass SRMA (60,939 acres) would be established. This area would consist of the Dee Pass motorized trail system and the White Wash Sand Dunes open OHV area (3,064 acres). Open OHV use in the Dee Pass SRMA could be detrimental to special status species utilizing desert shrub and piñon-juniper habitats as described above in Impacts Common to All Alternatives. The ERMA areas would be managed the same as under the Proposed Plan except that the Book Cliffs area (141,679 acres) would be managed for low frequency non-mechanized recreation. No new mechanized or motorized recreation would be established in the Book Cliffs area. This action would primarily reduce adverse impacts to species in piñon-juniper woodland and conifer and mountain shrub habitats (see Table 4.116). Alternative D would pose fewer impacts to special status species from OHV use than Alternative A, but would be more impactful than Alternative B or the Proposed Plan, respectively.

Under Alternative D, special recreation permits management would be the same as under the Proposed Plan except for the following: Organized group permits would be required for groups with 50 or more vehicles, which represents a concomitant increase in disturbance risk in relation to Alternative B. Overall, Alternative B would pose the lowest impacts to special status species from dispersed camping and related activities, followed by the Proposed Plan and Alternatives D and A, respectively.

4.3.15.11.3 Riparian and Wetland Habitats

Under all action alternatives, the BLM would consider and, where appropriate, implement management methods to protect riparian resources and riparian-associated special status species

habitat. Management methods may include: limitations of visitor numbers, camping and travel controls, implementation of fees, alteration of when use takes place, and other similar actions. Additionally, information would be provided to the public concerning the value of riparian wildlife habitat. These management and education efforts would reduce the adverse effects of visitor traffic on riparian associated special status species and their habitat.

Under Alternative B, in the Colorado Riverway SMRA the north shore of the river would be managed for high quality bighorn sheep habitat. An additional emphasis would be placed on the protection of riparian values in the Kens Lake area (South Moab SRMA). Under Alternative D and the Proposed Plan, no competitive motorized events would be allowed in the Cameo Cliffs SRMA to maintain riparian values in a current or improved condition. Under the Proposed Plan, this same goal for riparian values would be in place in the Utah Rims SRMA. All of these actions would reduce adverse impacts to special status species living in riparian habitats by improving habitat quality and limiting impacts from recreation in riparian areas as described above in Impacts Common to All Alternatives.

Under the Proposed Plan, the implementation of recreation management decisions is likely to adversely affect the SWFL due to high potential for human disturbance and riparian habitat degradation. Actions associated with recreation management is also likely to adversely affect the endangered Colorado River fishes due to high potential for human disturbance and direct negative effects on water quality.

4.3.15.11.4 Caves and Rock Crevices and Rocky Slopes and Canyons Habitats

Recreation activities such as climbing and canyoneering have the potential to impact caves and rock crevices and rocky slopes through increased access, therefore impacting canyon habitats. Dispersed recreation, such as rock climbing and canyoneering, in these habitats could potentially adversely impact roosting and hibernation sites for special status bat species, nesting MSO, and the alcove bog orchid which occurs in hanging garden and seep habitats in canyon. Adverse impacts may be greater under the Proposed Plan in the Colorado Riverway SRMA, due to a semi-developed campground to accommodate rock climbers as well as developments for the Wall Street Sport Climbing Focus Area. These activities may encourage more visitors and therefore lead to increased impacts through increased human presence. Under the Proposed Plan, recreation management decisions are likely to adversely affect the MSO and nesting habitat on rocky cliffs and caves due to high potential for human disturbance and indirect negative effects on prey habitat

4.3.15.12 Impacts of Riparian Decisions on Special Status Species

4.3.15.12.1 Impacts Common to All Alternatives

Under all alternatives, riparian resources would be managed to promote the proper functioning condition (PFC) of riparian resources. Proper functioning condition includes the presence of adequate vegetation, landforms, or large woody debris, which may be used by sensitive fish species for shelter and as habitat for forage, further improving habitat quality. Working towards PFC of riparian resources would be beneficial to all species utilizing riparian habitats. In particular, the promotion of adequate vegetation would imply improving habitat quality for riparian special status species. The SWFL recovery plan would be implemented in all suitable habitat areas. This plan would protect riparian areas determined as SWFL habitat from over-use

and destruction (USFWS 2002d). Not only would this benefit the flycatcher, but other species utilizing these riparian areas would also benefit.

4.3.15.12.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all action alternatives, riparian restoration treatments would be allowed in riparian areas. These treatments would have both beneficial and adverse effects on vegetation in riparian habitat. Long-term, beneficial effects would include reduction of weed populations and creation of favorable conditions for establishment of native species. This, in turn, would improve riparian habitat for special status wildlife species. Short-term, adverse effects would include crushing and inadvertent removal of special status plant species during the treatment process. There could also be short-term adverse effects on special status fish species habitat due to increased overland flow associated with soil compaction on soils adjacent to riparian areas. The long-term, beneficial impacts of proper riparian functioning would outweigh short-term adverse impacts to special status species.

Under all action alternatives, no surface-disturbing activities would be allowed in riparian areas (Appendix C). Except where withdrawn, they would be open to mineral entry. These restrictions would greatly decrease the intensity of the effects of surface disturbance on riparian habitat in the MPA because the adverse impacts of surface disturbances from minerals development would be avoided (see Section 4.3.15.7 for a description of impacts).

4.3.15.12.3 Alternative A

Effects of riparian decisions on special status species under Alternative A are discussed in Impacts Common to All Alternatives.

4.3.15.12.4 Alternative B

Under Alternative B, some riparian areas would be closed to livestock grazing, while others would be subject to seasonal restrictions. These restrictions would lessen the number of acres of special status species habitat subject to the adverse impacts from surface disturbance in sensitive riparian areas. This alternative would be less impactful to special status species and their habitats than Alternatives A and D, and would have the same impacts as the Proposed Plan.

4.3.15.12.5 Proposed Plan

Under the Proposed Plan, the impacts of riparian management decisions on special status species and their habitats would be the same as for Alternative B, with fewer adverse impacts than Alternatives A or D. Impacts associated with riparian management decisions are likely to adversely affect Jones' cycladenia, MSO, SWFL, and the endangered Colorado River fishes due to potential habitat modifications and degradation associated with vegetation treatments and riparian management.

4.3.15.12.6 Alternative D

The impacts of Alternative D on special status species and their habitats would be similar to Alternative A, with greater potential adverse impacts than Alternative B and the Proposed Plan.

4.3.15.13 Impacts of Soil and Water Decisions on Special Status Species

4.3.15.13.1 Impacts Common to All Alternatives

Under all alternatives, all floodplains and riparian/wetlands would be managed in accordance with Executive Order 11988, which would protect the quality of stream water and Federally listed species habitat by requiring a site-specific NEPA analysis prior to disturbance within a floodplain. Also, all uses in the MPA would be managed to minimize and mitigate damage to soils, and activities located in areas with sensitive soils would be subject to site-specific NEPA. These restrictions would decrease the number of acres in the MPA subject to the adverse effects on special status species and riparian and rocky slopes and canyons habitats associated with surface-disturbing activities (see Table 4.116). This includes the indirect effects of potential stream water contamination associated with increased sedimentation from runoff associated with disturbed areas (see Chapter 3, Affected Environment, and Chapter 4, Environmental Consequences of Proposed Plan and Draft Alternatives).

4.3.15.13.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

All action alternatives would prohibit surface-disturbing activities within 100-year floodplains, 100 meters of riparian areas, public water reservoirs, and 100 meters of springs (Oil and Gas Stipulations, Appendix C). This would help to mitigate the adverse effects of these activities on riparian-associated special status species (described in Section 4.3.15.7 of this chapter; see Table 4.116).

Timing limitation stipulations prohibiting surface-disturbing activities would be applied to all slopes in the Book Cliffs greater than 30% from November 1 through April 30. A controlled use stipulation would be applied for all slopes in the MPA greater than 30%, and a timing limitation stipulation would be applied, prohibiting all surface-disturbing activities on 330,142 acres of saline soils from December 1 through May 31. These restrictions and stipulations would help to decrease erosion and the attendant habitat degradation for special status species using piñon-juniper, desert scrub, and rocky slopes and canyons habitats (see Table 4.116). This action would also help to mitigate adverse impacts on special status fish species and their habitat due to increased overland flow associated with upland soil compaction. Special status species in piñon-juniper woodland habitat would benefit most from the large number of acres protected from surface-disturbing activities due to slope (200,559 acres). Table 4.141 in the Vegetation Section (Acres of Each Vegetation Type Protected Due to Slope Steepness Category) provides the total number of acres of each vegetation type in the MPA with slopes greater than 30%.

Grazing can increase salinity in already saline soils (Chaneton and Lavado 1996) and lead to inhibited plant diversity, especially in arid and relatively infertile soils (Olff and Ritchie 1998). Further, changes in salinity in bodies of water such as the Colorado River have been shown to modify species composition within an ecosystem (Galindo-Bect and Glenn 1999; Hart et al. 1998). For these reasons, grazing eventually would reduce the habitat quality for special status species associated with riparian, desert scrub, and sagebrush habitats (see Table 4.116). Alternatives that would manipulate grazing in the fewest acres of allotments would reduce impacts on highly saline soils and salinity in the Colorado River drainage. Alternative B would exclude grazing from the greatest number of acres of potentially saline soils in desert shrub and sagebrush habitats (see Table 4.118), followed by the Proposed Plan and Alternatives D and A, in descending order.

4.3.15.13.3 ALTERNATIVE A

Under Alternative A, grazing would be manipulated on portions of ten allotments. Additionally, surface-disturbing activities would be prohibited on 313,800 acres of Mancos Shale from November 1 through April 30. Both of these actions would lessen impacts on saline soils and reduce salinity in the Colorado River Drainage, which would help to mitigate for adverse impacts on special status species utilizing riparian habitats (see Table 4.116). Specific impacts are described in Section 4.3.15.7 of this chapter.

4.3.15.13.4 ALTERNATIVE B

Under Alternative B, the Castle Valley and Mill Creek municipal watersheds would be closed to oil and gas leasing and other surface-disturbing activities (10,321 acres). This would reduce impacts primarily to piñon-juniper woodland associated special status species and habitats in this watershed by avoiding the adverse impacts of oil and gas development described in Section 4.3.15.7 of this chapter (see Table 4.116). Watershed Management Plans would be developed and implemented for 17 areas under this alternative, and would generally reduce adverse impacts to special status species due to additional restrictions on human activities, grazing, and other surface disturbances.

A timing limitation for surface-disturbing activities would be applied to 330,142 acres of Mancos Shale. This is 16,342 acres more than Alternative A, and so would be more effective at mitigating adverse impacts on special status species that utilize riparian habitats. Overall, soil and water decisions under Alternative B would provide the greatest level of protection to special status species of the alternatives.

4.3.15.13.5 PROPOSED PLAN

Under the Proposed Plan, an NSO stipulation to oil and gas leasing and other surface-disturbing activities would be applied in the Castle Valley and Mill Creek municipal watersheds. This stipulation would help to mitigate for the adverse effects of oil and gas development on piñon-juniper woodland associated special status species (see Table 4.116), but to a lesser degree than Alternative B, which would avoid these effects.

Watershed Management Plans would be developed and implemented for 8 areas—9 fewer areas than under Alternative B. Although these plans would be beneficial for these areas, this action would have greater adverse impacts than Alternative B.

Effects of management actions regarding timing limitations on Mancos shale would be identical to that described under Alternative B. The Proposed Plan would have greater adverse impacts than Alternative B and less impacts than Alternatives A or D, respectively.

Soil and water resource management actions are likely to adversely affect MSO and SWFL due to potential habitat modification and reduction in prey species from increased erosion and water quality degradation. These actions are also likely to adversely affect the endangered Colorado River fishes due to potential water quality degradation and sedimentation.

4.3.15.13.6 ALTERNATIVE D

Under Alternative D, the impacts of soil and water resource management decisions on special status species and their habitats would be similar to Alternative A, except there would be no

timing limitations for surface-disturbing activities occurring on Mancos Shale. The allowance of surface disturbance on Mancos Shale in the winter could add to salinity in the Colorado River drainage and increase adverse impacts on special status species utilizing riparian habitats.

4.3.15.14 Impacts of Special Designations Decisions on Special Status Species

4.3.15.14.1 Impacts Common to All Alternatives

Special Designation areas, such as Areas of Critical Concern (ACECs), Wilderness Study Areas (WSAs), Wilderness Areas, and Wild and Scenic Rivers would generally reduce long-term impacts to special status species that occur within their boundaries. Impacts to special status species vary among alternatives based on the acreage of these specially designated areas and the oil and gas leasing stipulations assigned within them. ACECs are designated to protect identified relevant and important values such as cultural resources, scenic qualities, and natural systems. ACEC designation would reduce impacts to special status species and habitats by limiting human activity and surface disturbances, preserving habitat, and limiting noise.

Wilderness Study Areas (WSAs) are established in order to provide for the protection of wilderness character and for the use and enjoyment of visitors in a manner that leaves it unimpaired for future use. By definition, no surface disturbance, permanent new development, or rights-of-way would be allowed in the WSAs; the lands would be closed to oil, gas, and mineral leasing. Under all alternatives, where ACECs overlap WSAs, WSA management would take precedence. This land would be managed according to the Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP).

Under all alternatives, any river segments found suitable for designation as a Wild and Scenic River (WSR) would be recommended to Congress. Once identified—but prior to their official designation by Congress—these river segments would be managed to protect their free-flowing condition and outstandingly remarkable values. These qualities would be maintained within 1/4 mile on each side of the river. The BLM would not seek water rights in these segments, and OHV travel would be limited to designated routes.

Most of the proposed ACECs in the MPA would only be established under one or two of the alternatives. See Section 4.3.14 Special Designations for details on ACECs by alternative. Under all alternatives, when an ACEC is established it would be designated NSO or Closed for oil and gas exploration and development. Oil or gas development would still be permitted to occur beneath the surface of land within an NSO designated portion of an ACEC, but it would have to be pursued through horizontal drilling or on State or private land within the ACEC boundaries. An exception to the NSO designation could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or if the use would provide suitable opportunities for public enjoyment of these resources. Due to these possible exemptions, an ACEC should not be considered blanket protection for special status species resources.

As stated above, some of the proposed ACECs would not be established under certain alternatives. In those situations where an ACEC is not established, the land would be managed in a variety of ways (see Table 2.1 in Chapter 2, Proposed Plan and Draft Alternatives), but would not be comprehensively designated NSO or Closed for oil and gas development. This means that a comparative analysis of the management (specifically relating to oil and gas leasing categories) of the ACECs under each alternative would be the best representative of potential impacts of

Special Designation decisions on special status species. Impacts of surface-disturbing oil and gas activities on special status species and their habitats include direct and indirect human-caused disturbance (i.e., vehicular traffic, trampling of vegetation, noise, and human presence) of individual species and their habitats. Further discussion of the qualitative impacts of surface-disturbing oil and gas activities on native vegetation (special status species habitat) can be found in Section 4.3.17.6.

Under all alternatives, all designated ACECs would be avoidance areas for all rights-of-way, including wind, solar energy and communication sites. Prohibiting these uses within ACECs would assist in preventing adverse impacts to special status species related to surface and human-caused disturbances. Regardless of whether or not an ACEC is established, OHV use would generally be permitted on at least some portion of the MPA. Impacts of OHV use on wildlife species and their habitats are discussed in Section 4.3.19.13.

4.3.15.14.2 Desert Shrub and Piñon-Juniper Woodland Habitats

In many proposed ACECs, piñon-juniper woodland is the most prevalent habitat; though a few ACECs, including Cisco and White Wash, are dominated by desert shrub. Special status species that primarily use these habitats would experience the most protection under ACEC designation.

Under Alternative A, none of the proposed ACEC sites would be established with the exception of the existing 605 acre Negro Bill ONA. The management of oil and gas leasing within most ACECs under this alternative would include Standard and Timing stipulations. Specifically, 47% of the land within the proposed ACEC sites would be managed as Open (Standard or Timing stipulations), while 53% of the land would be Closed (NSO or Closed) to oil and gas production.

Under Alternative B, all of the proposed ACEC sites would be established. The management of oil and gas leasing within all thirteen ACECs under this alternative would exclude Standard and Timing stipulations and allow only NSO or Closed categories. Specifically, 0% of the land within the proposed ACEC sites would be managed as Open (Standard or Timing stipulations), while 100% of the land would be Closed (NSO or Closed) to oil and gas production. The acreage of Federally listed special status species that would be included in the ACECs, and therefore be managed as NSO or Closed, is shown in Table 4.129 below. ACECs are only listed if they encompass habitat for the species listed.

Under the Proposed Plan, five of the thirteen proposed ACEC sites would be established. The management of oil and gas leasing within the ACECs under this alternative would include a mix of Standard, Timing, NSO, and Closed stipulations. Specifically, 34% of the land within the proposed ACEC sites would be managed as Open (Standard or Timing stipulations), while 66% of the land would be Closed (NSO or Closed) to oil and gas production (Table 4.130). Actions related to special designations management decisions are likely to adversely affect the due to potential habitat modification associated with mineral development and livestock grazing activities allowed in piñon-juniper habitats under special designations management.

Table 4.129. Special Status Species Habitats Included within ACECs for Alternative B

ACEC	SWFL and Yellow-billed Cuckoo	Colorado River Fish	MSO Critical Habitat	MSO Breeding Habitat	MSO Foraging Habitat	Bald Eagle Nesting	Bald Eagle Wintering	Jones Cycladenia
Behind the Rocks	131	315	479	7,784	2,832	0	507	0
Book Cliffs	1,420	2,900	0	128,194	154,882	0	9,669	0
Canyon Rims	17	0	13,409	4,101	11,215	0	6,667	0
Cisco White-Tailed Prairie Dog Complex	757	656	0	1,068	571	582	2,281	0
Colorado River Corridor	944	8,335	0	18,655	8,295	0	7,534	24,370
Cottonwood-Diamond Watershed	423	0	0	10,107	22,115	0	0	0
Highway 279/Shafer Basin/Long Canyon	416	4,529	9,349	6,570	1,923	0	549	0
Labyrinth Canyon	1,461	7,197	0	4,037	1,087	0	96	0
Mill Creek Canyon	342	0	0	4,103	7,506	0	0	0
Ten Mile Wash	382	0	0	600	259	0	0	0
Upper Courthouse	123	0	0	1,471	688	0	0	0
Westwater Canyon	265	4,021	0	2,899	780	0	261	0
White Wash	3	0	0	70	0	0	0	0
Wilson Arch	0	0	0	684	817	0	667	0
Total	**6,684**	**27,953**	**23,237**	**190,343**	**212,970**	**582**	**28,231**	**24,370**

Table 4.130. Special Status Species Habitats Included within ACECs for the Proposed Plan

ACEC	SWFL and Yellow-billed Cuckoo	Colorado River Fish	MSO Critical Habitat	MSO Breeding Habitat	MSO Foraging Habitat	Bald Eagle Nesting	Bald Eagle Wintering
Behind the Rocks	118	129	478	1,844	788	0	364
Cottonwood-Diamond Watershed	423	0	0	10,107	22,115	0	0
Highway 279/Shafer Basin/Long Canyon	416	4,529	9,349	6,470	1,923	0	551
Mill Creek Canyon	117	0	0	1,161	3,815	0	0
Ten Mile Wash	382	0	0	600	259	0	0
Total	**1,456**	**4,658**	**9,827**	**20,182**	**28,900**	**0**	**915**

Under Alternative D, none of the thirteen proposed ACEC sites would be established. The management of oil and gas leasing within all ACECs under this alternative would include a mix of Standard, Timing, NSO, and Closed stipulations. Specifically, 43% of the land within the proposed ACEC sites would be managed as Open (Standard or Timing stipulations), while 57% of the land would be Closed (NSO or Closed) to oil and gas production.

Alternative B would encompass the most habitat for Federally listed and special status species within ACECs. Compared to the other alternatives, Alternative B would greatly reduce adverse impacts to special status species and their habitats as it would completely prohibit all disturbances related to oil and gas exploration and production within ACECs, leaving habitats intact and special status species undisturbed. The Proposed Plan would provide more protections than Alternatives D and A, respectively, but less than Alternative B.

4.3.15.14.3 Riparian and Wetland Habitat

The designation of a Wild and Scenic River would beneficially impact special status species that access the habitats directly associated with the river (e.g., SWFL, bald eagle, yellow-billed cuckoo, MSO, and the Colorado River fishes). See Section 4.3.15.10 (Impacts of Riparian Decisions on Special Status Species) for a discussion of the impacts of all alternatives on riparian-associated special status species habitat adjacent to wild and scenic rivers. See the Summary Table of Alternatives (Table 2.1) for detail on which river and stream segments would be considered for designation under each alternative.

Table 4.131 below details the amount of habitat that would be managed as a Wild and Scenic River for the SWFL and yellow-billed cuckoo, bald eagle (nesting and winter), MSO (Critical, Breeding, and Foraging), and the Colorado River fishes. Alternatives A and D would not designate Wild and Scenic Rivers.

Table 4.131. Acres of Federally Listed Species Habitat Managed as Wild and Scenic River, by Alternative

Species	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
SWFL and Yellow-billed Cuckoo	0	5,668	4,259	0
Colorado River Fish Habitat	0	38,027	34,549	0
Mexican Spotted Owl Critical Habitat	0	0	2,190	0
Mexican Spotted Owl Potential Breeding Habitat	0	28,497	16,374	0
Mexican Spotted Owl Potential Foraging Habitat	0	15,680	5,027	0
Bald Eagle Nesting Habitat	0	468	468	0
Bald Eagle Wintering Habitat	0	5,731	2,748	0

Alternative B would designate the most special status species habitat as WSRs and would therefore provide the most protection for these species, followed by the Proposed Plan. Because Alternatives A and D would not designated Wild and Scenic River segments, they would provide

no additional protections for these species. As shown in Table 4.131, Alternative B would manage 94,071 acres of special status species habitat as Wild and Scenic Rivers, versus 65,615 acres under the Proposed Plan, and no WSR designations under Alternatives A and D. Actions related to special designations management decisions are likely to adversely affect the SWFL due to potential riparian habitat modification allowed under special designations management. Adverse affects on the endangered Colorado River fishes are also likely due to the potential for increased recreational use and habitat modification and degradation.

4.3.15.15 Impacts of Special Status Species Decisions on Special Status Species

4.3.15.15.1 Impacts Common to All Alternatives

See Section 2.2 and Table 2.2 in Chapter 2 for specific impacts and management common to all alternatives regarding Special Status Species Decisions. There is currently no specific management under Alternative A for the habitats and species addressed below for desert shrub and sagebrush and perennial grassland habitats. The impacts of special status species management decisions for all other special status species and habitats would include those discussed in Section 4.3.15.2 Impacts Common to All Alternatives.

4.3.15.15.2 Desert Shrub and Sagebrush and Perennial Grassland Habitats

Special status species decisions are expected to provide additional protections to species associated with desert shrub and sagebrush and perennial grassland habitats (see Table 4.116 and Section 4.3.15.1). Adherence to the BLM's National Sage-grouse Habitat Conservation Strategy, UDWR and USFWS guidance and the White-Tailed Prairie Dog Conservation Assessment, and other conservation plans identified in Sections 4.3.15.2.7 and 4.3.15.2.8, would reduce adverse impacts to greater and Gunnison sage-grouse and other sensitive sagebrush species in the MPA because of habitat protections and restrictions on human disturbance. These restrictions include surface disturbance and permanent structures and other human activity in or near these species desert shrub, sagebrush and perennial grassland, and oak/mountain shrub habitats.

4.3.15.15.2.1 Greater Sage-Grouse and Gunnison Sage-Grouse

Under Alternative B, 12,850 acres of greater sage-grouse habitat and 246,107 acres of Gunnison sage-grouse habitat would be subject to controlled surface use and timing stipulations. Timing stipulations would preclude surface-disturbing activities from March 1 through May 15 within a 2.0 mile radius of an active greater sage-grouse strutting ground, and would apply to occupied nesting and brood-rearing habitat from March 15 through July 15, and occupied winter habitat from November 15 through March 14. For Gunnison sage-grouse, no permanent above-ground facilities would be allowed within a 2.0 mile buffer of year-round occupied habitat, and the construction of fence, power lines, and tall buildings would be prohibited or limited in year-round occupied habitat (within 6 miles of an active lek). These habitats would be managed to avoid or minimize any surface occupancy that would result in loss or fragmentation of sagebrush habitat. If surface occupancy could not be avoided, sagebrush habitat would be reclaimed at a ratio of 2:1.

Under the Proposed Plan, the impacts of special status species management decisions on special status species and habitat would be the same as those discussed in Alternative B, except for the following: 3,068 acres of greater sage-grouse habitat (9,782 acres or 76% less than Alternative

B) would be managed with the same management prescriptions as described under Alternative B; timing restrictions would preclude surface-disturbing activities within 0.5 miles from an active strutting ground, thereby reducing the acreage of sagebrush habitat under beneficial timing stipulations when compared to Alternative B. For Gunnison sage-grouse, 175,727 acres of habitat would be managed as described under Alternative B, and timing restrictions would preclude surface-disturbing activities within 2.0 miles of an active strutting ground. For both species, if surface occupancy cannot be avoided, sagebrush habitat would be reclaimed at a ratio of 1:1, which is 50% less than Alternative B. Because of these restrictions, there would be less adverse impacts on sensitive plant and wildlife species in sagebrush habitat associated with this alternative than with Alternative A, but more than under Alternative B.

Under Alternative D, 1,986 acres of greater sage-grouse habitat would be subject to surface use and timing stipulations with a 0.25 mile habitat buffer. For Gunnison sage-grouse, 41,620 acres of habitat (204,487 acres or 83% less than Alternative B) would be managed with the same management prescriptions as described under Alternative B. Timing restrictions would preclude surface-disturbing activities within 0.25-mile from active Gunnison sage-grouse strutting ground, thereby further reducing the acreage of sagebrush habitats under beneficial timing stipulations when compared to Alternative B and Proposed Plan. For both species, if surface occupancy cannot be avoided, sagebrush habitat would be reclaimed at a ratio of 1:1, 50% less than Alternative B, but the same as the Proposed Plan. The restrictions under Alternative D would have fewer adverse impacts on greater and Gunnison sage-grouse and other sagebrush associated special status species than under Alternative A, but greater impacts than under Alternative B and Proposed Plan.

4.3.15.15.2.2 White-tailed Prairie Dog and Gunnison Prairie Dog

Under Alternative B, 199,505 acres of historic white-tailed prairie dog habitat and 10,700 acres of Gunnison prairie dog habitat would be managed to prevent surface-disturbing activities within a 1,300-foot buffer of active colonies. This decision would reduce direct mortality, den destruction, habitat loss, and raptor predation in these colonies. Of this habitat, 117,481 acres would be managed as the Cisco White-tailed Prairie Dog Complex ACEC, which would be subject to an NSO stipulation for oil and gas leasing, which in turn would preclude habitat loss from oil and gas development and other surface-disturbing activities.

Under the Proposed Plan, the impacts of special status species management decisions on special status species and habitat would be the same as those discussed under Alternative B, except for the following: 117,481 acres of White-tailed prairie dog habitat (82,024 acres or 41% less than Alternative B) would be managed with the same management prescriptions described under Alternative B; no ACEC would be established for this species; and a 660-foot buffer around active colonies would be managed for controlled surface use. For the Gunnison prairie dog, a 660-foot buffer around active colonies would be managed for controlled surface use and new power lines would be avoided. Because these restrictions would mitigate for adverse impact of oil and gas leasing and reduce raptor predation on prairie dogs, there would be fewer adverse impacts on special status plant and wildlife species in sagebrush habitat under the Proposed Plan than Alternative A, but more adverse impacts than under Alternative B.

Under Alternative D, the impacts of special status species management decisions on special status species and habitat would be the same as those discussed under Alternative B except for the following: 31,186 acres of White-tailed prairie dog habitat (168,319 acres or 84% less than

Alternative B) would be managed as described under Alternative B; no ACEC would be established for this species; and a 660-foot buffer around active colonies would be managed for controlled surface use. Under Alternative D, there would be no management actions for Gunnison prairie dogs, which could result in adverse impacts from oil and gas leasing and other surface-disturbing activities. Because of these restrictions, there would be fewer adverse impacts on special status plant and wildlife species in white-tailed prairie dog habitat under this alternative than under Alternative A, but greater impacts than under Alternative B and Proposed Plan. Because there would be no restrictions for Gunnison prairie dogs, this alternative would pose similar impacts as Alternative A, as discussed in Section 4.3.15.1.

4.3.15.15.3 All Other Special Status Species Habitats in the MPA

The impacts of special status species management decisions on all other special status species habitats are discussed in Section 4.3.15.1 Impacts Common to All Alternatives.

4.3.15.16 Impacts of Travel Decisions on Special Status Species

4.3.15.16.1 Impacts Common to All Alternatives

Under all alternatives, any new trail designations would consider special status species habitat through a site-specific NEPA analysis, which could reduce the adverse impacts of surface and noise disturbance on sensitive plant and animal species. Potential impacts from travel management include direct and indirect, short- and long-term impacts on all habitat types from unrestricted, cross-country OHV use within open OHV areas (Table 4.132). Impacts include short-term adverse impacts to air quality from dust production, short- and long-term loss of vegetation cover from vehicle damage and soil disturbance, habitat fragmentation, introduction of invasive and exotic weed species, and associated impacts to habitat quality and quantity.

A number of trails would be managed for non-mechanized travel (see Appendix G for list). Because these trails are already established and in use, there is not likely to be an appreciable increase in disturbance of special status species and habitat resulting from the continued use of these trails. There would also be trails and/or areas open to OHV use under all alternatives. OHV use can physically damage the vegetation in special status species habitat and cause noise disturbance, which could have direct, negative effects on special status species, especially birds, in the MPA (Reijnen and Foppen 1995; Gelbard and Belnap 2003). The surface disturbance associated with OHV use can have direct and indirect adverse effects on individual plants and animals as well as their habitat. These effects are described in Section 4.3.15.9, Impacts of Recreation Decisions on Special Status Species. Table 4.132 below displays the acreage proposed for each travel designation by alternative.

Table 4.132. Acreage of OHV Travel Designation Impacts, by Alternative

Travel Designation	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Open	620,212	0	1,866	3,064
Limited to Existing Roads and Trails	1,196,920	0	0	0
Limited to Designated Routes	0	1,475,074	1,481,334	1,762,083
Closed	5,062	347,424	339,298	57,351
Total	**1,822,194**	**1,822,498**	**1,822,498**	**1,822,498**

4.3.15.16.2 ALTERNATIVE A

There are a total of 620,212 acres open to cross-country OHV use under Alternative A, and 1,196,920 acres limited to existing trails and designated routes (including inventoried routes on 309,749 acres within WSAs; see Table 4.132). This is more acreage open to OHV use than under any of the other alternatives. The majority of open OHV areas are in piñon-juniper and desert shrub habitat types. The large amount of acreage open to cross-country OHV travel could be detrimental to piñon-juniper woodland and desert shrub associated special status species because of the short and long term adverse effects described above in Impacts Common to All Alternatives (see Table 4.116).

Alternative A designates 5,026 acres as closed to OHV use (2,330 acres of piñon-juniper woodland habitat, 1,360 acres of desert shrub habitat, and 1,337 acres of sagebrush and perennial grasslands habitat; see Table 4.155 in Section 4.3.19.13, Impacts of Travel Decisions on Wildlife for a breakdown of the closed areas by wildlife species habitat type). These closures would help to mitigate for the adverse effects of this alternative on special status species and their habitat in these protected areas by eliminating surface and noise disturbance associated with OHV use. A list of all areas that would be designated as closed to OHVs under each alternative is located in Table 2.1. Closed areas would include some ACECs and vegetation study areas. For a comparison of OHV closures within selected special status species habitats by alternative, see Table 4.133 below.

Table 4.133. Acreage Within Select Special Status Species Habitats Closed to OHV Use, by Alternative

Habitat Type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
SWFL and Yellow-billed Cuckoo	30	3,105	2,450	678
Colorado River Fishes Habitat	7	9,702	7,191	4,477
MSO Critical Habitat	0	1	1	1
MSO Potential Breeding Habitat	515	141,991	140,106	20,340
MSO Potential Foraging Habitat	1,452	171,226	170,731	20,674
Bald Eagle Nesting Habitat	313	327	327	327

Table 4.133. Acreage Within Select Special Status Species Habitats Closed to OHV Use, by Alternative

Habitat Type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Bald Eagle Wintering Habitat	1,767	12,916	10,147	5,822
Jones cycladenia	0	0	0	0

The total acres closed to OHV use under each alternative in this table should only be used for comparative purposes; the totals do not correlate to the figures given in the text above for total acreages closed to OHV use. The reason for this discrepancy is that the habitat areas of the selected special status species often overlap and therefore some geographic areas are counted more than once in this table.

4.3.15.16.3 ALTERNATIVE B

Under Alternative B, there are a total of 0 acres open to OHV cross-country use. Approximately 1,475,074 acres limit OHV use to designated trails. This is 28% more than under Alternative A.

This alternative has 347,424 acres closed to OHV use, as compared with 5,062 acres closed under Alternative A (see Table 4.155 in Section 4.3.19.13 Impacts of Travel Decisions on Wildlife for a breakdown of the closed areas by wildlife species habitat type). These closures would affect species in all habitat types, and primarily in piñon-juniper and conifer and mountain shrub habitat (see Table 4.116). See Table 4.133 above for the acreage of special status species habitats closed to OHV use. The effects of this alternative are comparable to the effects of the Proposed Plan. There are fewer acres of native vegetation (special status species habitat) subject to adverse surface-disturbing effects under this alternative than under Alternative D.

4.3.15.16.4 PROPOSED PLAN

Under the Proposed Plan, there are a total of 1,866 acres open to cross-country OHV use under this alternative. This open area is located in desert shrub habitat and would affect those species utilizing that habitat (see Table 4.116). There are 1,481,334 acres where OHV use is limited to designated routes, which is 29% more than under Alternative A.

This alternative has 339,298 acres closed to OHV use, which is approximately 67 times more than under Alternative A. These closures would primarily affect special status species utilizing piñon-juniper woodland and conifer and mountain shrub habitats (see Table 4.116). Also, see Table 4.155 in Section 4.3.19.13, Impacts of Travel Decisions on Wildlife for a breakdown of the closed areas by wildlife species habitat type. See Table 4.133 above for the acreage of special status species habitats closed to OHV use. The effects of this alternative are comparable to the effects of Alternative B. There are fewer acres of special status species habitat subject to adverse surface-disturbing effects under this alternative than under Alternative D.

Actions related to travel management decisions are likely to adversely affect Jones' cycladenia due to indirect affects from fugitive dust and incursion of invasive weeds associated with OHV use. Travel management decisions under the Proposed Plan are also likely to adversely affect the MSO and SWFL due to the potential increase of human presence and disturbance from OHV

use. The endangered Colorado River fishes are likely to be adversely affected due to high potential for disturbance and water quality degradation.

4.3.15.16.5 Alternative D

Under Alternative D, there are a total of 3,064 acres open to cross-country OHV use, as compared with 620,212 acres open to cross country travel under Alternative A. The majority of this open area is located in desert shrub habitat, and so would affect special status species utilizing that habitat type (see Table 4.116). There are 1,762,083 acres of the MPA with OHV limited to designated trails (including inventoried routes within WSAs). This is 53% more than under Alternative A.

This alternative has 57,351 acres closed to OHV use, as compared to 5,063 acres under Alternative A. These closures would primarily affect special status species utilizing piñon-juniper and conifer and mountain shrub habitats (see Table 4.116; also see Table 4.155 in Section 4.3.19.13, Impacts of Travel Decisions on Wildlife for a breakdown of the closed areas by wildlife species habitat type). See Table 4.133 above for the acreage of special status species habitats closed to OHV use. The adverse effects of OHV travel on special status species under this alternative would be less than under Alternative A, but more than under Alternative B or Proposed Plan.

4.3.15.17 Impacts of Vegetation Decisions on Special Status Species

4.3.15.17.1 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all action alternatives, seed gathering and plant collection would be allowed in all areas meeting Utah's Rangeland Health Standards. This could have some short-term, direct, adverse impacts on special status species and their habitat due to trampling and human disturbance during collection activities. However, seed gathering is not widespread and is unlikely to have substantial impacts on special status species.

Control of noxious, invasive and non-native weed species would be implemented through the BLM's weed management policies and action plans. Actions taken to help slow/stop the spread of weeds in the MPA would help reduce the adverse effects of surface disturbance to special status species habitat from grazing, oil and gas development and other surface-disturbing activities.

Tamarisk and Russian olive would be treated in a number of areas to restore riparian areas (see Table 2.1). This could have short-term risk to special status species in the treatment areas, but would have long-term, beneficial effects on the treated, native vegetation community as a whole by removing undesirable, non-native plant species and providing riparian-associated special status species with improved habitat (see Table 4.116 for a list of species). In addition, the removal of noxious weeds and invasive species would benefit native riparian species by removing competition.

Sagebrush habitat would be managed as described in the Sage-grouse Habitat Conservation Strategy (BLM 2004c). Up to 257,809 acres of sagebrush habitat and shrub steppe ecosystems would be reclaimed or restored. These restoration treatments would have long-term, beneficial impacts on special status species in native sagebrush and perennial grasslands communities by providing them with improved habitat.

4.3.15.17.2 ALTERNATIVE A

Under Alternative A, reclamation would be done on a site-specific basis.

4.3.15.17.3 ALTERNATIVE B

Under Alternative B, loss of sagebrush steppe habitat deemed essential to wildlife would be reclaimed at a ratio of 2:1. These restoration treatments would have long-term, beneficial effects on special status species in native sagebrush communities by providing them with expanded and improved habitat.

4.3.15.17.4 ALTERNATIVE D AND THE PROPOSED PLAN

Under Alternative D and the Proposed Plan, any loss of sagebrush steppe habitat deemed essential to wildlife would be reclaimed at a ratio of 1:1, half the acres of sagebrush-steppe habitat that would be reclaimed under Alternative B. These restoration treatments would have fewer adverse impacts than Alternative A, and greater impacts to special status species sagebrush habitats than Alternative B.

Under the Proposed Plan, actions related to vegetation management are likely to adversely affect Jones' cycladenia due to the potential for direct negative impacts during vegetation treatments from treatment error, chemical drift, or trampling of individual plants. Vegetation management actions are also likely to adversely affect the MSO and SWFL due to the potential for short-term adverse impacts to prey species, and potential modification and degradation of habitats. The endangered Colorado River fishes are likely to be adversely affected by short-term impacts to water quality and stream bank aquatic habitat.

4.3.15.18 IMPACTS OF VISUAL RESOURCE DECISIONS ON SPECIAL STATUS SPECIES

4.3.15.18.1 IMPACTS COMMON TO ALL ALTERNATIVES

All lands in the MPA would be inventoried as one of four visual resource management classes (see VRM Section 3.18 and Table 4.134 below). In areas designated as VRM III or IV, changes to the landscape could be moderate or high. Most types of surface-disturbing activities and human visitation would be allowed in VRM III or IV areas. These types of disturbance could have long-term adverse impacts on special status species habitat in the MPA. Under all alternatives, all WSAs would be managed as VRM I.

Table 4.134. Acreages in Each VRM Class, by Alternative

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
VRM I	349,110	453,462	358,911	349,617
VRM II	401,015	373,647	365,566	245,773
VRM III	800,782	784,247	829,158	956,724
VRM IV	271,356	210,532	268,133	269,641
Total	**1,822,263**	**1,821,887**	**1,821,768**	**1,821,755**

4.3.15.18.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all action alternatives, Wild and Scenic River segments would be managed as VRM I or II. Limited and very limited management activities would be allowed in areas designated as VRM I or II. All VRM Class I areas would be classified as NSO for oil and gas leasing. A controlled surface use stipulation would be applied to all areas managed as VRM Class II. These limitations on human presence would help mitigate the adverse effects of management activities in special status species habitat.

4.3.15.18.3 Alternative A

Under Alternative A, all lands have been inventoried, but only chosen portions would be managed under VRM classes. Of the four alternatives, this alternative would have the second largest area (750,125 acres) managed for VRM I or II restrictions. It would also have the second smallest area (1,072,138 acres) managed for VRM III or IV restrictions (see Maps 2-23 A-D for VRM locations). These Class II restrictions would beneficially affect a portion of piñon-juniper habitat and special status species utilizing it. The Class III restrictions under Alternative A would adversely affect an area of sagebrush and perennial grasslands habitat. See Table 4.116 to relate species with habitat types.

4.3.15.18.4 Alternative B

Under Alternative B, some ACECs would also be managed as VRM I or II (see Summary Table of Alternatives, Table 2.1). Of the four alternatives, this alternative would have the largest area (827,093 acres) subject to VRM I and II restrictions. The VRM I and II areas would primarily affect the following habitat types: piñon-juniper, conifer and mountain shrub, desert shrub, and sagebrush and perennial grasslands. special status species associated with these habitats would gain the greatest benefits for this VRM class management (see Table 4.116). It would have the smallest area (994,780 acres) subject to VRM III and IV restrictions.

4.3.15.18.5 Proposed Plan

Under the Proposed Plan, some ACECs would also be managed as VRM I or II (See Summary of Alternatives, Table 2.1). Of the four alternatives, this alternative would have the second smallest area (714,840 acres) subject to VRM I or II restrictions. These restrictions would affect the same habitat types listed under Alternative A, but would affect sagebrush and perennial grasslands habitat to a lesser degree. It would also have the second largest area (1,106,913 acres) subject to VRM III or IV restrictions.

4.3.15.18.6 Alternative D

Under Alternative D, some ACECs would also be managed as VRM I or II (see Summary of Alternatives, Table 2.1). Of the four alternatives, this alternative would have the smallest area (595,390 acres) subject to VRM I or II restrictions. These restrictions would affect the same habitat types described under Alternative B, but would beneficially affect all of them to a lesser degree. It would have the largest area (1,226,365 acres) subject to VRM III or IV restrictions.

4.3.15.19 Impacts of Wildlife and Fisheries Decisions on Special Status Species

4.3.15.19.1 Impacts Common to All Alternatives

Under all alternatives, livestock grazing would not be allowed on 87,285 acres in order to protect wildlife resources. This would primarily take place within the following habitat types: piñon-juniper woodland, conifer and mountain shrub, and desert shrub (see Table 4.116). The removal of livestock grazing could have long-term beneficial impacts on special status species within these habitats by removing competition for food resources, improving vegetation composition, species diversity and age class, forage availability, vegetative cover, and reducing surface disturbance created by livestock.

In occupied priority migratory bird habitat, no surface disturbance would be allowed from May 1-July 30. Maintenance and/or improvement of lowland riparian, wetlands, and low and high desert shrub communities would be prioritized in the MPA. In addition, bird habitat conservation areas identified in the Coordinated Implementation Plan for Bird Conservation in Utah (Martinsen et al. 2005) would receive priority for conducting bird habitat conservation projects—including offsite habitat compensation—through cooperative funding initiatives such as the Intermountain West Joint Venture. These actions would benefit both migratory bird and special status species by maintaining and improving habitat necessary for survival.

Three Habitat Management Plans would continue to be implemented: the Hatch Point, Potash-Confluence, and Dolores Triangle HMPs. These plans focus on improving upland and riparian habitat for big game species including pronghorn, bighorn sheep, elk and deer, as well as other wildlife species such as chukar partridges and peregrine falcons. Habitat improvements according to these plans would also reduce adverse impacts to special status species that utilize upland and riparian habitat (including sage-grouse, bald eagle, and special status fish species).

4.3.15.19.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all Action Alternatives, the reintroduction of native and naturalized fish and wildlife species into historic or suitable ranges would be considered where it is determined to be appropriate. If the species to be reintroduced is a special status species, (e.g., any of the four Colorado River endangered fishes), that species would experience a direct, long-term benefit from the action. Even in situations where the species to be reintroduced is not a special status species, this action could help to reestablish special status species by encouraging a more balanced ecosystem dynamic within the habitats of the MPA.

Special status species that rely on riparian habitat for reproduction and survival (e.g., southwestern willow flycatcher, bald eagle, and yellow-billed cuckoo) would benefit from two decisions involving riparian areas. Dispersed camping would be restricted (limited to designated sites or prohibited, depending on the area) to protect riparian wildlife habitat. In addition, riparian areas would be managed for multi-aged, multi-layered vertical structure, allowing for the retention of snags and diseased trees. These actions would improve habitat quality for special status species that utilize riparian habitat because of the reduction in human trampling and noise and because of the improvement of habitat diversity and quality.

Raptors would be managed under the auspices of the Best Management Practices (see Appendix O), including spatial and seasonal buffers, to ensure the protection of nests. These BMPs would

directly benefit those raptors that are considered special status species, including the MSO, burrowing owl, bald eagle, golden eagle, and ferruginous hawk.

An additional 3,263 acres of livestock grazing allotments (aside from those listed under Impacts Common to All Alternatives) would be removed in order to benefit wildlife resources. The removal of livestock grazing could reduce adverse impacts to special status species by reallocating forage in these areas from livestock to wildlife use.

Fire suppression would be limited within the MPA and prescribed burns would be initiated in order to increase native vegetation productivity and forage for wildlife. Special status species that depend on habitat with new growth or relatively open ground (e.g., prairie dog and burrowing owl) may be adversely affected in the short term, but would experience long-term benefits from this action because of long-term habitat quality improvement.

4.3.15.19.3 ALTERNATIVE A

Under Alternative A, pronghorn fawning would be seasonally protected from development between May 15 and June 20. Approximately 42,500 acres of desert bighorn sheep habitat would be improved by preventing major human disturbance during breeding and lambing seasons. Approximately 194,560 acres of land would be designated and managed as Rocky Mountain bighorn sheep habitat. Seasonal protection would also apply on 260,769 acres of deer and/or elk winter range; exploration, drilling, and other development activity would be allowed only from May 16 through October 31. These restrictions would also protect special status wildlife species in these areas by mitigating for the adverse effects of surface disturbance related to minerals development (see Section 4.3.15.2.6).

Table 4.135, below, displays the total acreage of all wildlife timing limitations for each vegetation type by alternative. Total acreage includes deer and/or elk winter habitat; pronghorn fawning habitat; desert bighorn lambing, rutting, and migration habitat; and Rocky Mountain bighorn occupied habitat. Although these restrictions apply to big game habitats, special status species utilizing the habitat would benefit from surface disturbance restrictions. Tables S.1 through S.4 (4 tables) in Appendix S itemizes the acreage for each habitat type. See Table 4.116 to relate vegetation (habitat) types to special status species. Note that overlap occurs among species habitat and therefore acreage totals for each alternative may be more than the actual acreage represented on the ground.

Table 4.135. Acreage of All Wildlife Timing Restrictions for Vegetation Types by Alternative

Vegetation Type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer/Mountain shrub	29,108	95,778	50,281	23,836
Desert shrub	20,585	757,208	312,877	285,004
Invasive species and weeds	818	21,950	15,222	15,024
Piñon-juniper Woodland	188,574	979,393	553,653	449,148
Riparian/Wetland	1,594	11,746	6,609	4,588

Table 4.135. Acreage of All Wildlife Timing Restrictions for Vegetation Types by Alternative

Vegetation Type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Sagebrush/Perennial grassland	16,549	138,867	102,413	98,225

Alternative A would have the least amount of wildlife habitat subject to special wildlife conditions (257,228 acres). Details on these conditions are found in the wildlife section and under Alternative B, below. Because timing limitations generally reduce adverse impacts to special status species utilizing big game habitat areas, Alternative A would provide the fewest beneficial restrictions.

4.3.15.19.4 ALTERNATIVE B

Under Alternative B, a total of 2,004,942 acres would be subject to timing and surface use stipulations to prevent disturbance and habitat impacts to pronghorn, Rocky Mountain bighorn sheep, deer, and elk. In addition to benefiting big game species, these restrictions would also protect special status wildlife and plant species in piñon-juniper woodland, desert shrub, and sagebrush and perennial grasslands habitats (see Tables 4.106 and 4.125). Maintenance and operation activities for mineral production as well as hunting would be allowed during seasonal restrictions. Therefore, these restrictions would offer only minor mitigation potential for the adverse effects of surface-disturbing activities on wildlife species and their habitats. Because timing limitations generally reduce adverse impacts to special status species utilizing big game habitat areas, Alternative B would provide the most beneficial restrictions for these species.

4.3.15.19.5 PROPOSED PLAN

Under the Proposed Plan, 1,041,055 acres of wildlife habitat would be subject to timing or surface use restrictions. This would reduce impacts over a larger area of piñon-juniper woodland, desert shrub, and sagebrush and perennial grasslands habitats (see Table 4.116) than Alternatives A or D, and a smaller area than Alternative B. This alternative would provide more habitat use restrictions benefiting special status species than Alternatives A or D, but fewer restrictions than Alternative B.

Actions related to wildlife management decisions are likely to adversely affect Jones' cycladenia, MSO and SWFL due to potential habitat modification and degradation from wildlife habitat enhancement and treatments. Adverse affects to the endangered Colorado River fishes are also likely due to potential habitat degradation resulting from wildlife habitat enhancements.

4.3.15.19.6 ALTERNATIVE D

Under Alternative D, 875,825 acres of wildlife habitat would be subject to timing or surface use restrictions. This would benefit special status species in piñon-juniper, desert shrub, and sagebrush and perennial grassland habitats (see Tables 4.106 and 4.125). Accordingly, Alternative D would provide more beneficial impacts for these species than Alternative A, but less than Alternative B and the Proposed Plan.

4.3.15.20 Impacts of Woodlands Decisions on Special Status Species

4.3.15.20.1 Impacts Common to All Alternatives

Impacts to special status species from woodland management activities include removal of trees used by these species as cover, roosting or breeding sites, direct impacts to individuals from trampling or crushing during harvesting, and indirect negative impacts due to changes in vegetation structure. Woodland harvest resulting in reduced probability of catastrophic wildfire would likely reduce potentially adverse impacts to special status species that occupy woodland habitats.

Indirect, adverse effects of wood gathering include trampling and removal of native vegetation, which result in special status species habitat degradation that can include reductions in prey species, forage species, and cover. Table 4.143 in Section 4.3.17.16, Impacts of Woodlands Decisions on Vegetation Resources, presents the number of acres of each vegetation type closed to woodland harvest as presented for each alternative for the MPA.

Sensitive wildlife species in piñon-juniper woodland habitat would face short- and long-term, adverse impacts from surface and noise disturbance associated with woodland harvest.

4.3.15.20.2 Alternative A

Under this alternative, 1,243,743 acres of piñon-juniper woodland habitat would be open to woodland harvest and wood gathering. Of the four alternatives, this alternative would have the largest area open to woodland harvest and wood gathering, and therefore the greatest potential risk of disturbance to special status species utilizing this habitat (see Table 4.116).

4.3.15.20.3 Alternative B

Under Alternative B, 1,071,335 acres of piñon-juniper woodland habitat would be open to woodland product harvest. Of the four alternatives, this alternative would have the lowest number of acres open to woodland harvest and wood gathering and, therefore, the lowest risk of disturbance for special status species utilizing this habitat.

4.3.15.20.4 Proposed Plan

Under the Proposed Plan, 1,212,886 acres of piñon-juniper woodland habitat would be open to woodland product harvest. This alternative would have fewer potentially adverse impacts on special status species in this habitat than Alternatives A or D, but more than Alternative B. Activities associated with woodlands management decisions are likely to adversely affect Jones' cycladenia due to 27% of potential habitat areas open for woodcutting and harvesting that could result in habitat degradation and trampling of individual plants. Woodland management under the Proposed Plan would likely adversely affect MSO due to forest treatments that could result in habitat loss, displacement or mortality of individual birds, or prey reductions. Adverse affects to the SWFL and endangered Colorado River fishes are also likely due to the potential for habitat modification and degradation associated with woodland product harvesting activities in riparian habitats.

4.3.15.20.5 ALTERNATIVE D

The impacts of woodlands decisions on special status species under Alternative D are identical to those described for Alternative A.

4.3.15.21 SUMMARY OF IMPACTS

Table 2.2 of Chapter 2 summarizes the impacts of the various alternatives and their program actions on special status species.

4.3.16 TRAVEL MANAGEMENT

This section discusses impacts to travel from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning travel management are described in Chapter 3.

Travel management would affect a variety of travel modes as discussed in Section 3.16.1. OHV (motorized vehicle) travel would be managed under four possible categories, based on BLM land-use planning decisions on route utility, and on decisions to protect natural resources and maintain public safety. The OHV categories are: 1) Open to unlimited, cross-country travel, 2) Limited to Inventoried or Existing routes (under Alternative A only), 3) Limited to Designated Routes, or 4) Closed to OHV use.

The analysis of impacts to travel within the MPA was conducted under two assumptions. First, travel routes designated as available to OHV use would allow all forms of travel (i.e., motorized, mountain biking, and non-mechanized hiking and equestrian), which would have beneficial impacts to travel by providing opportunities for a wide range of travel modes. Second, routes not designated would adversely affect travel because of the reduced opportunities for mechanized and motorized access to areas within the MPA. The indicators for analyzing impacts to travel are: 1) miles of route (see below) designated or not designated for OHV use, and 2) the number of acres designated as open or closed to OHV access.

Utah State road classes were considered in the impacts analysis. The road classification relevant to the analysis was the Utah Department of Transportation Class-D roads. These are unpaved roads, and not regularly maintained nor funded for maintenance by the state. Most of the routes within the MPA are in this road class (see Travel Plan, Appendix G). Utah Class-B roads are also proposed as designated routes under the Travel Management prescriptions (see Chapter 2, Table 2.2 Impacts Summary Table); however, these routes were not used as analysis criteria because they are maintained San Juan County and Grand County roads that currently provide motorized access throughout the MPA and whose travel function or designation would not change under any of the proposed alternatives.

4.3.16.1 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

After approval of the RMP, if the MFO Authorizing Officer determines that OHV travel use would cause or have the potential to cause adverse impacts, then an area could be closed to travel or travel restrictions would be imposed. This would potentially have long-term, adverse impacts on travel because opportunities would be reduced.

Once Travel Plan routes are established in the RMP, (see Appendix G for a description of the route planning process) designated routes could be modified or adjusted at the implementation

and project-planning level. The route adjustments would be done through a collaborative process involving local governments and the public. The impacts to travel management would be beneficial in the long-term because potential travel-related resource use conflicts would be identified and satisfactorily resolved since the route modification process would include interested and/or concerned stakeholders.

4.3.16.2 ALTERNATIVES IMPACTS

Management decisions from the following resources would have negligible impacts on travel management and will not be analyzed further in this section: Fire Management, Health and Human Safety, Lands and Realty, Livestock Grazing, Paleontology, Recreation, Riparian, Soils/ Watershed, Special Status Species, Visual Resources, Wildlife and Fisheries, and Woodlands. The impacts would be negligible because reducing the risks of wildland fire; protecting public safety around AML sites and reducing the risks of hazardous materials spills; designating ROWs, lands acquisition, exchange, or sales; establishing livestock utilization levels and applying rangeland grazing standards and guidelines; managing recreational areas and user groups; protecting riparian areas, sensitive soils, water resources; protecting federally listed species and other non-listed wildlife and fish species; protecting scenic quality; and permitting woodland harvesting would not change designated travel routes and OHV travel within the MPA.

4.3.16.2.1 IMPACTS OF AIR QUALITY MANAGEMENT DECISIONS ON TRAVEL

Air quality management common to all of the alternatives would require compliance with Utah air conservation regulations that prohibit the use, maintenance, or construction of roads without fugitive dust abatement measures. BLM policy requires monitoring and managing exhaust emissions and fugitive dust to prevent deterioration of air quality within potentially affected national park Class I area (for the MFO, this would include the adjacent Canyonlands and Arches National Parks). The impacts on travel would be minor and short-term along unpaved travel routes (i.e., Class-D roads, single-track routes, mechanized trails) that require road surfacing-related dust abatement measures because travelers could experience some travel delays or re-routing around the affected road sections during dust abatement and maintenance projects.

4.3.16.2.2 IMPACTS OF CULTURAL RESOURCE DECISIONS ON TRAVEL

4.3.16.2.2.1 Alternative A

Under Alternative A, there are no specific prescriptions that address travel opportunities or potential restrictions on travel within the context of cultural resources management.

4.3.16.2.2.2 Alternatives B–D

Under all of the action alternatives (B, D, and Proposed Plan), cultural sites could be closed to visitation if it were determined that travel-related activity threatens cultural site integrity. If sites were closed, then travel opportunities could be adversely affected in the short-term or long-term, depending on MFO decisions to protect a threatened site. Compared to Alternative A, the action alternatives would potentially have more long-term, adverse impacts on travel opportunities because access would be reduced to protect cultural resources.

4.3.16.2.3 Impacts of Minerals Decisions on Travel

Minerals-related access roads would be constructed under all of the alternatives and would be generally available for use by the public, but the RFD-predicted level of mineral resource development would result in a relatively small number of additional access roads (i.e., spur roads to drilling sites) when compared to the existing or designated routes within the MPA. Minerals decisions that permit oil and gas exploration and development would have beneficial, but minor, impacts on travel access and opportunities because minerals-related access roads would increase opportunities.

4.3.16.2.4 Impacts of Non-WSA Lands with Wilderness Characteristics Management Decisions on Travel

4.3.16.2.4.1 Alternatives A and D

No lands would be managed for wilderness characteristics under Alternatives A and D; there would be no impacts to travel management from these decisions.

4.3.16.2.4.2 Alternative B

Under Alternative B, over 177 miles of route within 26 non-WSA lands with wilderness characteristics would not be designated for motorized travel (compared to 294 miles in Alternative A). An additional 7 non-WSA lands with wilderness characteristics would have no routes would designated for travel (Arches Adjacent, Big Triangle, Dome Plateau, Floy Canyon, Horsethief Point, Mexico Point, Yellow Bird.) This would adversely impact those recreationists engaging in motorized activities by removing 177 miles of available route. However, this would provide a beneficial impact to those recreationists seeking a more primitive experience. Development of routes for mechanized travel would not be permitted on the 266,485 acres of non-WSA lands managed for wilderness characteristics.

4.3.16.2.4.3 Proposed Plan

Travel in Beaver Creek would be limited to 12.45 miles of designated route (reducing route miles by 6.3 miles in Alternative A); travel in Fisher Towers would be limited to 4.3 miles of designated route (reducing route miles of 6.68 miles in Alternative A); travel in Mary Jane Canyon would be limited to 10.04 miles of designated route (reducing route miles by 23.28 miles in Alternative A). This would adversely impact those recreationists engaging in motorized activities by removing 36.26 miles of available route. However, this would provide a beneficial impact to those recreationists seeking a more primitive experience. Development of routes for mechanized travel would not be permitted on the 47,761 acres of non-WSA lands managed for wilderness characteristics.

4.3.16.2.5 Impacts of Special Designations Decisions on Travel

4.3.16.2.5.1 ACECs and Wild and Scenic River Segments

Under all alternatives, OHV, mountain biking, and non-mechanized recreational travel and access opportunities within river segments being considered for WSR status, and travel within ACECs would be limited to routes either designated under prescriptions to protect resource values in these areas or under the Moab Travel Plan (see Section 4.3.16.2.6).

This would have negligible to minor impacts on travel opportunities because travel routes into these areas would be allowed under all alternatives. However, no areas would be designated as open to unlimited, cross-country OHV travel within special designations, which would have long-term, adverse impacts on this form of travel because cross-country travel opportunities within these areas would be prohibited.

4.3.16.2.5.2 WSAs and Wilderness Areas

Alternative A

Wilderness area and WSA prescriptions under Alternative A would continue to designate 12,635 acres in the Behind the Rocks WSA as Closed to OHV access, and travel limited to inventoried routes on 82.5 miles of way within 309,749 acres of Wilderness and WSAs. The impacts to travel opportunities would continue to be adverse in the long-term within the Behind the Rocks WSA because OHV access and travel opportunities would not be available in this area.

Alternative B

Alternative B prescriptions would manage all WSAs and the Black Ridge Wilderness (a total of 354,015 acres) as closed to OHV travel, which would have long-term, adverse impacts on travel opportunities within these special designation areas. No routes would be designated. The impacts to travel would be more adverse under this alternative, when compared to Alternative A, because more area would be closed to OHV travel.

Proposed Plan

Under the Proposed Plan, 344,056 acres of WSA and Wilderness would be closed to OHV travel, with 9,959 acres managed for OHV travel limited to designated routes (with 3.1 miles of route designated). The impacts to travel would be similar to Alternative B because only 3% of all WSA and Wilderness areas would be managed for OHV travel and access opportunities. Compared to Alternative A, this alternative would be similar to Alternative B because the total WSA area closed to travel opportunities would be similar.

Alternative D

Under Alternative D, motorized travel in all WSA and Wilderness areas would be designated as limited to designated routes (with 16 miles of route designated), with long-term, beneficial impacts on travel opportunities and access into these areas, since motorized opportunities will be available on these 16 miles of route. The impacts on travel would less beneficial to travel than Alternative A because although travel opportunities would be available in all WSA and Wilderness areas in Alternative D, there would be fewer miles of route available for use.

4.3.16.2.6 Impacts of Travel Management Decisions on Travel

4.3.16.2.6.1 Motorized (OHV) Travel

Alternative A

Under Alternative A, OHV travel would be managed under open, limited, and closed designations, as shown below in Table 4.136, with travel prescriptions as approved under the current RMP and subsequently modified by Federal Register limitations and restrictions issued after approval of the RMP. Alternative A would manage 620,212 acres as open for cross-country

travel, 1,196,920 acres as limited to existing, inventoried and/or designated routes, and 5,062 acres as closed to OHV travel. Designation of 620,212 acres of the MPA as open to OHV areas would have negligible impacts on travel opportunities because opportunities would be unrestricted for all modes of travel. Limited OHV use along inventoried and/or designated routes would also have negligible impacts on OHV travel because travel along these routes would remain unimpeded. The adverse impacts on OHV travel would be minor, in the long-term because, approximately 99% of the MPA would be accessible either by cross-country travel or along designated and inventoried/existing routes.

Table 4.136. OHV Designations by Alternative

Travel Designation	Alternative A (Acres)	Alternative B	PROPOSED PLAN	Alternative D
Open	620,212	0	1,866	3,064
Limited to Existing Roads and Trails	1,196,920[4]			
Limited to Designated Routes		1,475,074	1,481,334	1,762,083
Closed	5,062	347,424	339,298	57,351
Total[1]	**1,822,194**	**1,822,498**	**1,822,498**	**1,822,498**
D routes (miles)[2]	4,673	2,144	2,519	2,671
Designated Motorcycle Routes (miles)[2]	0[3]	0	123	219

[1]Acreage figures may vary by alternative due to the changes in GIS technology and variances in GIS shapefiles.

[2]These are the miles of designated routes at time of EIS publication. After the issuing of the ROD, minor adjustments may be made by the MFO to more accurately define the designated routes.

[3]The Slickrock Trail, while open to motorcycle use, was not designated as a motorcycle route under the current RMP.

[4] 48,169 acres would be limited to designated roads and trails; and 309,749 acres would be limited to inventoried routes in WSAs.

Alternative B

This alternative would designate no area as open to cross-country OHV travel. Limited OHV travel would be permitted on 1,475,074 acres of designated routes, with 347,424 acres closed to all OHV travel. These travel designations would allow opportunities on approximately 81% of the MPA, which would have adverse, long-term, but minor, impacts on travel opportunities because a small proportion (19%) of the MPA would not be available for travel access. Compared to Alternative A, this alternative would manage the MPA with more long-term, adverse, restriction-related impacts on OHV travel, as 342,362 more acres would be subject to long-term prohibitions on OHV access under the closed designation.

Proposed Plan

The Proposed Plan would have impacts similar to those discussed under Alternative B because the acreages designated as limited and closed to OHV use are similar, except that a small area (1,866 acres) would be designated as open to OHV travel within the White Wash Sand Dunes and managed as a motorized OHV focus area (see Recreation Section 4.3.10.2.10.6). Compared to Alternative A, the Proposed Plan would have impacts similar to those discussed under Alternative B because the acreage comparisons are similar: approximately the same number of acres would be closed to OHV cross-country travel.

By restricting the Bartlett Freeride area to bicycles only, open motorcycle opportunities would be restricted on 166 acres.

Alternative D

Under Alternative D OHV travel prescriptions, 57,351 acres would be closed, 1,762,083 acres would be designated as limited to designated routes, and 3,064 acres would be open to cross-country OHV travel within two motorized OHV focus areas (White Wash Sand Dunes and Airport Hills). Approximately 97% of the MPA would be available for travel opportunities and access. The impacts would be similar to those discussed under Alternative A, but to a lesser degree, because, although a large proportion of the MPA would be open to travel, the access would be along designated routes and not cross-country.

4.3.16.2.6.2 D-Class Road Travel

Note that the miles of D-Class routes are included within acreages of OHV travel discussed previously. Class B roads are available for travel under all alternatives.

Alternative A

Under Alternative A, 4,673 miles of D-class route would be available for travel (as either inventoried, existing or designated routes). About 122 miles would be available for single-track, motorized travel (i.e., motorcycle OHV travel). As shown above in Table 4.136, motorcycle use is currently allowed on the Slickrock Trail, but formal motorcycle trail-use designation was not included in the 1985 RMP. Under this alternative, the opportunities for travel along D-Class routes would be unimpeded, with long-term, beneficial impacts to travel.

Alternative B

Alternative B would designate approximately 2,144 miles of D-Class routes, with no miles designated for single-track, motorized use. Under this alternative, travel opportunities would be adversely reduced in the long-term because 2,144 miles of inventoried routes would not be designated due to lack of an identifiable purpose and need, and 655 miles would not be designated because of resource use conflicts (cultural, wildlife, sensitive soils, recreation, riparian, wilderness values, and floodplains). See Appendix G for a discussion of the collaborative BLM/County route designation process. Compared to Alternative A, this alternative would have greater adverse impacts on travel opportunities because the proposed Travel Plan would eliminate 2,529 miles of routes within the MPA that would otherwise be available for travel.

Proposed Plan

This alternative would propose approximately 2,519 miles of D-Class routes, and would designate 282 miles of motorcycle single-track routes. The impacts on travel would be similar to Alternative B and for the same reasons, except that the designated single-track routes would provide long-term, beneficial recreation-related travel opportunities for the off-highway motorcycle user group (see Recreation 4.3.10 for user group descriptions). When compared to Alternative A, the Proposed Plan would be similar to Alternative B because the miles of routes not designated (and the reduction in travel opportunities) would be similar: approximately 2,154 miles of routes would not be designated, resulting in long-term, adverse impacts on MPA travel opportunities.

Alternative D

This alternative would propose approximately 2,671 miles of D-Class routes and 340 miles as designated motorcycle single-track routes. When compared to Alternative A, the adverse impacts to travel would be similar to Alternative B, but to a lesser degree, because the miles of route closures would be similar. Approximately 2,002 miles of routes would not be designated, resulting in impacts similar to those identified in Alternative B.

4.3.16.2.6.3 Mountain Biking Recreational Travel

Under management common to all action alternatives, mountain biking travel opportunities would be allowed on all routes open to motorized travel use, and management would be applied to these routes to identify and modify routes, as needed, to meet mountain biking travel needs. Approximately 11 miles of existing single-track routes would be managed for mountain biking use only. These prescriptions would have long-term, beneficial impacts on mountain biking travel by expanding recreational travel and access opportunities for this user group.

Alternative A

Under Alternative A, the impacts of management on mountain biking travel would be adverse in the long-term because none of the prescriptions would specifically or adequately address the current trends of increasing resource-user conflicts between motorized OHV and mountain biking travelers and mountain biking user displacement by motorized OHV users. Under this alternative, mountain biking travel conditions would be degraded in the long term, and recreational travel opportunities and experiences would likely be diminished for the aforementioned reasons.

Alternatives B, D, and Proposed Plan

Proposed management under the action alternatives would have long-term, beneficial impacts on mountain biking travelers by developing additional mountain biking routes: 75 miles under Alternative B, 150 miles under the Proposed Plan, and 300 miles under Alternative D. These routes would include proposed additional support facilities (e.g., trailheads, signs, and route markers). The beneficial impacts would vary by degree, with Alternative D and the Proposed Plan having the most beneficial impacts on mountain biking travel. Compared to Alternative A, all of the action alternatives would be more beneficial to mountain biking travel because 1) travel user conflicts and displacement would be addressed by converting inventoried routes not designated for motorized OHV use to mountain biking travel; and 2) the demand for mountain biking travel facilities would be addressed by installing additional facilities.

4.3.16.2.6.4 Non-mechanized Recreational (Hiking, Backpacking, Equestrian) Travel

Management common to all action alternatives would provide non-mechanized travel opportunities on all routes open to motorized OHV and mountain biking users. Non-mechanized travel opportunities would be unrestricted within the MPA, except where limited or restricted to protect specific resources values. Seventeen miles of non-mechanized routes on existing trails would be managed for non-mechanized users. Equestrian users would be encouraged to participate with the MFO in identifying additional non-mechanized trails for development of equestrian and hiking routes. These actions would have long-term, beneficial impacts on non-

mechanized travelers by expanding the travel opportunities for this user group and by reducing user-conflicts with motorized and mountain bike travelers.

Alternative A

Under this alternative, equestrian use would continue to be discouraged in Negro Bill Canyon in order to protect canyon resources, but would have negligible impacts on non-mechanized travel as the canyon route would still be open to foot travel. Commercial equestrian use would not be allowed in Mill Creek Canyon, but private use would continue. In general, the prescriptions under Alternative A would have long-term, adverse impacts on non-mechanized travel because the alternative does not address current trends within the MPA, including: 1) the increase in resource user conflicts between non-mechanized and mountain biking travelers; 2) the increasing displacement of non-mechanized travelers from areas used by motorized OHV users and mountain bikers (see Section 3.10.2.6); and 3) the demand for recreational facilities to meet traveler needs, such as trailhead signs, route markers, and information kiosks (see Section 3.10.2.5).

Alternatives B, D, and Proposed Plan

The specific prescriptions under these alternatives would be beneficial in the long-term to non-mechanized travel because resource-use conflicts between non-mechanized and mechanized (including OHV and mountain bike) users would be addressed by developing exclusively non-mechanized travel routes. Support facilities would be installed along existing and new trails, and specified existing trails would be managed for equestrian use (with hiking allowed). The difference in impacts between the alternatives varies by degrees: Alternative B, Proposed Plan, and Alternative D would develop up to 25, 50, and 100 miles of additional routes and appropriate support facilities, respectively. Compared to Alternative A, all of the action alternatives would have more beneficial impacts on travel by providing more opportunities and more facilities for non-mechanized travel.

4.3.16.2.7 Impacts of Vegetation Decisions on Travel

4.3.16.2.7.1 Alternative A

Under this alternative, there would be no impacts from vegetation-related prescribed fire/fuel reduction or invasive/non-native plant control projects on travel opportunities or access because no drought management prescriptions on travel would be in place.

4.3.16.2.7.2 Alternatives B, D, and Proposed Plan

For all of the action alternatives, prescriptions for managing drought conditions under the proposed adaptive drought management plan could adversely restrict travel or reduce travel opportunities in the short-term by closing areas to public entry. This would potentially have more adverse impacts on travel than Alternative A because closing areas to public entry under the drought plan would restrict travel opportunities; however, these impacts would be minor because they would likely be short-term and would only be imposed under exceptional conditions.

4.3.16.3 SUMMARY OF IMPACTS

Table 2.2 of Chapter 2 summarizes the impacts of the various alternatives and their program actions on travel management.

4.3.17 VEGETATION

This section discusses impacts to vegetation from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning vegetation are described in Chapter 3.

Vegetation types for the MPA were categorized as conifer/mountain shrub, desert shrub, piñon-juniper, riparian and wetlands, and sagebrush/perennial grass communities.

For the purposes of this RMP, the primary indicator of impacts to vegetation is the acres of surface disturbance caused by management decisions regarding other resources. Such surface disturbance would impact vegetation resources to varying degrees, depending on the amount, location, and type of surface disturbance and the disturbed vegetation's characteristics or ability to withstand surface disturbance. Surface-disturbing activities that currently occur and that are expected to continue include grazing; minerals development; recreation and OHV use; woodland harvest; and vegetation treatments.

The following resource management decisions would have negligible impacts to vegetation and, therefore, are not discussed further: air quality, cultural resources, human health and safety, paleontological resources, and visual resources. The impacts would be negligible because protecting air quality, protecting and inventorying cultural resources, maintaining public safety around AML sites and reducing the risks of hazardous materials spills and site cleanup, allowing scientific study of and recreational collection of fossils, and protecting scenic quality under designated VRM Class objectives would neither improve nor degrade vegetation resources within the MPA.

4.3.17.1 IMPACTS COMMON TO ALL ALTERNATIVES

Weed management in the MPA would include control of existing noxious weed species and preventing the spread of invasive species. Restoration and rehabilitation activities would always use certified weed-free mulch and seed mixes; native seed mixes would be used whenever possible. Additionally, users with stock animals would be required to provide certified weed-free feed for stock animals. These actions would benefit vegetation resources by reducing the spread of noxious weeds.

4.3.17.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

In accordance with the BLM sagebrush conservation guidance, the MPA would reclaim and restore up to 257,809 acres of sagebrush habitat and shrub-steppe ecosystems. Efforts would include prioritizing sagebrush-steppe communities for wildfire suppression, emergency stabilization and fuels reduction, and following the BLM's Sage-Grouse Conservation Strategy. The Sage-Grouse Conservation Strategy would be used, when applicable, in the development and implementation of vegetation and land treatments, livestock manipulation techniques, fire projects, energy exploration and development, and any surface-disturbing activity within sagebrush and shrub-steppe communities. All of these actions would have beneficial, protection-

and enhancement-related impacts on native plant species from vegetation restoration and reclamation, and from the reduction of invasive species establishment.

Vegetation treatments, including biological, chemical, mechanical, and prescribed burns, would be used to reduce tamarisk and Russian olive where appropriate. In addition, the MPA would incorporate vegetation treatments from the Utah Record of Decision (ROD) for Vegetation Treatment on BLM Lands in Thirteen Western States EIS (BLM 1991a as amended). Management would also include restoration of riparian habitat to native willow and cottonwood communities, including replanting cottonwoods and willow subsequent to wildland fire or other disturbance in riparian areas, where appropriate. The impacts of the above-mentioned treatments and restoration activities on vegetation resources would be adverse, short-term, and minor due to vegetation removal and/or trampling; however, the treatments and restoration actions would reduce native species competition with noxious weeds and invasive plant species, which would have long-term, beneficial impacts on vegetation resources.

Under decisions common to the action alternatives, the MPA would establish criteria for restricting activities during drought, through an adaptive drought management program. These restrictions could result in beneficial, short-term and long-term impacts on vegetation because criteria would be established and BMPs applied to restrict or prohibit surface impacts to vegetation. These actions would result in beneficial impacts to vegetation from such actions as suspending or limiting seed collecting, suspending surface-disturbing activities, changing livestock use, and limiting prescribed burn and vegetation treatments during periods of drought. For more detail on adaptive drought management, refer to Chapter 2 Vegetation Management Common to All Action Alternatives.

4.3.17.3 Impacts of Fire Management Decisions on Vegetation Resources

Under all alternatives, the Utah Land-use Plan Amendment for Fire and Fuels Management would be implemented in fire-related actions (BLM 2005c). As discussed in Section 4.3.3 Fire Management, the MFO would treat 5,000 to 10,000 acres annually (approximately 0.5% of the MPA), depending on budgetary and time constraints. The majority of these treatments would likely be concentrated in piñon-juniper vegetation. Wildland fire use would not be authorized in areas that are known to be highly susceptible to post-fire cheatgrass or other weed invasion, areas with important terrestrial and aquatic habitats, and non-fire adapted vegetation communities unless reasonable resource protection measures were in place. These actions would have long-term, beneficial impacts on vegetation by reducing the opportunities for the spread of weeds and exotic, invasive species into native vegetation communities.

Fuels management actions such as mechanical and manual treatments, prescribed fire, chemical or biological vegetation control, and aerial/ground seeding would have both beneficial and adverse impacts on vegetation communities in fire-treated areas. Long-term, beneficial impacts to vegetation would occur in treated areas once invasive species competition was eliminated or reduced, assuming that a diverse native community has the potential to establish itself in the area. The short-term, adverse impacts of fuels management actions on vegetation would include the unavoidable potential trampling and disturbance of rare native species, and the thinning and removal of ecologically desirable species. These actions could result in a short-term, adverse reduction of native species diversity. However, these treatments would improve vegetation communities in the long term once native or desirable non-native vegetation were reestablished.

These beneficial impacts would include more varied species and habitat structure, multiple age classes, and openings for forbs and woody species recruitment.

4.3.17.4 Impacts of Lands and Realty Decisions on Vegetation Resources

Lands and Realty decisions that have the potential to have adverse impacts on vegetation would result from authorizations of right-of-way (ROW) grants and the expansion or development of utility corridors. These actions would create surface disturbances of various magnitudes depending on the size and location of the project. Impacts from minerals ROWs such as access roads and pipelines are accounted for in the minerals surface disturbance calculations (see Section 4.3.17.6). Surface impacts from construction of communication facilities and wind and solar energy development would be disclosed in site-specific NEPA documentation. There would also be potential for the introduction of noxious or invasive plant species via construction equipment, vehicles, and personnel. However, the adverse impacts would be mitigated through BMPs, noxious weed controls, and restoration and rehabilitation measures outlined in Management Common to All.

Beneficial impacts would result from identification of exclusion and avoidance areas for ROWs and mineral withdrawals. Because withdrawals are generally for mineral entry, they are discussed in Minerals, Section 4.3.17.6. Exclusion areas would offer greater protections for vegetation than avoidance areas because they would completely preclude surface-disturbing activities. Exclusion and avoidance areas would include any areas proposed as Closed (exclusion) NSO (avoidance) due to lands being managed for wilderness characteristics, ACECs, WSAs, Wilderness Areas, or Threatened and Endangered species habitat.

Under Alternatives A and D, potential vegetation-related surface disturbances within the proposed I-70 utility corridor would be up to 1-mile wide. Under the Proposed Plan, they would be up to a 0.5-mile wide and under Alternative B, they would be up to 100-foot-wide. The following Table 4.137 shows the acres of vegetation within each vegetation type under each alternative that would be potentially impacted by surface disturbances in the proposed utility corridors. Alternative A would have the least area of vegetation potentially impacted by the proposed utility corridors, followed by Alternative B, Proposed Plan, and Alternative D, respectively. Compared to Alternative A, all of the action alternatives would have potentially more adverse impacts on vegetation by expanding the width of MPA utility corridors.

Table 4.137. Acreage of Vegetation Types Potentially Impacted in Utility Corridors, by Alternative

Vegetation type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer/mountain shrub	9	0	19	19
Desert shrub	25,144	52,053	113,917	141,797
Invasive species and weeds	308	1,327	2,084	2,492
Piñon-juniper	5,345	8,808	41,672	44,189
Riparian/wetland	143	323	1,031	1,139
Sagebrush/ perennial grass	1,551	3,355	14,376	14,531
Total	**32,500**	**65,866**	**173,099**	**204,167**

All alternatives would manage WSAs, and Wilderness Areas as exclusion areas, and all alternatives would manage ACECs as avoidance areas. Alternative B would manage non-WSA lands with wilderness characteristics as exclusion areas and the Proposed Plan would manage them as avoidance areas. All action alternatives (B, D, and Proposed Plan) would manage areas with NSO stipulations as avoidance areas. Since Alternative B would manage 266,485 acres of lands with wilderness characteristics as exclusion areas, this alternative would offer the greatest protection to vegetation of all the alternatives. The Proposed Plan would manage for five ACECs totaling 63,232 acres and three areas with wilderness characteristics totaling 47,761 acres. As a result, the Proposed Plan would provide for the second largest area of protection but only as avoidance areas. Thus, there could be circumstances by which ROWs could be approved, with accompanying surface disturbance in these areas. Alternatives D would not designate any ACECs and would offer the least protection of all the alternatives; Alternative A would continue management of the existing 1,375 acres Negro Bill Canyon ONA, offering only slightly more protection to vegetation. Alternatives A and D do not propose to manage any lands for wilderness characteristics, offering less protection for vegetation than either Alternative B or the Proposed Plan.

Under all of the alternatives, the continued withdrawal of lands from mineral entry along the Colorado, Dolores, and Green Rivers (encompassing 65,037 acres), and within the Westwater and Black Ridge wilderness areas (13,296 acres), would beneficially protect vegetation resources (mostly juniper and desert shrub) in the long term by eliminating potential surface-disturbance-related impacts from mineral entry.

4.3.17.5 Impacts of Livestock Grazing Decisions on Vegetation Resources

In general, making areas unavailable for grazing would provide long-term protection and enhancement of vegetation because it would limit the loss of vegetative cover and the trampling of species. Areas available for livestock grazing generally suffer some adverse impacts due to decreased growth or loss of riparian and other vegetation.

Under all of the alternatives, livestock grazing would be managed according to the Guidelines for Grazing Management in order to achieve and maintain the Standards for Rangeland Health. Under the Guidelines, the proper functioning condition of wetlands and riparian areas would be promoted, the use and perpetuation of native species would be emphasized, noxious weed establishment and spread would be minimized, and adjustments would be made to grazing practices when vegetation proper functioning conditions are not being met. These guidelines and standards would generally mitigate the impacts of livestock grazing on vegetation resources. However, the potential for impacts still exists and would be greater under alternatives with a higher percentage of lands available for grazing.

The following Table 4.138 shows a comparison of the numbers of acres excluded from livestock grazing by alternative. Alternative B would exclude the most acres, followed by Alternative A, the Proposed Plan, and Alternative D, respectively. Acreages vary slightly between alternatives.

Table 4.138. Acres of Each Vegetation Type Excluded from Grazing by Alternative

Habitat	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Desert shrub	13,697	23,880	23,380	13,324
Sagebrush and perennial grassland	3,806	5,569	5,569	1,767
Conifer and mountain shrub	23,155	23,404	22,579	587
Piñon-juniper woodland	84,301	98,628	77,548	35,369
Riparian/Wetland	1,568	1,852	1,556	862
Total	**126,527**	**153,333**	**132,047**	**51,909**

More areas would be unavailable for grazing under Alternative B than Alternative A, the Proposed Plan, and especially Alternative D, which could have beneficial impacts on native vegetation depending on the success of re-vegetation and weed control efforts following the removal of livestock. Management under the rangeland standards and guidelines would increase the likelihood of native vegetation establishment, with long-term beneficial impacts to vegetation resources. In the long term, Alternative B would likely have fewer adverse impacts on native vegetation in the MPA when compared to any other alternative because of the additional unavailable for livestock grazing. Alternative D would have the greatest likelihood of adverse impacts on native vegetation in the MPA because fewer acres are rendered unavailable for grazing in this alternative.

Fewer vegetation treatments are proposed under these alternatives than Alternative B, which would reduce the short-term surface disturbance impacts on vegetation removal but would also decrease the potential long-term benefits of increased vegetation health.

Vegetation treatments under all of the alternatives in allotments to increase wildlife forage would have long-term, beneficial impacts on vegetation by expanding the acreage of native and other desired vegetation species into existing piñon-juniper woodlands. Alternative B, Proposed Plan, and Alternative D would designate more area (a total of 46,307 acres under each alternative) for conversion than Alternative A (67,125 acres), but the relative size of the affected areas and the impacts under all of the alternatives would be similar.

4.3.17.6 Impacts of Minerals Decisions on Vegetation Resources

Surface disturbance associated with mineral exploration and development would result in both short-term impacts and long-term adverse impacts on vegetation. In the short term, loss of vegetation associated with surface disturbances for well pads, access roads, and minerals infrastructure would increase the potential for invasion of undesirable plant species, including noxious weeds, and cause a potentially irretrievable loss of vegetation productivity during the period of disturbance and re-growth.

While the RFD assumes that reclamation of disturbance would be successful within a scope of 10 years, it does note that reclamation times would be dependent on soils, vegetation, and rainfall (BLM 2005f). The typically slow re-growth of vegetation within the MPA would cause surface

disturbance to have long-term, indirect, adverse impacts on vegetation resources. Initial establishment of sagebrush and other native species following seeding is estimated to take 3 to 4 years, depending on the successful exclusion of livestock and weedy annuals from the site during this time (Monsen et al. 2004). Revegetation is especially difficult in desert shrub habitat, because soils are shallow and highly saline, and moisture availability is relatively low (Monsen et al. 2004). The potential long-term, adverse introduction and establishment of undesirable plant species, particularly cheatgrass, is likely in the sagebrush/perennial grass vegetation cover type due to cheatgrass ability to out-compete native species in disturbed areas and to thrive in arid conditions (Morrow and Stahlman 1984; Piemeisel 1951).

Although the acreages open to mineral leasing vary by alternative and would include a substantial portion of the MPA, the true indicator of impacts to vegetation come from the surface disturbance associated with the predicted RFD for minerals. Proposed surface disturbances from these activities are outlined in Table 4.139. Impacts to vegetation resources would be adverse, but would impact a relatively small portion of the MPA.

Table 4.139. Predicted Surface Disturbance on BLM Lands from Minerals Activities for the 15-Year Life of the Plan (Acres)

Type of Disturbance	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Surface disturbance from oil and gas development	6,772	3,963	6,483	6,739
Geophysical surface disturbance	2,397	1,404	2,072	2,329
Surface disturbance from mineral activities other than oil and gas	1,015	1,015	1,015	1,015
Total surface disturbance	10,184	6,382	9,570	10,083
% of surface disturbance within the MPA	0.005	0.002	0.005	0.005

4.3.17.7 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Vegetation Resources

4.3.17.7.1 Alternatives A and D

Under these alternatives, no non-WSA lands with wilderness characteristics would be managed to maintain those characteristics. The impacts on vegetation resources would be potentially adverse in the long term because no prescriptions specifically to maintain wilderness characteristics would be specified to protect these areas from surface disturbances.

4.3.17.7.2 Alternative B and the Proposed Plan

Alternative B and the Proposed Plan would manage for wilderness characteristics on 266,485 acres and 47,761 acres, respectively. Logically, Alternative B would offer the greatest protection of all alternatives due to the large number of acres that would be managed as closed to mineral leasing and woodland harvest.

Non-WSA lands with wilderness characteristics would be designated as VRM Class II in both alternatives and would be closed to oil and gas leasing in Alternative B and would be managed as no surface occupancy in the Proposed Plan. They would be closed to woodland harvest under both alternatives. These actions would preclude most large-scale surface-disturbing activities, thereby offering beneficial impacts to vegetation resources.

Management of non-WSA lands with wilderness characteristics (266,485 acres in Alternative B and 47,761 acres in the Proposed Plan) would limit the type of treatments needed to reclaim or restore sagebrush-steppe habitat. Mechanical treatments would not be allowed in these areas.

4.3.17.8 Impacts of Recreation Decisions on Vegetation Resources

In general impacts from recreation activities on vegetation would be limited to isolated surface disturbances where activities such as dispersed camping and cross country hiking occur. These impacts would be mitigated by the application of the MFO Recreation Rules and the Standards for Public Land Health and Guidelines for Recreation Management. Where recreation is managed using a Special Recreation Management Area, (SRMA) these rules and guidelines would limit or control activities through specialized management tools such as designated campsites, permits, area closures, and limitations on number of users and duration of use. In addition efforts would be made to educate public land visitors and users about the ethics of responsible use.

4.3.17.8.1 Alternative A

The short-term and long-term, adverse impacts from recreational activities within the 132,832 acres of existing SRMAs (Cameo Cliffs, Canyon Rims, and Colorado River) would be minor to vegetation because 1) motorized and non-motorized travel would be limited to existing, designated routes, and 2) adaptive management would be applied to camping sites to limit impacts to vegetation, as discussed above. Table 4.140 shows the approximate acreage of vegetation within each SRMA for all of the alternatives.

Within the Moab ERMA, motorized recreational OHV use would have short-term and long-term, adverse impacts on all vegetation types from OHV-related surface disturbances as approximately 620,212 acres (34% of the MPA) would continue to be designated as open to cross-country OHV use (see Section 4.3.17.13 below). This surface disturbance would adversely impact the scenic resources that visitors come to the MPA to enjoy.

Table 4.140. SRMA Acreages Proposed Under Each Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Bookcliffs	0	348,105	0	0
Cameo Cliffs	15,456	15,473	15,473	15,473
Canyon Rims	101,523	101,523	101,523	101,526
Colorado Riverway	15,853	101,523	87,336	76,375
Labyrinth	0	298,711	298,711	0
Lower Gray	0	3,527	3,527	0
Sand Flats	0	6,245	6,245	6,246

Table 4.140. SRMA Acreages Proposed Under Each Alternative

SRMA	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
South Moab	0	63,577	63,577	0
Two Rivers	0	28,540	28,540	12,481
Utah Rims	0	15,175	15,175	0
Dee Pass	0	0	0	60,421
Total	**132,832**	**982,399**	**620,107**	**272,522**

4.3.17.8.2 ALTERNATIVE B

Alternative B would manage 982,399 acres under existing and proposed SRMAs (seven times more acreage than under Alternative A). The impacts to vegetation within these SRMAs would be as discussed under Alternative A because of prohibitions and/or restrictions on surface disturbances to protect recreation resources and scenic values. The impacts on vegetation within the ERMA would be minor to negligible also because no acres would be designated as open to OHV cross-country travel, and all recreation-related travel would be restricted to existing, designated routes. The impacts to vegetation from dispersed camping within SRMAs would be negligible, as adaptive management could be applied to manage surface disturbance impacts resulting from dispersed camping to these areas. Compared to Alternative A, this alternative would have greater, long-term, beneficial impacts on vegetation because of the increased restrictions on cross-country OHV travel and dispersed camping.

4.3.17.8.3 PROPOSED PLAN

The Proposed Plan would manage a total of 620,107 acres under SRMAs (approximately five times more acreage than under Alternative A). The impacts to vegetation would be similar to those discussed under Alternative B, except that 1,086 acres would be managed as Open to OHV cross-country use within the White Wash Sand Dunes area. The impacts on vegetation in this OHV area would be negligible, as very little vegetation covers this proposed open OHV focus area.

4.3.17.8.4 ALTERNATIVE D

The impacts on vegetation under this alternative would be similar to the discussion under the Proposed Plan, because the limitations on surface disturbances to vegetation would be similar. However, this alternative would designate 272,522 acres as SRMAs (twice as much area as under Alternative A, but three times less than the Proposed Plan), with travel within the MPA limited to designated routes except for 3,064 acres of open OHV use in the White Wash Sand Dunes focus area (an area, as discussed above, that has little vegetation).

4.3.17.9 IMPACTS OF RIPARIAN DECISIONS ON VEGETATION RESOURCES

Compliance with the BLM National Riparian Policy under all alternatives and the exclusion of surface-disturbing activities within 100 meters of riparian areas under all action alternatives would result in long-term, beneficial impacts to riparian vegetation. This stipulation would eliminate surface-disturbing activities because surface disturbances would be avoided in order to

maintain and to improve riparian vegetation. These beneficial impacts would be the result of travel routes that would be located or re-located away from riparian areas; prohibitions on woodcutting (except for limited cutting of willows for Native American ceremonial purposes); dispersed camping in riparian areas that would be avoided and/or managed to reduce riparian vegetation impacts; exotic species management that would be applied to reduce their spread; and grazing actions that would be managed to ensure proper functioning condition of riparian vegetation.

4.3.17.10 Impacts of Soils/Watershed Decisions on Vegetation Resources

Generally any decisions that protect soils from surface disturbance would also protect vegetation as the two resources are closely linked. Under all action alternatives, vegetative cover would be maintained, based on desired future conditions, to provide adequate ground cover to prevent accelerated erosion of wind-erodible soils. In addition, limited OHV routes would be allowed in saline soils other than those already designated in the proposed Travel Plan. These actions would have long-term, beneficial impacts on vegetation by maintaining and protecting vegetation in these areas.

All of the action alternatives would also apply a controlled surface use stipulation excluding surface-disturbing activities within 100-year floodplains, within 100 meters of springs, or public water reserves. In addition, a controlled use stipulation would be applied to all slopes in the MFO greater than 30%. These management actions would benefit vegetation in the long term by limiting surface-disturbance-related impacts to the resource. Table 4.141 shows the size of vegetation communities protected by the controlled surface use stipulation on steep slopes.

Table 4.141. Acres of Each Vegetation Type Protected in the Action Alternatives Due to Slope Steepness Category

Vegetation Type	Acres protected due to slopes >30%	Acres protected due to slopes 21-30%
Conifer/mountain shrub	33,954	13,856
Desert shrub	20,707	16,146
Invasive species and weeds	196	209
Piñon-juniper	200,559	108,046
Riparian/wetland	2,181	1,234
Sagebrush/perennial grass	9,352	5,841
Total	**266,949 (14.6%)**	**145,332 (0.08%)**

4.3.17.10.1 Alternative A

Under this alternative, a timing limitation would prohibit all surface-disturbing activities on 313,800 acres of saline, erodible, Mancos Shale soils (17% of the MPA) from November 1 to April 30. These restrictions would have indirect, beneficial impacts on vegetation by 1) reducing soil erosion that could otherwise adversely cover or bury existing plant communities, and 2) reduce the likelihood of exotic, invasive weed establishment in these areas as seeds are brought in by machinery.

4.3.17.10.2 Alternative B and the Proposed Plan

The indirect, beneficial impacts to vegetation would be similar to those discussed under Alternative A because the management actions are similar: timing restrictions would be applied to 330,142 acres of Mancos Shale soils (18% of the MPA).

4.3.17.10.3 Alternative D

Under this alternative, no timing limitations on surface-disturbing activities within saline soils would be applied, which would have indirect, adverse impacts on Mancos Shale vegetation communities from potential surface disturbances that would increase the likelihood of invasive, exotic species establishment and erosion-related impacts to vegetation. Compared to Alternative A, this alternative would have greater adverse impacts on vegetation.

4.3.17.11 Impacts of Special Designations Decisions on Vegetation Resources

4.3.17.11.1 Areas of Critical Environmental Concern

Under alternatives B and C, where Areas of Critical Environmental Concern (ACECs) overlap Wilderness Study Areas, WSA management would take precedence. This land would be managed according to the Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) which precludes surface-disturbing activities. This would have beneficial impacts on vegetation resources. Please see the WSA section for details.

Any areas proposed for designation as ACECs would be managed as NSO for oil and gas leasing and preclude other surface-disturbing activities. They would also be managed as avoidance areas for ROWs. These actions would offer beneficial impacts because, as noted in the Lands and Realty section, surface-disturbing activities would be precluded.

4.3.17.11.1.1 Alternative A

No ACECs would be designated under Alternative A; therefore, no beneficial impacts would occur to vegetation as a result of ACEC designation.

4.3.17.11.1.2 Alternative B

Under Alternative B, all 14 potential areas totaling 613,077 acres would be designated as ACECs. Approximately 309,599 acres of this total are within WSAs and would be protected under the IMP as noted above. The remaining 300,576 acres would be managed with either a NSO or closed stipulation for oil and gas leasing and preclude other surface-disturbing activities. Since surface disturbance is one of the greatest threats to vegetation (due to the displacement of soil and plant matter and the subsequent risk of noxious weed spread) this prescription offers a high degree of beneficial protections.

Alternative B would include other management restrictions in each of the proposed ACECs that would provide greater increased protection for vegetation than the other alternatives. The additional management restrictions include restricting vehicle-based camping to campgrounds, not allowing campfires outside of campgrounds, closing areas to surface-disturbing vegetation treatments except for treatments for noxious weeds and exotics, and closing the area to harvesting woodland products. The greatest protection from the proposed ACECs would be to

the piñon-juniper and desert shrub vegetation types largely due to their abundance in proposed areas.

More restrictive management prescriptions to enhance white-tailed prairie dog habitat such as AMPs and grazing systems would be developed to benefit vegetation under Alternative B. Additionally, restrictions developed to protect the three special status plant species located in the Highway 279/Shafer Basin/Long Canyon and Behind the Rocks proposed ACECs including recreation restrictions for camping and OHV use would be beneficial to vegetation. Alternative B would not allow competitive OHV events in the Colorado River Corridor ACEC, thereby providing more protection that Alternative A. Additionally, no new road construction would be allowed in Labyrinth Canyon resulting in short- and long-term beneficial impacts to vegetation. Beneficial impacts would include protection from crushing, trampling, or uprooting by motorized vehicles.

4.3.17.11.1.3 Proposed Plan

Under the Proposed Plan, 5 areas (63,252 acres) would be designated as ACECs including, Behind the Rocks, Cottonwood-Diamond Watershed, Highway 279/Shafer Basin/Long Canyon, Mill Creek Canyon, and Ten Mile Wash. These designations would result in similar impacts to vegetation as discussed under Alternative B due to similar management requirements, but only for the five proposed areas.

4.3.17.11.1.4 Alternative D

Under Alternative D, none of the potential ACECs would be designated, so impacts would be similar to those in Alternative A. In comparison to the other action alternatives, Alternative D would allow the greatest number of acres open to oil and gas leasing resulting in the greatest number of adverse impacts to vegetation.

The Bookcliffs, Canyon Rim, Cisco White-tailed Prairie Dog Complex, Labyrinth Canyon, Westwater Canyon, and Wilson Arch areas would be managed with the same requirements as the Proposed Plan. Under this alternative, the Colorado River Corridor would experience similar impacts to vegetation as those described under the Proposed Plan with the exception that it would have greater potential for surface disturbance from the area being open to minerals material disposal and geophysical exploration for oil and gas

Alternative D would manage the White Wash area under the prescriptions of the White Wash Sand Dunes Open OHV Area within the proposed Dee Pass SRMA. Competitive motorized events would be allowed; however, since the open use is in a designated area that lacks vegetation, it is not anticipated that there would be any adverse impacts to vegetation. The area does include some cottonwoods and rocky areas but would not be affected by motorized use.

4.3.17.11.2 Wild and Scenic Rivers

Under Alternative B and the Proposed Plan for Wild and Scenic Rivers, the stipulations that would be applied to oil and gas leasing and other surface-disturbing activities within suitable river segments were developed based on other resource values such as scenery, wildlife and fishery, riparian, and recreation. Any segments identified as suitable are either within areas either closed to oil and gas leasing or with a NSO stipulation under Alternative B and the Proposed Plan resulting in increased protection for riparian vegetation.

Under Alternatives A and D, no areas would be determined as suitable, thereby offering no protections to vegetation because of WSR designations.

Under Alternative B 287.5 river miles would be determined as suitable. This would protect riparian vegetation within these areas because they would be managed as NSO areas.

Under the Proposed Plan 112.3 river miles (9 river segments) would be determined as suitable and would be managed as NSO areas. About 15 river miles (Westwater Canyon of the Colorado River) would be determined as suitable and would be managed as closed to mineral leasing, as it is within the Westwater WSA.

4.3.17.11.3 Wilderness Study Areas and Wilderness Areas

Under all alternatives, there is no surface disturbance, permanent new development, or rights-of-way allowed in WSAs or in Wilderness Areas. Additionally, these lands are closed to oil and gas leasing which would provide protection from surface-disturbing impacts to vegetation.

Approximately 348,815 acres of the MPA are included as WSAs for each of the alternatives. WSAs include Behind the Rocks; Black Ridge and Lost Spring Canyon; Desolation Canyon, Floy Canyon, Flume Canyon, Mill Creek Canyon, Negro Bill Canyon, and Spruce Canyon; and Westwater Canyon. Black Ridge is a 5,200 acre designated wilderness area

Alternative B offers the most protection to vegetation by closing all WSAs and Wilderness Area to OHV use while Alternative A offers the least protection by limiting motorized use to inventoried areas.

Additionally, all WSAs and Wilderness Areas would be designated as VRM Class I, which would preclude surface disturbance thereby offering beneficial protections to vegetation.

4.3.17.12 Impacts of Special Status Species Decisions on Vegetation Resources

Under all of the alternatives, compliance with the Endangered Species Act (ESA) requires avoiding and/or minimizing surface-disturbing activities in Threatened and Endangered species habitat. This would indirectly benefit vegetation by limiting or restricting activities that would disturb vegetation in these habitats. Managing sage-grouse as a Sensitive species, the BLM's National Sage-grouse Habitat Conservation Strategy, the Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats, and the Gunnison Sage-grouse Range-wide Conservation Plan would be implemented in suitable habitat in the MPA, including developing and implementing sage-grouse habitat restoration, conserving sage-grouse habitat, and identifying important habitat. Compliance with these plans would have similar beneficial impacts on vegetation resources by providing long-term, beneficial protection for sagebrush and perennial grassland vegetation types in the MPA.

There would be no ground-disturbing activities allowed within a 1.0-mile radius of known bald eagle nests and within a 0.5 mile radius of Mexican spotted owl (MSO) nests, which would provide long-term protection to conifer and mountain shrub vegetation in those buffer zones. MSO Protected Activity Centers (PACs) would be protected as outlined in the MSO Recovery Plan (USFWS 1995), and cooperative agreements would be established with other agencies and entities to inventory and monitor existing potential habitat and annually schedule assessment plans of MSO habitat to determine quality of habitat and presence of species. These actions

would have long-term, beneficial protection-related impacts on vegetation resources because habitat protection would also protect vegetation resources.

In Jones Cycladenia and suitable habitat, site inventories for all surface-disturbing projects (including prescribed burns) would be required, and road construction, land disposal, and ROW corridors in suitable *Cycladenia* habitat would be avoided. The use of chemical treatments, herbicides, and habitat manipulations in this habitat would also be restricted, which would have long-term beneficial impacts on vegetation resources.

Within endangered Colorado River fish habitat, there would be no surface-disturbing activities within the 100-year floodplain of the Colorado River, Green River, and at the confluence of the Dolores and Colorado Rivers, which would have long-term, beneficial impacts on riparian and wetland vegetation resources in those buffer zones. In addition, the riparian habitat utilized by southwestern willow flycatcher and yellow-billed cuckoo is governed by a controlled surface use stipulation excluding surface-disturbing activities, benefiting riparian and woodland vegetation resources.

4.3.17.12.1 Greater Sage-Grouse

4.3.17.12.1.1 Alternative A

Under Alternative A, no management actions are specified for protection of sage-grouse habitat, except as discussed under actions common to all alternatives above.

4.3.17.12.1.2 Alternative B

The special status species management decisions for Alternative B would identify and manage more greater sage-grouse habitat acreage (12,850 acres) and this would benefit vegetation more than the other alternatives. This alternative would require that any surface occupancy that could result in the loss or fragmentation of this habitat be avoided or minimized. If surface occupancy cannot be avoided, sagebrush habitat would be reclaimed at a ratio of 2:1. This would beneficially protect approximately 12,850 acres of sagebrush-steppe habitat in the long term from surface disturbance and occupancy. Also under Alternative B, in lek habitat (a 2-mile radius around an active strutting ground), there would be no surface-disturbing activities from March 1 to May 15, and no aboveground facilities would be allowed within a 2-mile buffer year-round. In nesting and brood-rearing habitat there would be no surface-disturbing activities from March 15 to July 15. In winter habitat there would be no surface-disturbing activities allowed from November 15 to March 14 on 12,850 acres. These restrictions would mitigate the adverse impacts of surface-disturbing activities in lek, winter, and nesting and brood-rearing habitat, with beneficial impacts on the vegetation resources within these areas.

4.3.17.12.1.3 Alternative D and the Proposed Plan

Alternative D and the Proposed Plan would identify 3,068 acres and 1,986 acres, respectively, of sagebrush habitat to be managed for sage-grouse. Similarly, the alternatives would avoid or minimize the loss or fragmentation of this habitat. If surface disturbance cannot be avoided, these alternatives would reclaim sagebrush habitat at a ratio of 1:1. Under all three action alternatives greater sage-grouse habitat would then be subject to controlled surface use and timing limitation

stipulations with subsequent reduced risks of surface disturbance to vegetation resources in 1,986 to 12,850 acres of sagebrush.

The same timing restrictions applied to greater sage-grouse habitat discussed under Alternative B would also apply to Alternative D and the Proposed Plan with similar beneficial impacts on vegetation resources; , the lek habitat radius would be 2.0 mile for the Proposed Plan, and 0.25 mile for Alternative D. The decrease in acreage excluded from surface disturbance and surface occupancy in and around sage-grouse leks would increase the risk of adverse impacts on vegetation resources. Under the Proposed Plan, 9,782 more acres (76%) of sage-grouse habitat, and under Alternative D, 1,082 more acres (35%) of greater sage-grouse habitat would be available for surface-disturbing activities and/or surface occupancy, compared to Alternative B. Compared to Alternative A, the action alternatives would be more beneficial because specific management prescriptions would be applied to protect greater sage-grouse habitat.

4.3.17.12.2 Gunnison Sage-Grouse

Under Alternative B, 246,107 acres of pre-settlement Gunnison sage-grouse habitat would be subject to controlled surface use and timing stipulations if Gunnison sage-grouse are present. This area is 29% larger than the Proposed Plan (175,727 acres) and 83% larger than Alternative D (41,620 acres).

All of the action alternatives would prohibit surface-disturbing activities from March 20 to May 15 in lek habitat, and construction of fences would be prohibited or limited year-round. Alternative B and the Proposed Plan would provide for the highest degree of vegetation resource protection, with a 2-mile radius around active strutting grounds (within sagebrush and perennial grasses), which would have beneficial impacts as discussed above for greater sage-grouse. The impacts of Alternative D would also have habitat protection zones similar to greater sage-grouse, with impacts to vegetation resources as discussed above, with a similar comparison to Alternative A.

4.3.17.12.3 White-tailed Prairie Dog

Under Alternative B, 117,481 acres of white-tailed prairie dog habitat within the Cisco White-tailed Prairie Dog ACEC would be managed to protect the species, which would have long-term, beneficial impacts to desert shrub vegetation by designating the area with an NSO leasing stipulation. An additional 82,024 acres of habitat outside of the ACEC would be managed as controlled surface use allowing no surface-disturbing activities within 1300 feet of prairie dog colonies. Compared to Alternative A, this alternative would be more beneficial to vegetation resources because surface disturbances to vegetation would be restricted within the NSO and CSU areas.

The Proposed Plan and Alternative D would manage 117,481 acres (41% less) of habitat and 31,186 acres (84% less) of habitat (respectively) than Alternative B, with controlled use leasing stipulations within 660 feet of active prairie dog colonies. The impacts to vegetation resources would be beneficial in the long term near active colonies because surface disturbances would be prohibited; however, outside of these active areas, surface disturbances would be permitted, which would have long-term, adverse impacts to the resource. Compared to Alternative A, these alternatives would have similar impacts because the level of permitted surface disturbances to vegetation would be similar.

4.3.17.12.4 Gunnison Prairie Dog Habitat

Under Alternative B and the Proposed Plan, 10,700 acres of Gunnison prairie dog habitat would be managed under controlled use leasing stipulations, which would prohibit surface-disturbing activities within 1,300 feet of these colonies for Alternative B and 660 feet of prairie dog colonies for the Proposed Plan. The impacts to vegetation would be similar to those discussed above for the Proposed Plan and Alternative D for white-tailed prairie dogs because the habitat would be open to minerals-related disturbances except for the zones around active prairie dog colonies. The impacts to vegetation would be similar to those for the white-tailed prairie dog habitat and for the same reasons.

4.3.17.13 Impacts of Travel Management Decisions on Vegetation Resources

A recent United States Geologic Survey (USGS 2007) synopsis of relevant literature summarizes numerous studies of the impacts of OHV use on soil and water resources. The USGS concludes that the research reviewed found important effects of OHV activities on soil and water functioning including soil compaction, diminished water infiltration, diminished presence and impaired function of soil stabilizers (biotic and abiotic crusts, desert pavement), and accelerated erosion rates. Compacted soil inhibits infiltration of precipitation. In turn, soil moisture available to vegetation is diminished, volumes and velocities of precipitation runoff increase, and soil erosion accelerates, leading to the formation of gullies and other surface changes. Additionally, soil compaction may inhibit root growth among plants, in which case organic matter, litter, soil fertility, and vegetative cover are diminished, further exacerbating the soil's susceptibility to erosion. Where biotic and chemical crusts or other soil stabilizers are disturbed or destroyed, soil erosion from water and wind may increase beyond rates found in undisturbed sites with similar soils and conditions; nutrient-cycling processes also are likely to be disrupted, potentially leading to declines in soil fertility. The USGS study is summarized in Appendix G.

4.3.17.13.1 Alternative A

As discussed in Section 4.3.17.8 Recreation, Alternative A would have direct and indirect, short-term and long-term, adverse impacts on all vegetation types from cross-country OHV use within the 620,212 acres (34% of the MPA) designated as open to OHV use (see Table 4.142 below). Short-term, direct impacts would include fugitive dust production that would adversely inhibit vegetation productivity. Long-term, direct impacts would include loss of vegetation and long-term loss of vegetation productivity in disturbed areas from trampling and crushing. Indirect, adverse impacts to vegetation would result from unvegetated or sparsely vegetated, exposed, disturbed soils that would increase the opportunities for the establishment and spread of non-native, exotic weed species.

Table 4.142. OHV Area Designations for All Alternatives

Designation	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Total Closed Acres	5,062	347,424	339,298	57,351
Total Open Acres	620,212	0	1,866	3,064
Total Limited to Designated Routes Acres	1,196,920	1,475,074	1,481,334	1,762,083

4.3.17.13.2 ALTERNATIVES B, D, AND THE PROPOSED PLAN

Under the action alternatives, travel within the MPA would be confined to designated routes for motorized (scenic and OHV) and non-motorized/mechanized (mountain bike) use. In addition, trails would be provided for non-mechanized (hiking, equestrian, backpacking) travel. The Proposed Plan and Alternative D would permit open OHV use only in the focus area within the White Wash Sand Dunes, but this area is sparsely vegetated and would have negligible impacts on vegetation resources within the 1,866 acres proposed under the Proposed Plan or the 3,064 acres proposed under Alternative D. The impacts of travel along designated routes would have negligible impacts on vegetation because past and current use has already impacted these areas. Compared to Alternative A, these alternatives would be more beneficial to vegetation resources because the impacts from the open OHV use areas would be greatly reduced, and those areas impacted in the past could recover.

4.3.17.14 IMPACTS OF VEGETATION DECISIONS ON VEGETATION RESOURCES

Under management common to all action alternatives, consideration would be given to the preservation and improvement of sagebrush plant communities during the implementation of vegetation and land treatments, and during wildland fire suppression planning. In accordance with sagebrush conservation guidance, up to 257,809 acres of sagebrush and scrub-steppe habitat would be reclaimed and restored. Riparian vegetation communities would be managed to restore native species and to reduce invasive, non-native species. All of these actions would have long-term, protection- and preservation-related beneficial impacts on vegetation resources.

4.3.17.14.1 ALTERNATIVE A

There are no specific vegetation management decisions under this alternative.

4.3.17.14.2 ALTERNATIVE B

Under Alternative B, the loss of sagebrush-steppe habitat from BLM initiated or authorized actions would be avoided or minimized, and loss of sagebrush-steppe habitat essential to wildlife would be reclaimed at a ratio of 2:1. This would have long-term, beneficial impacts on these vegetation communities because reclamation would expand the range of these communities. This alternative would have more beneficial impacts on sagebrush-steppe vegetation than Alternative A because Alternative A does not propose to reclaim sagebrush-steppe vegetation communities.

4.3.17.14.3 ALTERNATIVE D AND THE PROPOSED PLAN

Under Alternative D and the Proposed Plan, the impacts of vegetation management decisions on vegetation resources would be similar to those discussed under Alternative B, but to a lesser degree, because the loss of sagebrush-steppe habitat essential to wildlife would be reclaimed at a ratio of 1:1 instead of 2:1. Therefore, 50% fewer acres of sagebrush-steppe habitat would be reclaimed when compared to Alternative B. Accordingly, these alternatives would have fewer beneficial impacts on vegetation resources than Alternative B, but compared to Alternative A the impacts would be more beneficial for reasons as discussed under Alternative B.

4.3.17.15 Impacts of Wildlife and Fisheries Decisions on Vegetation Resources

4.3.17.15.1 Impacts Common To All Alternatives

Under all alternatives, surface-disturbance activities, vegetation-altering projects, and broad-scale use of pesticides in identified occupied migratory bird habitat would be avoided during nesting season (May 1 through July 30). Under all of the alternatives, continued implementation and modification of three Habitat Management Plans (HMPs) would take place. Sagebrush habitat improvements would occur under the Hatch Point HMP providing protection for sagebrush vegetation species in these areas. Implementation of the Dolores Triangle HMP would result in habitat improvements for riparian and native and naturalized fish habitat thus benefiting riparian vegetation. Additionally, 278,000 acres of habitat on land administered by the BLM would be maintained in good condition and habitat would be improved where needed under the Potash-Confluence HMP thereby benefiting varied vegetation types. These actions would have long-term, beneficial impacts on native vegetation in lowland riparian, wetland, and upland communities in the MPA.

4.3.17.15.2 Impacts Common To All Action Alternatives (B, D, and the Proposed Plan)

In the Cisco Desert HMP the percent of browse and forb species would be increased on 6,375 acres of perennial grass vegetation, and livestock grazing activities would be excluded from May 15 through June 20 to reduce disturbance and improve pronghorn habitat. In the Hatch Point HMP a total of 69 acres would be seeded with a combination of forbs, grasses, and shrubs, and a rest/rotation grazing plan would be recommended to improve pronghorn habitat. Improvement of 42,500 acres of crucial bighorn sheep habitat by limiting major human disturbance would take place in the Potash-Confluence HMP. In addition, any future proposal for a change in kind of livestock from cattle to sheep in Rocky Mountain bighorn habitat would be denied. These changes would help mitigate the adverse impacts of surface-disturbing activities on vegetation resources critical to pronghorn, desert bighorn sheep, and Rocky Mountain bighorn sheep survival. For additional information on vegetation types included in these habitats, including the acreages, please refer to Section 4.3.19, Wildlife and Fisheries.

4.3.17.15.3 Alternative A

Under Alternative A, surface-disturbance restrictions would be in place for wildlife habitat only during parts of the year. Specifically, exclusions for grazing would be in place during May and June to protect and improve pronghorn habitat. Protections for bighorn sheep and Rocky Mountain bighorn sheep habitat including reductions in grazing and human disturbance would be beneficial to vegetation particularly in the piñon-juniper vegetation type. Compared to Alternative B, the Proposed Plan, and Alternative D, Alternative A would have the least amount of wildlife habitat subject to special wildlife conditions.

4.3.17.15.4 Alternative B

Under Alternative B, management actions in riparian areas would be implemented with the goal of ensuring a multi-aged community, allowing for retention of snags and diseased trees, and providing multiple layers of vegetation within 10 feet of the ground. Additionally, restrictions concerning surface occupancy and surface-disturbing activities would be established for wildlife

habitat during parts of the year, dispersed camping in riparian areas would be restricted, prescribed fire treatments would be judiciously applied to improve vegetation productivity, and grazing season of use would be modified to improve wildlife forage productivity. Current pronghorn habitat (822,001 acres) within Cisco Desert and Hatch Point (the La Sal Wildlife Management Units) would be protected by applying a timing limitation stipulation that would preclude surface-disturbing activities from May 1 to June 15. Spring grazing would be removed on 188,975 acres of allotments to protect crucial pronghorn habitat and encourage forb production. This would likely reduce grazing impacts to the desert shrub and piñon-juniper vegetation cover types. An NSO stipulation for oil and gas leasing and precluding other surface-disturbing activities would protect desert bighorn sheep lambing, rutting, and migration habitat (130,419 acres) and the desert shrub vegetation type associated with this habitat. Under Alternative B, management of 458,242 acres of habitat for Rocky Mountain bighorn sheep would include improving or maintaining vegetative conditions and the ecological condition of rangelands in the sagebrush and perennial grass vegetation types. All of these actions would have long-term, beneficial impacts on vegetation by 1) reducing and/or minimizing surface disturbances to vegetation, and 2) managing for achieving proper functioning conditions in wildlife habitat and in riparian areas. Compared to Alternative A, this alternative would have more beneficial impacts to vegetation resources because more area would be managed for protection of the resource.

4.3.17.15.5 PROPOSED PLAN

Under the Proposed Plan, the impacts of wildlife and fisheries management decisions on vegetation resources would be similar to those discussed under Alternative B, but to lesser degree because grazing restrictions would be applied to a smaller area (293,741 acres of crucial pronghorn habitat to encourage forb production) and fewer acres of protection for desert bighorn sheep (101,897 acres) and Rocky Mountain bighorn sheep (310,726 acres), Additionally, restrictions concerning surface occupancy and surface-disturbing activities would be established for wildlife habitat during parts of the year. Under this alternative, there would be 42% more acres of recognized Rocky Mountain bighorn sheep habitat than under Alternative A, benefiting sagebrush and perennial grass vegetation types, and 77% more acres of protected deer and/or elk habitat than under Alternative A, benefiting all vegetation types discussed in this section. Because of these differences, management decision under the Proposed Plan would be less likely to adversely affect vegetation resources in wildlife protection areas of the MPA than those under Alternative A.

4.3.17.15.6 ALTERNATIVE D

Under Alternative D, the impacts of wildlife and fisheries management decisions on vegetation resources would be similar to the Proposed Plan, except that no season of use adjustments to protect pronghorn habitat would be made, pronghorn fawning habitat protection would encompass 78,477 acres, desert bighorn sheep protection would include 46,319 acres, and protection of Rocky Mountain bighorn sheep habitat would include 194,560 acres. When compared to Alternative A, this alternative would have more beneficial impacts to vegetation resources because management actions common to all action alternatives would ensure greater protection and enhancement of vegetation resources than Alternative A.

4.3.17.16 IMPACTS OF WOODLANDS DECISIONS ON VEGETATION RESOURCES

Short-term, adverse, direct impacts of woodland harvest would include trampling of understory vegetation from vehicles accessing harvesting areas and during woodland harvesting and removal. Long-term, indirect impacts would include the potential introduction of weedy, non-native species into areas with surface disturbances caused by woodland harvesting and removal, and related vehicle use. Table 4.143 shows the acreages open and closed to woodland harvest.

Table 4.143. Number of Acres in the MPA Open and Closed to Woodland Harvesting

Zone	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Total Closed	601,146	827,063	646,694	601,146
Total Open (with comparison to Alternative A)	1,217,635	991,198 (-19%)	1,172,436 (-4%)	1,217,635 (0%)
Actual Woodland Coverage (piñon-juniper) in Open Areas	437,216 (35% of Open Area)	329,895 (31% of Open Area)	411,905 (34% of Open Area)	437,216 (35% of Open Area)

The potential short-term and long-term, direct and indirect, adverse impacts to vegetation resources would be similar for all of the alternatives because all open harvesting areas with woodland coverage would be similarly impacted by vehicles accessing harvesting sites and by trampling and other surface disturbances related to this activity. Under Alternative B, the impacts would be to a lesser degree because a smaller total area (107,321 fewer acres) would be open to harvesting-related surface disturbances.

4.3.17.17 SUMMARY OF IMPACTS

Table 2.2 (of Chapter 2) summarizes the impacts of the various alternatives and their program actions on vegetation.

4.3.18 VISUAL RESOURCES

This section discusses impacts to visual resources from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning visual resources are described in Chapter 3.

The BLM's VRM class objectives were used in analyzing impacts on visual resources. These objectives provide a baseline for determining how much a proposed management action would affect visual resources/scenic quality, as well as determining the level of disturbance an area can support while still meeting visual resource objectives.

The following BLM VRM class objectives and descriptions are summarized from BLM Manual Handbook H-8431-1 (1986b).

<u>VRM Class I</u>

The objective of Class I is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited

management activities. The level of change to the characteristic landscape should be very low and should not attract attention.

VRM Class II

The objective of this class is to retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

VRM Class III

The Class III objective is to partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Management activities may attract the attention of the casual observer, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

VRM Class IV

The objective of Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

In addition, since the current RMP did not identify visual management objectives for the MPA during the last RMP process (except for the Canyon Rims area) the VRM inventory will serve as the baseline (i.e., Alternative A) by which impacts to visual resources are analyzed in this EIS. If Alternative A were to be adopted, these VRM inventory classes would become management classes. The acres designated through the VRM inventory more accurately represent current scenic quality and visual sensitivity within the MPA.

The criteria for analysis was the number of acres proposed for designation under the Visual Resource Management (VRM) classes, and the level of impacts and surface disturbances permitted under each class. At the broad-scale level, analyses of the impacts on visual resources are discussed in terms of the number of acres in each VRM class because the proposed RMP management actions would be required to comply with (i.e., not exceed) the designated VRM class objectives within the MPA. For the fine-scale analysis, potential impacts from mineral development are discussed in terms of the number of acres of surface disturbance predicted within selected MPA visually sensitive areas.

The assumptions for analyzing the impacts to visual resources in the MPA are 1) that the greater the size and/or severity of surface disturbance and/or degree of air quality degradation, the greater the impact there would be to scenic quality, and 2) that all planning area resources with management actions that permit surface disturbances or degrade air quality would have adverse impacts on visual resources to some degree. Surface disturbances would introduce new visual elements onto the landscape or intensify existing visual elements, altering the line, form, color, and/or texture that characterize the existing landscape. Changes in air quality, either from smoke,

dust, haze, or other pollutants could potentially reduce or degrade scenic quality by obscuring distant views in the short-term and long-term. It should be noted, however, that the Clean Air Act sets limits on the allowable degradation of visibility within the adjacent national parks. Arches and Canyonlands National Parks have been designated as areas requiring the highest level of visibility (Prevention of Significant Deterioration [PSD] Class I), so smoke or haze that originates within the MPA cannot exceed the allowable NPS PSD I scenic quality standards for air pollutants.

4.3.18.1 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Actions that would designate utility corridors as VRM Class III within inventoried VRM Class II areas would have long-term, adverse impacts on visual resources within the MPA. These areas were inventoried as VRM Class II because of their high scenic quality and managing them under less-stringent VRM class objectives would allow surface-disturbance-related impacts that would eventually decrease the long-term visual aesthetics of the area.

Closed or No Surface Occupancy stipulations would be applied to all VRM Class I areas (see Tables VIS I and VIS II below), and VRM Class II-designated areas would have Controlled Surface Use leasing stipulations applied. These specific management actions would preserve and/or protect visual resources to the extent allowable under the VRM class objectives, with long-term, beneficial impacts on scenic quality in these areas.

4.3.18.2 Alternatives Impacts

Table 4.144 shows the proposed acres designated as each VRM class for all alternatives. The analysis logically assumes that areas designated as VRM Class III and VRM Class IV objectives would permit more surface-disturbing impacts and potentially have greater adverse impacts on visual resources and scenic quality than those areas designated as VRM Class I and II objectives. Table 4.145 illustrates the increase and decrease in VRM class acreages (as a percentage) within the MPA, compared to Alternative A. Note that Alternative A acreages are those designated through the VRM inventory process; Alternative B, Proposed Plan, and Alternative D are VRM Class acreages.

Table 4.144. VRM Class Acreages by Alternative

VRM Class	Alternative A VRM Inventory	Alternative B Proposed Management Class	PROPOSED PLAN Proposed Management Class	Alternative D Proposed Management Class
Class II	349,110	453,462	358,911	349,617
Class II	401,015	373,647	365,566	245,773
Class III	800,782	784,246	829,158	956,724
Class IV	271,356	210,532	268,133	269,641
Total	**1,822,263[1]**	**1,821,887**	**1,821,768**	**1,821,755**

Source: BLM GIS data 2003 and 2006.

[1]Acreage figures vary by alternative due to variances in GIS shapefiles.

Table 4.145. MPA VRM Acreage Designations (by percent)

VRM Class	Alternative A % of MPA	Alternative B	PROPOSED PLAN	Alternative D
Class I	19	25 (6)[1]	20 (1)	19 (0)
Class II	22	20 (-2)	20 (-2)	14 (-8)
Class III	44	43 (-1)	45 (1)	52 (8)
Class IV	15	12 (-3)	15 (0)	15(0)

[1]The numbers in parentheses represent the percent increase or decrease, compared to Alternative A.

4.3.18.2.1 ALTERNATIVE A

Under Alternative A, the 2003 visual inventory determined that 349,110 acres would be assigned VRM Class I scenic values, 401,015 acres would be assigned VRM Class II scenic values, and 1,072,138 acres would be assigned scenic values of VRM Class III and VRM Class IV. The impacts on visual resources under this alternative would be negligible because Alternative A would manage scenic quality as determined by the MPA VRM inventory. An acreage comparison of Alternative A with proposed VRM acreages under each action alternative is shown below in Table 4.146. Conversely, areas that were inventoried at high levels of scenic quality and were managed under lower VRM Class objectives would, in the long-term, assume the characteristics of lower VRM Classes because surface disturbances and visual intrusions would be allowed to degrade visual/scenic quality in those areas. So, the long-term shifts in scenic quality within the MPA would be based on the proposed VRM Classes.

Table 4.146. Acreage Comparison of Action Alternatives' VRM Management Classes to Alternative A VRM Inventory Classes

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Class I	349,110	+104,352	+9,801	+507
Class II	401,015	-27,368	-35,449	-155,242
Class III	800,782	-16,536	+28,376	+155,942
Class IV	271,356	-60,824	-3,223	-1,715

4.3.18.2.2 ALTERNATIVE B

More acres (6%) within the MPA would be designated as VRM Class I under this alternative than under Alternative A, which would have more direct, long-term, beneficial impacts because more acreage would be protected at the highest degree of visual resource protection than indicated by the VRM inventory. Thus, this alternative would be the most protective of visual resources.

Under Alternative B, 266,485 acres of non-WSA lands with wilderness characteristics would be managed as VRM Class II. This would preclude surface-disturbing activities that do not retain the characteristic landscape, and could impact all programs and activities.

4.3.18.2.3 PROPOSED PLAN

In the long-term, the designation of VRM classes under this alternative would result in more beneficial impacts to visual resources than Alternative A because more acres (1%) within the MPA would be managed to preserve pristine and/or relatively undeveloped high-quality scenic landscapes than indicated by the VRM inventory. However, more acres would be designated as Class VRM III and IV (1%), with long-term, adverse impacts on those areas inventoried as having high scenic quality, but managed at lower levels of scenic quality. The Proposed Plan would, in the long-term, permit areas inventoried as having higher scenic quality to develop the characteristics of lower scenic quality areas because of permitted surface disturbances and visual intrusions, would be less protective of visual resources than Alternatives A or B.

Under Proposed Plan, 47,761 acres of non-WSA lands with wilderness characteristics would be managed as VRM Class II. This would preclude surface-disturbing activities that do not retain the characteristic landscape, and could impact all programs and activities.

4.3.18.2.4 ALTERNATIVE D

Compared to the Alternative A VRM inventory, Alternative D would have more long-term, adverse impacts on visual resources because more acres (8%) would be managed at lower levels of scenic quality protection (VRM Class III and IV) than indicated by the VRM inventory. This would subject a higher percentage of the MPA to surface-disturbing activities, and permit, in the long-term, areas with higher scenic quality to assume the characteristics of lower VRM Classes (III and IV). For this reason, Alternative D would manage the MPA with the least protection of visual resources.

4.3.18.3 VISUALLY SENSITIVE AREAS

Scenic and visually sensitive areas were selected within the MPA for analyses of impacts on visual resources. These visual analysis areas are Canyon Rims, Onion Creek, Fisher Towers, Richardson Amphitheater, the viewshed along the Colorado Riverway/Highway 128 from Dewey Bridge to the intersection of Highway 191, and public lands immediately adjoining Arches National Park. The analytical methodology of determining the impacts to these areas was a comparison of the VRM inventory with MPA management actions.

All of the visually sensitive areas discussed below are within either the Big Flat-Hatch Point or Eastern Paradox RFD Areas. The RFD predicted number of oil and gas wells for the 15-year life of the RMP and related surface disturbances are tabulated below in Table 4.147.

Table 4.147. The 15-year Oil and Gas Reasonably Foreseeable Development within the Big Flat-Hatch Point and Eastern Paradox RFD Areas

RFD Area	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Big Flat-Hatch Point				
Number of wells predicted	46	19	34	44
15-year average surface disturbance (acres)	697	292	508	665

Table 4.147. The 15-year Oil and Gas Reasonably Foreseeable Development within the Big Flat-Hatch Point and Eastern Paradox RFD Areas

RFD Area	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Eastern Paradox				
Number of wells predicted	34	21	28	32
15-year average surface disturbance (acres)	512	320	423	486

Source: BLM 2005f (RFD Scenario for the MPA)

4.3.18.3.1 Canyon Rims

4.3.18.3.1.1 Alternative A

Under Alternative A, the Canyon Rims SRMA was visually inventoried and is currently managed as VRM Class II (approximately 33,583 acres) along the western rim of the SRMA and the remainder of the area under VRM Class III objectives (67,943 acres). The western rim viewshed includes views along the Hatch Point escarpment that defines the boundary of the MPA, views into Lockhart Basin within the Monticello Field Office planning area, and views of the Island in the Sky and Needles Districts of Canyonlands National Park.

Management actions under this alternative would have visual resource-related impacts because the SRMA is open to minerals development with Controlled Surface Use leasing stipulations. If oil and gas exploration and/or other mineral resource development projects were conducted within the Canyon Rims SRMA, then areas managed under VRM Class III objectives would permit moderate short-term and long-term surface disturbances. The SRMA is a portion of the Big Flat-Hatch Point RFD area, which is projected to have an estimated 46 oil and natural gas exploration wells drilled resulting in an estimated 697 acres of surface disturbance during the 15-year life of the RMP.

Areas managed under VRM Class II objectives would require mitigation to reduce surface disturbances to a level that would not attract the attention of the casual viewer. Surface disturbance impacts in Canyon Rims, when viewed from Lockhart Basin within the Monticello Field Office planning area, would not likely be visible because the angle of view from the basin and the variation in elevation between the canyon rim and the basin would block views of surface disturbances. Surface disturbances in Canyon Rims might be visible from Canyonlands National Park, but site-specific visual analyses would be required to determine the level of impacts to visual resources. The impacts of minerals-related surface-disturbance from fugitive dust during well pad construction, access road construction, and minerals-related vehicle traffic on the Canyonlands National Park viewshed could adversely degrade visual quality, but dust-abatement mitigation would likely reduce this potential impact to a minor level, as required by the PSD standards mentioned in the introduction.

4.3.18.3.1.2 Alternative B

Under Alternative B, no acres within the Canyon Rims SRMA would be designated as VRM Class I, 40,450 acres would be designated as VRM Class II and 61,081 acres would be designated as VRM Class III. This is 6,867 more acres (7%) of VRM Class II than under Alternative A. The RFD for oil and gas development projects that 19 wells would be drilled during the 15-year life of the RMP in the Big Flat-Hatch Point RFD area, with approximately 292 acres of associated surface disturbance. The impacts to visual resources would be less than under Alternative A because a smaller area (approximately 41% of the area under Alternative A) would be subject to surface disturbances, and because more area would be protected under VRM Class II objectives.

4.3.18.3.1.3 Proposed Plan

Under this alternative, 33,515 acres within the Canyons Rims SRMA would be designated as Class VRM II (68 fewer acres than Alternative A) and 68,016 acres as VRM Class III. There would be no lands designated as VRM I. The Proposed Plan would have less predicted surface disturbance than Alternative A, as 34 wells (508 acres of surface disturbance) would be developed under this alternative during the life of the RMP in comparison to 46 wells (697 acres of surface disturbance) under Alternative A. This is approximately 73% of the area predicted to be disturbed under Alternative A. Therefore, the potential impacts to scenic values under this alternative would be greater than Alternative B but less than Alternative A.

4.3.18.3.1.4 Alternative D

Alternative D would have the same reduction in acreage from VRM Class II to VRM Class III (with the same long-term impacts to scenic quality) and a predicted level of oil and gas-related surface disturbances very similar to that described for Alternative A (95% of the area under Alternative A). Consequently, this alternative would have a similar level of potential impacts to visual resources as Alternative A.

4.3.18.3.2 Onion Creek

4.3.18.3.2.1 Alternative A

Under Alternative A, the Onion Creek trail system has a VRM Class II inventory classification. The western portion of the creek and trail lies within the Richardson Amphitheater. Upstream, the creek narrows into a steep-walled, scenic canyon. The area is a popular non-mechanized recreation destination for equestrian users, as well as a popular destination for mountain bike and motorized users. Surface disturbance impacts to this area include RFD predictions of 34 natural gas and/or oil wells drilled during the 15-year life of the RMP within the Eastern Paradox RFD area, with short-term and long-term degradation of visual/scenic quality associated with surface disturbances of approximately 512 acres from well pads, access roads, and infrastructure. (The Onion Creek area is a small portion of the Eastern Paradox RFD area). The locations of well sites are presently unknown; however, the VRM Class II objectives would require mitigation to reduce surface disturbances to a level that would not attract the attention of the casual viewer, so the impacts to visual resources would be minor.

4.3.18.3.2.2 Alternatives B

Under Alternative B Onion Creek, as part of the Richardson Amphitheater Focus Area for non-mechanized recreation, would be established, within the proposed Colorado Riverway SRMA. The Onion Creek area would be designated as VRM Classes I and II; impacts to visual resources would be less than those discussed under Alternative A because the VRM Class I affords a higher level of protection. The RFD for oil and gas would be less than under Alternative A: 21 wells under Alternative B, with surface disturbances totaling approximately 320 acres (62% of Alternative A) over the 15-year life of the RMP. Visual resource/scenic quality degradation would not occur because the VRM Class I and II designation for this area would be the more restrictive than the Alternative A/VRM inventory class designation for the area. Under Alternative B, designation of some portions of Onion Creek as VRM Class I would provide stronger levels of protection for visual resources than in any of the other alternatives.

4.3.18.3.2.3 Proposed Plan

Under the Proposed Plan, Onion Creek would be designated as VRM Class II. Impacts to visual resources would be similar to those discussed under Alternative A. The RFD for oil and gas would be less than under Alternative A, 28 wells in the Proposed Plan compared to 34 wells in Alternative A, with surface disturbances totally approximately 423 acres for the Proposed Plan (83% of Alternative A). Visual resource/scenic quality degradation would not occur because the VRM Class II designation for this area would be the same as the Alternative A/VRM inventory class designation for the area.

4.3.18.3.2.4 Alternative D

Alternative D would have impacts similar to Alternative A because the level of RFD for oil and gas drilling in the Eastern Paradox RFD area would be very similar. The area would be designated as VRM Class II Management objectives (the same as Alternative B and the Proposed Plan) with the same level of impacts as discussed under B and the Proposed Plan. As discussed under Alternative B and the Proposed Plan, scenic quality degradation would not occur because the VRM Class II designation and objective would remain the same as the Alternative A/VRM inventory.

4.3.18.3.3 Richardson Amphitheater/Fisher Towers

4.3.18.3.3.1 Alternative A

Under Alternative A, the Richardson Amphitheater and Fisher Towers areas were visually inventoried as VRM Class II. As discussed above for Onion Creek, the Richardson Amphitheatre is a relatively flat, broad, and open area adjacent to the Colorado Riverway, bounded on its eastern side by scenic red-rock cliffs. The area is a popular hiking destination. Similarly, Fisher Towers is a popular hiking trail (see Section 3.10.1.2.18) that rises out of Fisher Valley and provides unobstructed views of Richardson Amphitheatre to the south, the Colorado Riverway and Arches National Park to the west, and views down into the Onion Creek Canyon from the eastern end of the trail. The RFD predicted level of surface disturbances from oil and gas development would be the same as discussed under Onion Creek because the area also lies within the Eastern Paradox RFD area. Impacts from surface disturbances within the Richardson Amphitheatre would be highly visible from the Fisher Towers trail because of the trail's elevated

point of view. Surface disturbances to the west of the Colorado Riverway and adjacent to Arches National Park would potentially be visible from the trail, but site-specific visual analyses would be required to determine if visual mitigation could reduce visual contrasts to meet VRM class objectives. Minerals-related surface disturbances and fugitive dust production from minerals-related activities could have long-term, adverse impacts to the park viewshed, particular in areas open to minerals leasing adjacent to the park boundary, but site-specific analyses would be required to determine the level of impacts.

4.3.18.3.3.2 Alternatives B, D, and the Proposed Plan

Under Alternative B, the Proposed Plan, and Alternative D, the Colorado Riverway SRMA would be established, with VRM Class II Management objectives (except for areas of VRM Class I in Alternative B). The Richardson Amphitheater and Fisher Towers areas would be designated as recreation focus areas for non-mechanized recreation (hiking, backpacking, and equestrian use) under Alternative B and the Proposed Plan. Under Alternative D, the focus areas would not be established. The potential impacts from oil and gas RFD surface disturbances under these alternatives would be the same as discussed under Alternative A because the level of predicted minerals-related surface disturbances would be the same. Under all of the action alternatives, the impacts to the Richardson Amphitheater/Fisher Towers area from potential scenic quality degradation would be negligible to minor because the Colorado Riverway would continue to be designated as VRM Class II to protect scenic quality, which is the same level of protection as indicated by the Alternative A VRM inventory. Under Alternative B, designation of some portions (approximately 6,700 acres) of the Richardson Amphitheater as VRM Class I would provide stronger levels of protection for visual resources than in any of the other alternatives.

4.3.18.3.4 Highway 128/ Colorado Riverway

4.3.18.3.4.1 Alternative A

As discussed above for the Fisher Towers and Richardson Amphitheater, the Highway 128/Colorado Riverway recreation management area from Dewey Bridge to the intersection with Highway 191 was visually inventoried as VRM Class I (3,968 acres) and VRM Class II (13,761 acres. Visual impacts to the river corridor viewshed under Alternative A would potentially be similar to those discussed for the Richardson Amphitheater and Fisher Towers because the level of RFD predictions for minerals-related surface disturbances and visual intrusions from oil and gas exploration and development would be the same, and the topography of the areas are similar. Minerals-related activities and surface disturbances within the Richardson Amphitheater would likely be visible from the Riverway because of the relatively unobstructed view of the area from the Riverway.

4.3.18.3.4.2 Alternative B

Under Alternative B, the Colorado Riverway SRMA would be established and expanded. The river corridor would be designated as VRM Class I, VRM Class II, and VRM Class III, with initial management guidance provided by the current Colorado Riverway Recreation Management Plan. The impacts of this alternative would be to proportionally increase the areas designated as VRM Classes I, II, and III when compared to the Alternative A VRM inventory for

the area: approximately 15 times more acres (58,950 acres total) would be designated as VRM Class I; two and a half times more acreage (a total of 33,615) designated as VRM Class II. The impacts would be to protect and enhance scenic quality in the long-term because more acreage would be protected for preservation of scenic quality than indicated by the VRM visual inventory for the Riverway. The impacts from minerals development would be less than the impacts discussed under Alternative A because the level of RFD for oil and natural gas development would be less.

4.3.18.3.4.3 Proposed Plan

The impacts on visual resources would be similar to Alternative B, but to a lesser degree, because fewer acres would be designated as VRM Class I and Class II when compared to the VRM inventory for the Riverway. Four times more acres would be designated as VRM Class I (16,639) and five times more acres would be designated as VRM Class II (67,655). In the long-term, the impacts on visual resources would be beneficial because more area would be protected and enhanced than indicated by the Alternative A/VRM inventory classes.

4.3.18.3.4.4 Alternative D

The impacts of this alternative on visual resources within the Riverway would be similar to Alternative B, but also to a lesser degree because fewer acres would be designated as VRM Class I and II when compared to the Alternative A VRM inventory. Under this alternative, two times more area (7,552 acres) would be designated as VRM Class I and three and a half times more area (50,551 acres) would be designated as VRM Class II. The impacts on visual resources would be beneficial in the long-term because, as discussed for the other action alternatives, more area would be protected from scenic quality degradation when compared to the VRM inventory for the area.

4.3.18.3.5 Public Lands Immediately Adjoining Arches National Park

Under all alternatives, the public lands immediately adjoining Arches National Park would be designated as VRM Class II to protect the views from critical key observation points within the park.

4.3.18.4 Summary of Impacts

Table 2.2 of Chapter 2 summarizes the impacts to visual resources in terms of acreages affected for each alternative.

4.3.19 Wildlife and Fisheries

This section discusses impacts to wildlife and fisheries from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning wildlife and fisheries are described in Chapter 3.

The table below summarizes the habitat types utilized by the representative wildlife species found in the MPA. These representative species were chosen for their high public interest, such as deer or elk, or because they represent an important ecological group, such as neotropical birds. The Wildlife and Fisheries section in Chapter 3 (Section 3.20) explains the connection between specific habitat types and associated wildlife in more detail. Most of the quantitative analyses in

this section report impacts by habitat type, since there are too many wildlife species to address each one individually.

Table 4.148. Grouping of Wildlife Species by Habitat Type

Vegetation/ Habitat Type	Wildlife Associations
Aquatic	Amphibians, fish, macro invertebrates
Conifer / Mountain shrub	Mule deer, elk, mountain lion, black bear (primarily in old growth stands), raptors, bobcat, coyote, neotropical birds, upland game birds, reptiles
Desert shrub	Pronghorn, desert bighorn sheep, elk (winter), raptors, neotropical birds, upland game birds, reptiles, mountain lion, bobcat, fox, coyote
Piñon-juniper	Mule deer, elk, pronghorn, mountain lion, neotropical birds, upland game birds, reptiles, bobcat, weasels, raptors
Riparian/ Wetland	Mule deer, elk, mountain lion, neotropical birds, upland game birds, amphibian and fish species, reptiles, fox, coyote, bobcat, river otter, beaver
Sagebrush/ Perennial grass	Mule deer, elk, Rocky Mountain bighorn sheep, mountain lion, neotropical birds, upland game birds, reptiles, pronghorn

The BLM has designated habitat within the MPA for mule deer, elk, pronghorn antelope, Rocky Mountain bighorn sheep, and desert bighorn sheep. Mule deer and/or elk habitats have been combined by the BLM in an attempt to simplify the management of their closely overlapping ranges. With the exception of Alternative A (see below), further discussions and analyses will consider the two species together. Where available and appropriate, BLM-designated habitats for particular species are used rather than vegetation types. The BLM-designated habitats proposed under Alternative B for each species are generally the largest. The Proposed Plan generally recognizes less habitat for each species, and Alternative D the least.

The impacts analyses in this section are divided into impacts common to all alternatives (including Alternative A), impacts common to all action alternatives (Alternatives B, D, and Proposed Plan only), and impacts that vary by specific alternative. For each alternative, the total impacts include those specific to the alternative and those common to all alternatives (and all action alternatives where applicable). Therefore, the actions and impacts described under Alternatives B, D, and Proposed Plan include not only those actions and impacts unique to Alternatives B, D, and Proposed Plan but also those listed and discussed under, Impacts Common to All Alternatives and Impacts Common to All Action Alternatives.

Impacts to wildlife and their habitats will vary between alternatives by size, condition, and quality of those habitats and the degree to which those habitats can support viable populations.

Within habitats designated and managed for specific species, management prescriptions can be implemented that will benefit the target species as well as other wildlife species within the area. Increases in habitat size improve wildlife carrying capacity, thus benefiting wildlife. Within these habitats, management decisions from other resources could adversely impact wildlife

Development activities and human disturbances may alter or eliminate wildlife use, thus affecting the quality of wildlife habitats. By reducing human-related disturbances and conflicts in critical locations and during critical times of the year, the quality of the habitat may be protected and improved.

Surface-disturbing activities and other decisions that affect the biotic conditions of the vegetation and soil also affect wildlife habitats. Biotic conditions affect forage production and quality, vegetative cover, vegetative composition and species diversity. Changes in these biotic conditions affect the condition and quality of wildlife habitats and may alter or eliminate wildlife use. By reducing surface-disturbing activities and maintaining or improving biotic conditions, the condition and quality of the habitat may be protected and improved. The size of managed wildlife habitats, combined with the quality and condition of those habitats, will demonstrate impacts on those species.

Improving or maintaining the size, quality and condition of habitats would be beneficial to target and most non-target species, while decreasing size or degrading the quality or condition of those habitats would adversely impact most wildlife species.

4.3.19.1 Impacts of Resource Management Decisions with Negligible Impacts on Wildlife and Fisheries

Management decisions related to the following resources would have negligible impacts on wildlife resources, and are therefore not included in the analyses below: Air Quality, Cultural Resources, and Paleontological Resources. The impacts of management decisions for these resources would be negligible because maintaining air quality, protecting and inventorying cultural resources, and allowing recreational fossil collection and scientific study of fossil resources would 1) not improve or degrade wildlife and fish habitat or 2) cause the gain or loss of wildlife and fish habitat.

4.3.19.2 Impacts of Fire Management Decisions on Wildlife and Fisheries

The impacts of fire management on wildlife would be the same under all alternatives, with all use guided by the Utah Land-use Plan Amendment (LUP Amendment) for Fire and Fuels Management (BLM 2005c). Adherence with the LUP Amendment (which mandates the maintenance of existing healthy ecosystems and the protection of threatened, endangered, and special status species) would have beneficial impacts on wildlife habitat in the MPA wherever wildlife habitat overlaps with that of protected special status species, and would ensure that healthy ecosystems are not adversely impacted by fire management and fuels reduction. Wildland fire use would not be authorized in the following areas unless reasonable Resource Protection Measures (RPMs) were in place: areas that are known to be highly susceptible to post-fire cheatgrass or other weed invasion, important terrestrial and aquatic habitats, and non-fire adapted vegetation communities. These RPMs would have beneficial impacts on wildlife habitat by reducing the spread of weeds and preserving native plant species, thereby maintaining suitable wildlife forage, cover, and habitat.

Fuels management actions include fuels-reduction treatments on 5,000 to 10,000 acres annually. These actions include: mechanical and manual treatments, prescribed fire, chemical or biological vegetation control, and aerial/ground seeding. These fuels management decisions would likely have a beneficial long-term impact on wildlife and fish populations by helping to restore the

natural fire regime, which would improve habitat health (Lewis and Harshbarger 1976), forage, nesting opportunities, and cover. Restoring the natural fire regime would also reduce the chance of catastrophic fire, and the subsequent loss of major ecosystem components. In the short-term, vegetation treatments could result in trampling or removal of wildlife forage and/or habitat, and human-caused wildlife disturbance.

4.3.19.2.1 Terrestrial Species

Short-term adverse impacts from fire management actions include mortality, habitat destruction, and habitat displacement. These actions would likely affect habitat used by raptors, migratory birds, small mammals, amphibians, reptiles, and big game species. Direct impacts from wildfire suppression could include habitat corruption from fire retardant and aviation fuel, soil erosion from fireline construction on steep slopes, and damaged vegetation and soils from heavy equipment and fire camps.

The adverse impacts of fuels management actions include the short-term disturbance of wildlife habitat while it regenerates and the thinning and removal of ecologically desirable species. Short-term impacts of treatments would include the mortality of non-target plants due to herbicide use and from seeding methods that cause soil-surface disturbance. These actions could result in a reduction of native species diversity and consequently a reduction in wildlife habitat.

However, managed wildfire and prescribed burns provide long-term benefits to wildlife and wildlife habitat. Fire produces a varied mosaic of habitats and results in the regeneration of old and decadent vegetation, which can be favorable to big game. Fuel reduction treatments also reduce the risk of catastrophic fire, which otherwise could cause the long-term loss of wildlife habitat.

4.3.19.2.2 Aquatic and Amphibious Species

Adverse impacts to fish, amphibians, and other aquatic species would include an increased risk of contaminating water sources with fire retardant or vehicle fluids; soil erosion following surface-disturbing fire suppression measures; damage to riparian vegetation and soils by heavy equipment; and reduced stream flow where water for fire suppression is drawn directly from streams and water bodies. Erosion would increase the sedimentation of surface waters, which affects water temperature, turbidity, and chemistry. These changes in water quality would generally have adverse impacts on aquatic species.

4.3.19.3 Impacts of Health and Safety Decisions on Wildlife and Fisheries

Health and safety decisions would have the same impacts on wildlife and fisheries under all alternatives. The primary impacts on wildlife and fisheries would result from the prioritization of abandoned mine lands (AMLs) for reclamation and mitigation.

Because abandoned mining structures are often used as roosting habitat by bat species, completely sealing off AML entrances during reclamation would have direct adverse impacts on roosting individuals and populations by displacing them from this habitat and reducing the availability of suitable roosting sites. Of the 18 bat species in Utah, 14 species regularly occur in abandoned mines (Grandison 2004). However, mines would be surveyed for bats prior to being sealed, and mitigation including the installation of bat-compatible mine gates and cupolas (which

allow bats to pass through, but prohibit human entrance) would minimize the adverse impacts of mine closures on bats.

Some AML sites would be prioritized for reclamation due to hazardous waste contamination and water quality issues. These reclamations would have long-term beneficial impacts on fish, amphibians, and other aquatic species by improving water quality and reducing groundwater contamination.

4.3.19.4 Impacts of Lands and Realty Decisions on Wildlife and Fisheries

4.3.19.4.1 Impacts Common to All Alternatives

The following lands and realty decisions would impact wildlife and fisheries in the MPA: ROWs, easements, permits, utility/transportation systems, acquisitions and disposals, and withdrawals. Under all alternatives, Wilderness Study Areas (WSAs) would be exclusion areas for rights-of-way (ROWs), which would benefit wildlife by preventing the fragmentation of habitat in WSAs. However, all areas not identified as avoidance or exclusion areas would be available for ROWs and could be subject to multiple-uses and surface disturbances. The authorization of ROWs for utility and communication infrastructure (among others) could have direct, long-term, adverse impacts on wildlife due to habitat loss or fragmentation and human disturbance during construction activities.

The withdrawal of 78,333 acres from mineral entry within the MPA would be continued, thereby reducing or eliminating surface-disturbing activities and associated impacts to wildlife and their habitat. Under all alternatives, approximately 14,740 acres of land would be listed for potential disposal. This would include 12,470 acres of desert shrub, 1,794 acres of piñon-juniper, 102 acres of riparian and wetland, and 208 acres of sagebrush/grassland habitats. Although disposals could lead to the loss of potential wildlife habitat, they could also lead to the beneficial acquisition of wildlife foraging habitat and relict vegetation areas as part of the exchange program. Where possible, TES species habitat, quality riparian areas, and key productive ecosystems would be retained or acquired under all alternatives. This would allow for protection and management of these key wildlife habitat areas, prevent their fragmentation from adjoining parcels, and mitigate the adverse impacts of land disposals.

Surface-disturbing activities associated with authorizing ROWs, roads, and other development projects in the MPA would have the potential to adversely impact wildlife species and their habitats. The ROW utility corridor around Highway I-70 would vary in width across alternatives; regardless of width, surface-disturbing activities within the corridor would cause the long-term loss or degradation of wildlife habitat and avoidance of the area by wildlife. It could also provide increased predation of small prey species by raptors perching on utility poles, and potentially electrocution of some birds.

4.3.19.4.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under Alternatives B, D, and Proposed Plan ACECs would be avoidance areas for ROWs. The impacts of ROWs are discussed above. Minimum Impact Criteria for filming permits would ensure that filming projects would not: impact Sensitive species habitat, use exotic species, adversely impact relict environments or riparian areas, utilize excessive numbers of livestock, or

involve more than 15 vehicles and 75 people. These criteria would reduce human disturbance of wildlife and their habitat during filming.

All action alternatives would identify the entire MPA as available for wind or solar energy development in the MPA except in areas identified as closed or NSO for oil and gas leasing. These stipulations would preclude all other surface-disturbing activities, including ROWs. Areas designated as NSO or closed include non-WSA lands with wilderness characteristics, WSAs, WSR corridors, ACECs, raptor habitat, and special status species habitat. These ROWs would have adverse impacts to wildlife similar to those described above, with the exception that wind energy development would adversely impact birds to a greater degree.

4.3.19.4.2.1 Alternative A

Under Alternative A, the impacts of lands and realty decisions on wildlife resources would be limited to those common to all alternatives. Under this alternative, the existing utility corridor would continue to disturb approximately 32,183 acres of habitat, primarily of desert shrub vegetation (Table 4.149) associated with pronghorn, desert bighorn sheep, elk (winter), raptors, neotropical birds, upland game birds, and reptiles (see Table 4.148).

4.3.19.4.2.2 Alternative B

Under Alternative B, an additional 100 ft would be added to each side of the existing utility corridor, resulting in a total of up to 64,539 acres of surface disturbance concentrated in desert shrub habitats. Impacts to rare riparian and wetland habitat would be almost double that of Alternative A, but would be mitigated by no surface occupancy stipulations for riparian areas.

Table 4.149. Acres of Surface Disturbance due to Utility Corridors by Major Habitat Type

Habitat Type	Associated Wildlife	Alt. A	Alt. B	PROPOSED PLAN	Alt. D
Desert shrub	Pronghorn, desert bighorn sheep, elk (winter), raptors, neotropical birds, upland game birds, reptiles, mountain lion, bobcat, fox, coyote	25,144	52,053	113,917	141,797
Piñon-juniper	Mule deer, elk, pronghorn, mountain lion, neotropical birds, upland game birds, reptiles, bobcat, weasels, raptors	5,345	8,808	41,672	44,189
Riparian and wetland	Mule deer, elk, mountain lion, neotropical birds, upland game birds, amphibian and fish species, reptiles, fox, coyote, bobcat, river otter, beaver	143	323	1,031	1,139

Table 4.149. Acres of Surface Disturbance due to Utility Corridors by Major Habitat Type

Habitat Type	Associated Wildlife	Alt. A	Alt. B	PROPOSED PLAN	Alt. D
Sagebrush and perennial grassland	Mule deer, elk, Rocky Mountain bighorn sheep, mountain lion, neotropical birds, upland game birds, reptiles, pronghorn	1,551	3,355	14,376	14,531
Total		**32,183**	**64,539**	**170,996**	**201,656**

Note: not every acre in a corridor would necessarily be disturbed.

Thus, impacts to riparian wildlife would primarily be caused by human disturbance, rather than physical disturbance of their habitat. Overall, Alternative B would disturb more than twice as much of most of the habitat types present as Alternative A.

4.3.19.4.2.3 Proposed Plan

Under the Proposed Plan, the surface disturbance to wildlife-associated habitat types would total 170,996 acres, more than 2.5 times greater than under Alternative B and more than 5 times greater than Alternative A (Table 4.149).

4.3.19.4.2.4 Alternative D

Under Alternative D, the surface disturbance to wildlife-associated habitat types would total 201,656 acres, slightly greater than the Proposed Plan, more than three times greater than under Alternative B, and more than six times greater than Alternative A (Table 4.149).

4.3.19.5 Impacts of Livestock Grazing Decisions on Wildlife and Fisheries

Livestock grazing can have both adverse and beneficial impacts on wildlife. If not properly managed through Standards for Rangeland Health and Guidelines for Grazing Management, harmful impacts to wildlife can include loss of biodiversity, lowering of population densities, disruption of some ecosystem functions, change in community organization, and change in the physical characteristics of both terrestrial and aquatic habitats (Chaneton and Lavado 1996; Fleischner 1994; Olff and Ritchie 1998). Improper grazing can further increase salinity even in already saline soils (Chaneton and Lavado 1996), leading to inhibited plant diversity, especially in arid and relatively infertile soils (Olff and Ritchie 1998). Decreased plant diversity would have long-term adverse impacts on wildlife habitat. Many of the adverse impacts listed above occur when livestock are not carefully managed, and an overconcentration of animals causes excessive grazing and long-term disturbances. Carefully managed livestock grazing can potentially benefit some wildlife habitat by promoting regrowth of forage species, reducing the prevalence of some invasive plants, and creating openings and disturbed areas utilized by some species (GSRSC 2005: 116). Because of the level of management required for beneficial impacts to occur and the sensitivity of desert ecosystems, the following analyses assume that livestock grazing could potentially cause adverse impacts on wildlife species, except where active management intended to benefit wildlife is proposed.

4.3.19.5.1 Impacts Common to All Alternatives

Under all alternatives, livestock grazing would be managed according to the Guidelines for Grazing Management to achieve the Standards for Rangeland Health, which would benefit wildlife by maintaining or restoring the proper functioning condition (PFC) of riparian and wetland wildlife habitat, maintaining desired species (including native and non-native species) at a level appropriate to the site and conditions, and maintaining or improving aquatic habitat by ensuring that all state and Federal water quality standards are met. Additionally, the recommendations of the National Sage-grouse Habitat Conservation Strategy (BLM 2004c) and the Strategic Management Plan for Sage-grouse (UDWR 2002) would be followed where applicable. Sage-grouse management plans are generally beneficial for all sagebrush-associated species (see Table 4.148).

4.3.19.5.1.1 Mule Deer, Elk, Pronghorn

Management decisions common to all alternatives would exclude livestock grazing from certain allotments (including Between the Creek, North Sand Flats, South Sand Flats, and Castle Valley), directly benefiting big game by making more forage available. Vegetation treatments for rangeland improvement in piñon-juniper habitat are proposed under all alternatives, including plowing and seeding, chaining and seeding, drill seeding, and prescribed fire and seeding. Vegetation treatments would benefit pronghorn, deer, and elk by improving the quality of their winter habitats.

4.3.19.5.1.2 Riparian Species

Livestock grazing in riparian areas could have adverse impacts on riparian-associated wildlife species (Table 4.148). Direct adverse impacts would include competition with wildlife for forage, and possible trampling of individual animals or nests. Indirect adverse impacts of livestock use of riparian areas include an increased susceptibility to invasion by noxious weeds, which reduces the value of forage, and reduction of cover species for sensitive wildlife (Popolizio et al. 1994; Kauffman et al. 1983; Sarr et al. 1996). Bird species that rely on native riparian trees for nesting and roosting sites and protection from predators would be adversely affected by the replacement of native vegetation with introduced species (Saab et al. 1995).

4.3.19.5.1.3 Fishes, Amphibians, and Other Aquatic Species

Livestock-caused erosion in saline soils would contribute to increased salinity in the Colorado River and other surface waters in the MPA, which could modify species composition within an ecosystem (Galindo-Bect and Glenn 1999; Hart et al. 1998) and cause mortality of freshwater species (Nelson and Flickinger 1992). Sedimentation can also have similarly detrimental impacts. Soil compaction due to grazing in riparian areas would result in less rainwater infiltration into soils and more overland flow. The result would be large, short-lived flows rather than small, perennial flows (Trimble and Mendel 1995). This would reduce the duration of seasonal water availability for a wide range of wildlife species.

4.3.19.5.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all action alternatives, conversion of allotments from cattle to domestic sheep would not be considered in bighorn sheep habitat because of conflicts with bighorn sheep. This would have

beneficial impacts to desert bighorn because it would maintain the separation of wild and domestic sheep, thereby reducing or eliminating the transmission of *Pasteurella*, which has been suspected as the cause of catastrophic bighorn die-offs (UDWR 1999).

4.3.19.5.2.1 Alternative A

Under Alternative A, livestock would be excluded from a total of 126,907 acres (including the Beaver Creek, Bogart, Cottonwood, Diamond, Pear Park and Spring Creek allotments), in addition to those mentioned under Common to All Alternatives. Alternative A would exclude livestock from the second greatest amount of wildlife habitat, and would therefore have the second greatest beneficial impacts on wildlife forage, habitat, and cover as described above.

Mule Deer, Elk, Pronghorn, Bighorn Sheep

The exclusion of livestock from the Bogart, Cottonwood, Diamond, Pear Park and Spring Creek allotments would have beneficial impacts, especially on mule deer and/or elk, because these allotments are in these two species' crucial winter range. Wintering deer and/or elk would not be forced to compete with livestock for sagebrush and early season grasses. Competition for forage, escape terrain, and thermal cover would not occur between livestock and deer and/or elk. Increased forage would lead to increased reproductive success for both deer and/or elk.

Alternative A would continue vegetation treatments on 67,125 acres. This would include mechanical treatments on 11 allotments (52,976 acres) and prescribed fire treatments on 14,149 acres. The increase in AUMs would be split evenly between livestock and wildlife where both are present. Wildlife species would benefit from additional AUMs available for their use, and all sagebrush-dependent species would benefit from expanded habitat as vegetation treatments would be used to restore sagebrush.

Riparian Species

Under Alternative A, grazing would continue to be excluded from riparian areas within five allotments: South Sand Flats, North Sand Flats, Between the Creeks, Cottonwood, and Diamond (no acreages available). This action would benefit riparian-associated wildlife species by protecting their habitat from soil compaction, erosion, and grazing of vulnerable plant species. Alternative A would exclude grazing in the fewest acres of riparian habitat, approximately 53% of the area excluded under Alternative B, 72% of that excluded under the Proposed Plan, and 94% of that under Alternative D.

Fishes, Amphibians, and Other Aquatic Species

Under Alternative A, livestock grazing would continue to be adjusted in order to reduce salinity in the Colorado River drainage in seven allotments (Athena, Cisco, Cisco Mesa, Crescent Canyon, Highlands, Monument Wash, and Thompson Canyon). Grazing exclusions in riparian areas under Alternative A would also help to mitigate the adverse impacts of soil compaction and salinization in the Colorado River drainage.

4.3.19.5.2.2 Alternative B

Grazing would be excluded from a total of 153,797 acres (including Beaver Creek, Bogart, Cottonwood, Diamond, Pear Park, Professor Valley, Ida Gulch, River, Mill Creek and Spring Creek allotments), in addition to those mentioned under Common to All Alternatives. This is

26,890 acres more than proposed under Alternative A. Therefore, Alternative B would be more beneficial to wildlife species and their habitats than Alternative A.

Mule Deer, Elk, Pronghorn, Bighorn Sheep

The continued exclusion of livestock from the Bogart, Cottonwood, Diamond, Pear Park, Mill Creek and Spring Creek allotments would have beneficial impacts similar to those described under Alternative A, especially on mule deer and/or elk, because these allotments are in these species' crucial winter range.

Alternative B proposes 46,307 acres for vegetation treatments; 20,818 acres (35%) less than under Alternative A. Because the degree of indirect impacts depends upon the quality of the treatment and the success rate of re-vegetating, differences among the alternatives are difficult to quantify. However, it is reasonable to assume that fewer AUMs and/or less sagebrush habitat would be restored under Alternative B, and that big game species and other wildlife that depend on rangeland habitat would not benefit as much under Alternative B as under Alternative A.

Riparian Species

Under Alternative B, grazing would be excluded from 4,673 acres of riparian habitat in nine allotments. These exclusions would help mitigate the adverse impacts of livestock grazing in riparian areas discussed under Impacts Common to All Alternatives. Therefore, livestock management under Alternative B would be the most beneficial for riparian habitat and associated wildlife because more acres would be unavailable for livestock grazing.

Fishes, Amphibians, and Other Aquatic Species

Under Alternative B, grazing systems and Allotment Management Plans (AMPs) would be used on nine grazing allotments to minimize impacts to highly saline soils and reduce salinity in the Colorado River drainage. Aquatic species such as fish and amphibians would benefit from these AMPs with the subsequent reductions in turbidity and salinity and increased water availability. In addition, aquatic species would benefit from the continued exclusion of grazing from Cottonwood, Diamond and Bogart allotments.

4.3.19.5.2.3 Proposed Plan

Grazing would be excluded from a total of 132,047 acres (including Bogart, Pear Park, Ida Gulch, Cottonwood, Diamond, portions of Professor Valley, and River along Highway 128 and Mill Creek allotments), in addition to those mentioned under Common to All Alternatives. This is slightly less acres excluded from livestock grazing than under Alternatives A and B, and more than under Alternative D. Therefore, the impacts of these exclusions on wildlife would be very similar to Alternative B and Proposed Plan, but more protective of wildlife than Alternative D.

Mule Deer, Elk, Pronghorn, Desert Bighorn Sheep

The exclusion of livestock from the Bogart, Cottonwood, Pear Park, Diamond, and Mill Creek allotments would have beneficial impacts especially on mule deer and/or elk, because these allotments are in these species' crucial winter range. These beneficial impacts include lack of competition with livestock for sagebrush and early season grasses, the elimination f competition for forage, escape terrain, and thermal cover, and increased reproductive success of deer and/or elk.

The impacts of vegetation treatments on big game would be the same as those discussed under Alternative B because the acreage proposed for treatment is similar.

Riparian Species

Under this alternative, grazing would be restricted in 1,169 acres of riparian habitat in five allotments. Restrictions would include the development of AMPs. In addition, 77 acres in Day Canyon would be unavailable for grazing. This alternative would protect more riparian wildlife habitat from the detrimental impacts of livestock grazing than Alternatives A and D, and less than Alternative B.

Fishes, Amphibians, and Other Aquatic Species

The Proposed Plan would implement AMPs on more allotments than under Alternative B. Therefore, livestock management under the Proposed Plan could increase salinity in soils and freshwater systems more than under Alternative B, and would have correspondingly greater impacts to fisheries and aquatic species. In addition, aquatic species would benefit from the continued exclusion of grazing from Cottonwood, Diamond, and Bogart allotments.

4.3.19.5.2.4 Alternative D

Grazing would be excluded from a total of 52,214 acres under Alternative D. The only allotment excluded, other than those in Common to All Alternatives, would be Mill Creek. The impacts of these exclusions on wildlife, especially deer and/or elk, would be more adverse than under any of other alternatives. In addition, many of the allotments available in this alternative (including Bogart, Diamond, Cottonwood, and Pear Park) are largely inaccessible, making management of livestock, including distribution, difficult to implement and maintain. Difficulties with cattle distribution could lead to greater adverse impacts to wildlife, especially to big game animals.

Grazing would only be restricted as needed to mitigate conflicts with wildlife under Alternative D. This would result in more detrimental consequences for wildlife than under Alternative B and Proposed Plan, because livestock-wildlife conflicts would not be avoided (as under Alternative B and Proposed Plan).

Mule Deer, Elk, Pronghorn, Desert Bighorn Sheep

Cottonwood, Diamond, Bogart, Spring Creek, and Pear Park, all allotments in deer and/or elk crucial winter range, would be available for grazing (cattle only). This would mean that cattle would compete with deer and/or elk for forage in these allotments. As a result, there would be less forage for established deer and/or elk herds. The social intolerance of elk for cattle would lead to the rate of elk use decreasing on these crucial winter grounds. Competition for forage, escape terrain, and thermal cover would occur, leading to decreased reproductive success for deer and/or elk. This would result in a reduction in herd viability and a decrease in herd population.

The impacts of vegetation treatments on big game would be the same as those discussed under Alternative B because the same number of acres are proposed for treatment.

Riparian Species

The adverse impacts of livestock grazing decisions in riparian areas on wildlife species would be greater than discussed under Alternative A because while North Sand Flats, South Sand Flats,

and Between the Creeks would continue to be unavailable for grazing, the riparian systems within the Bogart, Cottonwood and Diamond allotments would be available for livestock grazing. Because management in these allotments would be difficult due to their inaccessibility, needed riparian protections could not be implemented. This would result in watershed degradation in the headwaters of these large canyon systems, resulting in habitat loss.

Fishes, Amphibians, and Other Aquatic Species

The impacts of livestock grazing decisions on fish, amphibians, and other aquatic species would be the most adverse in Alternative D because the aquatic habitat in Bogart, Cottonwood and Diamond allotments would be available for grazing. Aquatic environments are rare in the MPA, and the species that they harbor are highly susceptible to environmental changes. Grazing would result in alteration of the aquatic habitat, which would result in habitat loss and species abandonment in the canyon systems within those allotments.

4.3.19.6 Impacts of Minerals Decisions on Wildlife and Fisheries

Impacts from minerals decisions on wildlife and their habitats would include habitat loss and degradation resulting from the removal of vegetation (surface disturbance) and subsequent occupation of areas for oil/gas well pads, open pit mines, and associated roads and infrastructure. Wildlife avoidance of disturbed and occupied areas would reduce their value as habitat. Many species of wildlife avoid areas with high or inconsistent levels of noise, roads with frequent automobile/truck traffic, areas that are heavily lit at night, and areas surrounding structures.

Adverse impacts of minerals decisions on wildlife resources would be reduced by the implementation of BMPs outlined in Section 2.1 and Appendix O. Restrictions include no surface-disturbing activities within riparian habitat, required revegetation of oil and gas well sites upon project completion, and land management that meets or moves toward meeting Utah's Standards for Rangeland Health. In addition, the implementation of BMPs for the benefit of wildlife and their habitats (e.g., centralization of drill rigs and storage tanks, reduction of the number of access roads, and interim and final reclamation practices) would also reduce some of the short- and long-term adverse impacts listed above. Interim reclamation occurs during the operational phase of a project and consists of revegetating all areas surrounding wells and roads that are not actively used during oil or gas production. Final reclamation occurs when a well has been decommissioned and includes the practices of recontouring soil surfaces to match surrounding landforms, replacing topsoil, and reseeding with native plant species wherever possible. The number of years required for successful final reclamation would depend on the habitat type; grasslands recover more quickly than sagebrush or desert shrub, which recover more quickly than forested areas such as piñon-juniper or conifer habitat. A commonly used average value and goal for reclamation across the project area is 10 years. Following the successful reclamation of a well site or road, the long-term adverse impacts to wildlife species would be largely eliminated.

The amount of land that is open to oil and gas leasing or other mineral use is not necessarily indicative of the number of acres that would be directly disturbed. Areas managed under Standard or Timing and/or Controlled Surface Use stipulations allow minerals development, but not all of those acres would be subjected to surface disturbance. Habitat quality may be preserved by the implementation of seasonal restrictions and spatial buffers that protect crucial habitats. Areas categorized as NSO or Closed preclude all surface-disturbing minerals

development and therefore improve the quality and condition of wildlife habitats. Riparian and wetland habitat, lands with a slope greater than 30%, and VRM Class I areas have been excluded from analysis because they have been assigned the leasing category of NSO, which precludes them from all surface disturbance.

The impacts of minerals decisions are analyzed for the entire MPA rather than for each individual RFD area for the purposes of comparison. Impacts may be concentrated in particular RFD areas, however. Depending on the distribution of wildlife habitat across particular RFD areas with high levels of disturbance, the amount of particular habitats disturbed may not match the composition of vegetation in the MPA. The Bookcliffs and Greater Cisco RFDs are projected to experience the greatest minerals development-related disturbances, and therefore impacts to wildlife and their habitat. The Bookcliffs RFD contains predominantly piñon-juniper habitat with conifer/mountain shrub habitat as the second most common habitat. Greater Cisco is dominated by desert shrub followed by piñon-juniper.

Of the seven oil and gas development areas within the MPA, wildlife habitat in the Greater Cisco RFD area is expected to be most heavily impacted by minerals decisions because it has the highest predicted levels of oil and gas well development (almost 45% of the 451 wells in the MPA would likely be sited in the Greater Cisco RFD). Site-specific analysis would be necessary to determine the exact impacts to wildlife from oil and gas development. Appendix S, Wildlife Impacts by RFD Area provides the estimated number of acres of disturbance in each wildlife habitat type under all alternatives given the assumption that disturbance would occur proportionally to the vegetation distribution within each RFD.

4.3.19.6.1 ALTERNATIVE A

4.3.19.6.1.1 Leasable Minerals

Surface disturbance and human-caused disturbance (noise, night-lighting, increased automobile traffic, and habitat fragmentation and loss) associated with well, pipeline, and road construction would result in both short- and long-term adverse impacts on wildlife. Surface disturbance would result in loss of habitat and would increase the potential for invasion of undesirable plant species, including noxious weeds (Piemeisel 1951). This loss of native vegetation would result in long-term adverse impacts on wildlife by decreasing the amount of available habitat and degrading existing habitat.

Wildlife species that use piñon-juniper and desert shrub habitats would be the most heavily impacted by surface disturbance and related impacts due to oil and gas development (Table 4.150) because these are the predominant habitat types in the areas most likely to be developed. Human occupancy and activities would cause the adverse displacement of wildlife.

Under Alternative A, approximately 277,678 acres of piñon-juniper habitat would be managed as either NSO or Closed, while approximately 41,086 acres of desert shrub would be managed under the same designations. A total of 389,633 acres (of all habitat types) would be managed as NSO or Closed.

Table 4.150. Estimated Surface Disturbance (in acres) for Oil and Gas Well Development, by Vegetation (Wildlife Habitat) Type

Habitat Type	Associated Wildlife	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer and Mountain Shrub	Mule deer, elk, mountain lion, black bear (primarily in old growth stands), neotropical birds, upland game birds, reptiles	267	157	256	266
Desert Shrub	Pronghorn, desert bighorn sheep, elk (winter), raptors, neotropical birds, upland game birds, reptiles	2,829	1,656	2,708	2,815
Piñon-Juniper	Mule deer, elk, pronghorn, mountain lion, neotropical birds, upland game birds, reptiles	2,801	1,639	2,682	2,788
Sagebrush/ Perennial Grassland	Mule deer, elk, Rocky Mountain bighorn sheep, mountain lion, neotropical birds, upland game birds, reptiles	488	285	467	485
Total Acres of Disturbance		**5987**	**3,737**	**6,113**	**6,354**

Mule Deer and/or Elk: Under Alternative A, the BLM would not specifically manage habitat for elk. Out of a total of 79,361 acres of designated mule deer crucial habitat under Alternative A, 30,259 acres (38%) would be managed as either NSO or Closed (Table 4.151). These leasing categories would preclude new surface disturbance, resulting in beneficial protections in these areas to mule deer and other wildlife species that occur within designated mule deer crucial habitat.

Pronghorn: Of a total of 25,367 acres of designated pronghorn crucial habitat under Alternative A, no land would be managed as either NSO or Closed (Table 4.151). The entire designated habitat would be managed under controlled surface and timing stipulations (CST), which would allow leasable mineral entry with special protections for wildlife relating to the timing of construction and operation. Pronghorn and other wildlife that use their habitat would benefit from the restriction on leasable minerals development in these areas, but not as much as if the lands were managed as NSO or Closed.

Table 4.151. Acres of Big Game Crucial Habitat Open and Closed to Surface Disturbance in the MPA by Alternative

Big Game Species	Alternative A		Alternative B		PROPOSED PLAN		Alternative D	
	Open*	Closed**	Open	Closed	Open	Closed	Open	Closed
Mule Deer and/or Elk	49,103	30,259 (38%)	241,518	393,477 (62%)	234,960	114,663 (33%)	264,831	84,844 (24%)
Pronghorn	25,367	0 (0%)	469,781	351,919 (43%)	291,902	1,822 (<1%)	291,915	1,822 (<1%)
Desert Bighorn Sheep	314,346 (95%)	16,546 (5%)	200,636 (59%)	130,256 (41%)	230,640 (70%)	100,252 (30%)	320,498 (96%)	10,394 (4%)
Rocky Mountain Bighorn Sheep	25,857	151,750 (85%)	65,837	364,064 (85%)	48,057	257,047 (84%)	33,358	161,201 (83%)

*"Open" includes Standard and CST lease categories.

**"Closed" includes NSO and Closed leasing categories. The percent of the total designated habitat closed is listed in parentheses.

Desert Bighorn: Of a total of approximately 330,892 acres of designated desert bighorn crucial habitat under Alternative A, 16,546 acres (30%) would be managed as either NSO or Closed (Table 4.151), resulting in beneficial protections in those areas to desert bighorn and other wildlife species that occur within designated desert bighorn crucial habitat.

Rocky Mountain Bighorn: Of a total of 177,607 acres of designated Rocky Mountain bighorn crucial habitat under Alternative A, 151,750 acres (85%) would be managed as either NSO or Closed (Table 4.151) resulting in beneficial protections in those areas to Rocky Mountain bighorn and other wildlife species that occur within designated Rocky Mountain bighorn crucial habitat.

4.3.19.6.1.2 Geophysical Activity

Under Alternative A, approximately 2,261 acres of wildlife habitat would be temporarily impacted by geophysical exploration over the life of the RMP (Table 4.152). Impacts to wildlife habitat associated with exploration would include short-term impacts such as noise and disturbance from people working in the area and long-term impacts such as the loss of vegetation and potential spread of invasive and weedy plant species within the areas directly disturbed by geophysical exploration.

Table 4.152. Estimated Surface Disturbance (in Acres) on BLM Lands Associated with Geophysical Exploration by Vegetation Type

Habitat Types	Associated Wildlife	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer and Mountain Shrub	Mule deer, elk, mountain lion, black bear (primarily in old growth stands), neotropical birds, upland game birds, reptiles	95	55	82	92
Desert Shrub	Pronghorn, desert bighorn sheep, elk (winter), raptors, neotropical birds, upland game birds, reptiles	1001	587	866	973
Piñon- Juniper	Mule deer, elk, pronghorn, mountain lion, neotropical birds, upland game birds, reptiles	992	581	857	963
Sagebrush/ Perennial Grasslands	Mule deer, elk, Rocky Mountain bighorn sheep, mountain lion, neotropical birds, upland game birds, reptiles	173	101	149	168
Total Acres of Disturbance		**2,261**	**1,324**	**1,954**	**2,196**

4.3.19.6.1.3 Salable Minerals

The exploration and development of salable minerals would have similar impacts to wildlife as other development described above. Under Alternative A, 1,467,768 acres of land in the MPA would be available for disposal of mineral materials. That is approximately 57% of the 1,821,374 acres in the MPA. However, the amount of expected salable development is low under all alternatives (up to 27 acres of disturbance per year), so Alternative A would not likely have much impact on wildlife.

4.3.19.6.1.4 Locatable Minerals

Under Alternative A, all public lands within the MPA would remain open to mining except within existing withdrawals. About 1,389,531 acres would be open to locatable minerals. Impacts resulting from locatable mineral exploration and development include habitat disturbance and fragmentation as described under Leasable Minerals, including direct loss of habitat, loss of forage, and disruption of migration routes. In addition, indirect impacts on individual animals related to the presence of roads, traffic, and human presence would occur. See discussions of impacts of minerals development to wildlife at the beginning of this section for more detail. However, the amount of expected locatable mineral development is low under all alternatives (up to 25 acres of disturbance per year), so Alternative A would not likely have much impact on wildlife.

4.3.19.6.2 ALTERNATIVE B

Under Alternative B, the impacts of minerals decisions on wildlife resources would be of the same nature as those discussed under Alternative A, but would vary in the acreage over which those decisions would impact wildlife and wildlife habitat, as described below.

4.3.19.6.2.1 Leasable Minerals

Under Alternative B, approximately 3,737 acres of wildlife habitat disturbance due to oil and gas development would be expected, or approximately 2,809 acres (41%) fewer than under Alternative A (see Table 4.150). Because less surface disturbance would occur under Alternative B than under any other alternative (see Table 4.150), Alternative B would result in fewer oil- and gas-related impacts to wildlife than Alternative A.

As under all alternatives, the greatest surface disturbance, and therefore the greatest impact to wildlife, is expected in the Greater Cisco and the Bookcliffs RFD areas.

Impacts of oil and gas leasing on wildlife species and their habitats under Alternative B would be similar to those under Alternative A, with the following exceptions. Under Alternative B, approximately 535,373 acres of piñon-juniper habitat would be managed as either NSO or Closed, while approximately 337,807 acres of desert shrub would be managed under the same leasing category. The total number of acres (of all habitat types) to be managed as NSO or Closed approximate 996,175 under Alternative B. Compared to Alternative A, Alternative B would manage approximately 2.5 times the total number of acres for management as NSO or Closed. Overall, wildlife species in desert shrub and piñon-juniper habitats would benefit more from the impacts of NSO or Closed leasing categories under Alternative B than Alternative A.

Mule Deer and/or Elk: Of approximately 634,995 acres designated as mule deer crucial habitat under Alternative B, 393,477 acres (62%) would be managed as either NSO or Closed (see Table 4.151). More habitat would be managed as Closed under Alternative B than Alternative A. Alternative B designates seven times more crucial habitat for mule deer and/or elk than Alternative A designates. An increase in the acreage of designated habitat along with an increase in the percent of acres managed as Closed or NSO for mule deer and/or elk would directly benefit these species and other wildlife in the MPA by decreasing impacts related to surface disturbance (as described above). Alternative B would have considerably more beneficial impacts to deer and/or elk than any other alternative.

Pronghorn: Of approximately 821,700 acres designated as pronghorn crucial habitat under Alternative B, 351,919 acres (43%) would be managed as either NSO or Closed (see Table 4.151). Approximately 41% more habitat would be managed as NSO or Closed under Alternative B than Alternative A. Alternative B would designate approximately 32 times more crucial habitat for mule deer and/or elk than Alternative A. Therefore, Alternative B would have far more beneficial impacts to pronghorn than any other alternative.

Desert Bighorn: Of approximately 330,892 total acres of habitat, 130,256 acres would be managed as either NSO or Closed (see Table 4.151). More habitat would be managed as Closed under Alternative B than Alternative A. Alternative B designates 2.3 times more crucial habitat for desert bighorn than Alternative A designates. Therefore, Alternative B would have far more beneficial impacts to desert bighorn than Alternatives A and D, and similar impacts to the Proposed Plan.

Rocky Mountain Bighorn: Of approximately 429,901 acres designated as Rocky Mountain bighorn crucial habitat under Alternative B, 364,064 acres (85%) would be managed as either NSO or Closed (see Table 4.151). This is the same percentage that Alternative A would manage as closed, but includes a much greater number of acres. Alternative B would designate 2.4 times more crucial habitat for pronghorn than Alternative A. Therefore, Alternative B would have more beneficial impacts to Rocky Mountain bighorn than any other alternative.

4.3.19.6.2.2 Geophysical Activity

Under Alternative B, there would be approximately 1,324 acres of surface disturbance to wildlife habitat associated with geophysical exploration. This is approximately 41% fewer acres of disturbance than would be expected under Alternative A; therefore, Alternative B would result in a smaller overall impact.

4.3.19.6.2.3 Salable Minerals

Under Alternative B, 808,097 acres would be open to disposal of salable minerals under standard or controlled surface use and timing limitation stipulations. Thus, the alternative would allow disposal on 658,970 fewer acres than under Alternative A. No disposals would be allowed in NSO or closed areas on 1,014,643 acres. Overall, less land would be open to disposal of salable minerals under Alternative B than Alternative A; these limitations would benefit wildlife species by preventing surface-disturbing activities and associated human impacts over larger habitat areas.

4.3.19.6.2.4 Locatable Minerals

Alternative B would manage 268,873 acres as open to locatable mineral entry under standard stipulations, and restrict 1,120,658 acres to controlled surface and timing limitation stipulations. For comparison, Alternative A would manage all open lands (1,389,531 acres) under standard stipulations. Under Alternative B, 79% of open lands would be managed under special stipulations. Due to this increased acreage managed with timing and/or surface restrictions on development, Alternative B would be more beneficial for wildlife species and their habitats than Alternative A.

4.3.19.6.3 PROPOSED PLAN

Under the Proposed Plan, the qualitative impacts of minerals decisions on wildlife resources would be similar to those discussed under Alternative A. However, the level of that impact would be different based on the acreages open to oil and gas leasing and mineral entry (more information is found in Appendix T, Vegetation).

4.3.19.6.3.1 Leasable Minerals

Under the Proposed Plan, approximately 6,113 acres of wildlife habitat disturbance due to oil and gas development would be expected, or approximately 272 acres (4%) fewer than expected under Alternative A (see Table 4.150). More acres would be disturbed under the Proposed Plan than Alternative B.

Impacts of oil and gas leasing on wildlife species and their habitats under the Proposed Plan would be similar to those under Alternatives A and B, with the following exceptions. Under the

Proposed Plan, approximately 394,087 acres of piñon-juniper habitat would be managed as either NSO or Closed, while approximately 109,356 acres of desert shrub would be managed under the same designations. Approximately 586,437 acres (of all habitat types) would be managed as NSO or Closed under the Proposed Plan. The Proposed Plan would designate approximately 196,804 more acres for management under NSO and Closed designations than Alternative A, but 381,362 fewer acres than Alternative B. Wildlife species in all habitat types (especially in piñon-juniper and desert shrub) would experience more beneficial impacts related to oil and gas lease designations under the Proposed Plan than under Alternative A, but fewer than under Alternative B.

Mule Deer and/or Elk: Of approximately 349,623 acres designated as mule deer and/or elk crucial habitat under the Proposed Plan, 114,663 (33%) acres would be managed as either NSO or Closed (see Table 4.151). The Proposed Plan would set aside a smaller percentage of designated crucial habitat as NSO or Closed than Alternative A (38%) or Alternative B (61%). However, the Proposed Plan would close more acres than Alternative A (30,259), but fewer than Alternative B (387,563). The Proposed Plan would designate 4.4 times more total crucial habitat for mule deer and/or elk than Alternative A would designate.

Pronghorn: Of approximately 293,724 acres designated as pronghorn crucial habitat under the Proposed Plan, 1,822 (<1%) acres would be managed as either NSO or Closed (see Table 4.151). The Proposed Plan would set aside a slightly higher percentage of designated crucial habitat as NSO or Closed than Alternative A (0%), but a smaller percentage than Alternative B (41%). The Proposed Plan would designate 11.6 times more total crucial habitat for pronghorn than Alternative A. Overall, the Proposed Plan would be more beneficial for pronghorn than Alternative A, though not as beneficial as Alternative B.

Desert Bighorn: Of 330,892 acres designated as desert bighorn crucial habitat under the Proposed Plan, 100,252 (98%) acres would be managed as either NSO or Closed. This would be a larger percentage closed than Alternative A (30%) but less than Alternative B (100%) (see Table 4.151). The Proposed Plan would designate 1.8 times more total crucial habitat for desert bighorn than Alternative A. Overall, the Proposed Plan would be far more beneficial for desert bighorn than Alternative A, though not as beneficial as Alternative B.

Rocky Mountain Bighorn: Of approximately 305,105 acres designated as Rocky Mountain bighorn crucial habitat under the Proposed Plan, 257,047 acres would be managed as either NSO or Closed (see Table 4.151). The Proposed Plan would close a slightly smaller percentage of designated Rocky Mountain bighorn habitat to oil and gas activities than Alternatives A or B. However, when total acreages are considered, the Proposed Plan would close more total acres than Alternative A but fewer than Alternative B. The Proposed Plan designates 1.7 times more total crucial habitat for Rocky Mountain bighorn than Alternative A designates. Overall, the Proposed Plan would be much more beneficial for Rocky Mountain bighorn than Alternative A, though not as beneficial as Alternative B.

4.3.19.6.3.2 Geophysical Activity

Under the Proposed Plan, there would be approximately 1,954 acres of surface disturbance to wildlife habitat associated with geophysical exploration, or approximately 14% fewer acres of disturbance than under Alternative A and 47% more than under Alternative B. Therefore, the

Proposed Plan would result in fewer adverse impacts from geophysical exploration to wildlife than Alternative A, but more adverse impacts than Alternative B.

4.3.19.6.3.3 Salable Minerals

Under the Proposed Plan, 1,234,267 acres would be open to disposal under standard, CSU, or TL stipulations. Thus, the alternative would allow disposal on 233,501 fewer acres than under Alternative A and 684,531 more acres than under Alternative B. No disposals would be allowed in NSO or closed areas on 587,730 acres. The beneficial impacts of these limitations on wildlife are discussed under Alternative B, above.

4.3.19.6.3.4 Locatable Minerals

The Proposed Plan would designate 427,466 acres as open to locatable mineral entry under standard stipulations, and restrict 946,203 acres to controlled surface and timing limitation stipulations. For comparison, Alternative A would manage all open lands (1,389,531 acres) under standard stipulations. Under the Proposed Plan, 68% of open lands would be managed under special stipulations. Due to this increased acreage managed with and/or surface restrictions on development, the Proposed Plan would be more beneficial for wildlife species and their habitats than Alternative A, though less beneficial than Alternative B, which would manage 79% of lands under special conditions.

4.3.19.6.4 Alternative D

4.3.19.6.4.1 Leasable Minerals

Under Alternative D, approximately 367 more acres (<1%) of oil- and gas-related surface disturbance (see Table 4.150) would occur, as compared to Alternative A. Overall, Alternative D would include slightly more oil- and gas-related adverse impacts to wildlife than would Alternative A, since more surface disturbance translates to less intact habitat, more roads, and a higher level of human presence. Alternative D would provide less protection from disturbance than either Alternative B or the Proposed Plan.

Under Alternative D, approximately 226,524 acres of piñon-juniper habitat would be managed as either NSO or Closed, while approximately 57,892 acres of desert shrub would be managed under the same designations. Approximately 357,716 acres (of all habitat types) would be managed as NSO or Closed under Alternative D. Alternative D would designate approximately 31,917 fewer acres for management under NSO and Closed designations than Alternative A, 610,083 fewer acres than Alternative B, and 228,721 fewer acres than the Proposed Plan. Alternative D would be the least beneficial to wildlife because it would set aside the fewest number of acres as NSO or Closed to oil and gas leasing.

Mule Deer and/or Elk: Of 349,675 acres designated as mule deer and/or elk crucial habitat under Alternative D, 84,844 (24%) acres would be managed as either NSO or Closed (see Table 4.151). Alternative D would set aside the smallest percentage of designated crucial habitat as NSO or Closed (see Table 4.151) but would close more acres than Alternative A (though fewer than Alternative B or the Proposed Plan). Alternative D would designate 4.4 times more total crucial habitat for mule deer and/or elk than Alternative A, and less total habitat than Alternative

B or the Proposed Plan. Overall, Alternative D would be more beneficial for wildlife than Alternative A, though not as beneficial as Alternative B or the Proposed Plan.

Pronghorn: Of 293,737 acres designated as pronghorn crucial habitat under Alternative D, 1,822 (<1%) acres would be managed as either NSO or Closed (see Table 4.151). This is more acres than Alternative A, fewer than Alternative B, and the same number as the Proposed Plan (Table 4.150). Overall, Alternative D would be more beneficial for pronghorn than Alternative A, though not as beneficial as Alternative B.

Desert Bighorn: Of 330,832 acres designated as desert bighorn crucial habitat under Alternative D, 10,394 acres would be managed as either NSO or Closed. This represents slightly fewer closed acres than under Alternative A, and considerably fewer than under Alternative B or the Proposed Plan (see Table 4.151). Alternative D designates only 83% as much crucial habitat for desert bighorn than Alternative A designates. Overall, Alternative D would be less beneficial for desert bighorn than Alternatives A, B, or the Proposed Plan.

Rocky Mountain Bighorn: Of 194,559 acres designated as Rocky Mountain bighorn crucial habitat under Alternative D, 161,201 acres (83%) would be managed as either NSO or Closed. This represents more acres of closed areas than would be managed under Alternative A, but fewer than Alternative B or the Proposed Plan (see Table 4.151). Alternative D designates 1.1 times more total crucial habitat for Rocky Mountain bighorn than Alternative A designates. Overall, Alternative D would be more beneficial for Rocky Mountain bighorn than Alternative A, though not as beneficial as Alternative B or the Proposed Plan.

4.3.19.6.4.2 Geophysical Activity

Under Alternative D, there would be approximately 2,196 acres of surface disturbance to wildlife habitat associated with geophysical exploration, or approximately 3% fewer acres of disturbance than under Alternative A, 66% more than under Alternative B, and 12% more than under the Proposed Plan. Therefore, Alternative D would likely result in larger adverse impacts than Alternative B or the Proposed Plan, but slightly fewer adverse impacts than under Alternative A.

4.3.19.6.4.3 Salable Minerals

Under Alternative D, 1,387,473 acres would be open to disposal under standard, CSU, or TL stipulations. Thus, the alternative would allow disposal on 80,295 fewer acres than under Alternative A. No disposals would be allowed in NSO or closed areas on 434,991 acres. Therefore, Alternative D would have the greatest adverse impacts to wildlife due to the disposal of salable minerals.

4.3.19.6.4.4 Locatable Minerals

Alternative D would designate 797,031 acres of land in the MPA as open to locatable mineral entry under standard stipulations, and restrict 592,500 acres to controlled surface and timing regulations. For comparison, Alternative A would manage all open lands (1,389,531 acres) under standard stipulations. Though all alternatives would manage for the same number of open lands, Alternatives B, D, and the Proposed Plan would manage varying percentages of that land under controlled surface and timing use stipulations. Under Alternative D, 43% of open lands would be managed under special stipulations. Therefore, Alternative D would be more beneficial for wildlife species and their habitats than Alternative A, though less beneficial than Alternative B

or the Proposed Plan, which would manage 79% and 68% of lands under special conditions, respectively.

4.3.19.7 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Wildlife and Fisheries

Managing non-WSA land to maintain wilderness characteristics would generally benefit wildlife by reducing habitat degradation and fragmentation. The management of these areas would prohibit surface-disturbing activities in areas managed as NSO or closed. Management of non-WSA lands with wilderness characteristics includes limiting vehicles to designated roads, and excluding or avoiding new ROWs.

4.3.19.7.1 Alternative A

Alternative A would not implement any specific wilderness characteristics decisions that would affect wildlife. This would have an adverse impact on wildlife as habitat fragmentation due to surface-disturbing activities would be more likely to occur.

4.3.19.7.2 Alternative B

Alternative B would manage 266,485 acres of non-WSA lands to maintain wilderness characteristics, and would have the greatest beneficial impacts on wildlife because habitat fragmentation would be less likely to occur on this acreage, since surface-disturbing activities would be precluded.

However, protection of wilderness characteristics could preclude fencing and enclosures in Granite Creek, new water installations to benefit pronghorn habitat in Hatch Wash, Harts Point, Floy Canyon and Coal Canyon, new water facilities for bighorn sheep in Labyrinth Canyon, Shafer Canyon, Gooseneck, Goldbar, Horsethief Point, Dead Horse Cliffs, and Hatch/Lockhart, and could preclude mechanical vegetation treatments for elk forage within Big Triangle, Westwater Canyon, Hells Hole, Hideout Canyon, Mexico Point, Westwater Creek, Flume Canyon, Coal Canyon, Floy Canyon, and Desolation Canyon. Any of these new projects, if mitigated appropriately, could be permitted within these areas.

4.3.19.7.3 Proposed Plan

The Proposed Plan would manage 47,761 acres of non-WSA lands to maintain wilderness characteristics, and would have more beneficial impacts on wildlife than Alternatives A or D, but less beneficial impacts than Alternative B. Habitat fragmentation would be less likely to occur on this acreage, which is less than the acreage protected under the Proposed Plan.

4.3.19.7.4 Alternative D

No non-WSA lands would be managed to maintain wilderness characteristics, so no beneficial impacts to wildlife would occur, and some adverse impacts may occur due to increased surface disturbance resulting in habitat fragmentation.

4.3.19.8 Impacts of Recreation Decisions on Wildlife and Fisheries

The primary impacts of recreation on wildlife would include surface disturbance of wildlife habitat by vehicles and non-motorized recreationists, habitat fragmentation by motorized vehicle

use, the introduction and spread of noxious weeds, and direct mortality through wildlife collisions with motor vehicles and crushing of eggs or nests. In addition, many wildlife species (birds in particular) are sensitive to traffic and other human-caused noise. Traffic noise has been shown to directly interfere with bird vocal communication, which affects territorial behavior and mating success (Reijnen and Foppen 1994). Increased road traffic also increases the risk of direct mortality of wildlife species due to vehicle impacts; carrion-eating raptors and mule deer attempting to cross roads are especially vulnerable. Where designated, Special Recreation Management Areas (SRMAs) would reduce adverse impacts on wildlife by restricting recreation or reducing dispersed recreational activities, and would therefore have beneficial impacts on wildlife in the area.

The adverse impacts of recreation decisions would be partially mitigated by the required reclamation of disturbed areas to meet the Utah Standards for Public Land Health and Guidelines for Recreation Management and protective measures outlined for federally listed species under Impacts Common to All Alternatives. In addition, careful recreation management through actions such as group size permits and non-motorized focus areas (see below for more details) would help to mitigate some impacts.

4.3.19.8.1 Impacts Common to All Alternatives

Under all alternatives, the BLM would consider and, where appropriate, implement management methods to protect riparian resources and wildlife habitat while enhancing recreation. Management methods may include: limitations of visitor numbers, camping and travel controls, implementation of fees, alteration of when use takes place, and other similar actions. Additionally, information would be provided to the public concerning the value of riparian wildlife habitat. These management and education efforts would reduce the adverse impacts of recreational uses on riparian-associated wildlife species and their habitats.

4.3.19.8.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

All action alternatives would establish focus areas for motorized and multi-use recreation. Recreational OHV and mechanized travel would be consistent with area and route designations described in the travel management plan. The short- and long-term adverse impacts of OHV use are varied and complex. Short-term adverse impacts include human presence and noise disturbances (though some species can become habituated to certain noises). Long-term adverse impacts include habitat fragmentation from roads and cross-country riding, soil compaction, increased erosion, and reduced air quality. These impacts would reduce habitat quality and quantity for wildlife species in a variety of different habitats (Stokowski and LaPointe 2000).

Special "non-motorized focus areas" proposed under some of the action alternatives would help to alleviate both short- and long-term impacts due to increased human traffic, noise, and habitat disturbance resulting from OHV use. Table 4.153 summarizes the acres set aside for non-motorized use by alternative. However, because non-motorized recreation can also be disruptive of wildlife, these focus areas would also have slight adverse impacts on wildlife associated due to human presence in addition to their beneficial impacts described above.

Table 4.153. Acres of SRMAs and Designated "Non-Motorized Focus Areas" by Alternative*

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
SRMAs	135,094	1,020,313	658,642	277,495
Non-Motorized Focus Areas	0	483,062	473,688	142,966

* "Non-motorized focus areas" are managed for hiking, mountain biking, ecological study, equestrian use, climbing, and BASE jumping.

Under all action alternatives, dispersed camping would be allowed where not specifically restricted. Dispersed camping could lead to an increase in human disturbance of wildlife. The creation of new, dispersed campsites would have both direct and indirect adverse impacts on wildlife by encouraging avoidance behavior in individual animals and reducing the quality of the habitat around the campsite (Buechner 1960). Dispersed camping may be closed seasonally or as impacts or environmental conditions warrant within SRMAs in order to decrease the adverse impacts of noise, vegetation trampling, and other human-caused wildlife disturbances.

Under all action alternatives, the BLM would provide visitor information and promote outreach programs focused on low impact recreation techniques. The program would focus on the prevention of the spread of invasive and exotic weeds and the value of wildlife species and their habitats, especially riparian habitats. Educating the public in this way would likely increase awareness and ultimately decrease human impacts on wildlife species and their habitats.

4.3.19.8.2.1 Alternative A

Under Alternative A, only 135,094 acres would be designated as SRMAs; therefore Alternative A has the least beneficial impacts on wildlife from SRMAs. While Alternative A would limit some OHV use to designated routes, it would not include any non-motorized focus areas. Therefore, OHVs would have the greatest adverse effect on wildlife under this alternative. Along with Alternative D, Alternative A would place the fewest limitations on dispersed camping and group size, and would therefore have the greatest potential for human disturbance of wildlife.

4.3.19.8.2.2 Alternative B

Alternative B would designate 1,020,313 acres as SRMAs, and would therefore have the greatest beneficial impacts to wildlife from the increased management and restrictions on recreation in these areas. In addition, 483,062 acres would be designated for non-motorized recreation (Table 4.153), thereby further benefiting wildlife by protecting and improving the quality of wildlife habitats.

In the Colorado Riverway SRMA, the north shore of the river would be managed for high quality bighorn sheep habitat. An additional emphasis would be placed on the protection of riparian values in the Kens Lake area (South Moab SRMA). Both of these actions would provide beneficial impacts for wildlife species living in these habitats by improving habitat quality and avoiding the adverse impacts of recreation in riparian areas as described above (see Impacts Common to All Alternatives).

Alternative B would be the most restrictive of dispersed camping and group size, and would therefore have the least adverse impacts on wildlife and their habitats due to human disturbance by campers and large groups.

4.3.19.8.2.3 Proposed Plan

The Proposed Plan would designate 658,642 acres (388% more than Alternative A) as SRMAs. The Proposed Plan would therefore have greater beneficial impacts on wildlife and their habitats than Alternative A, but less than Alternative B. The Proposed Plan would propose fewer acres (473,688 acres) to be managed with a non-motorized focus than Alternative B, but far more than Alternatives A and D (Table 4.153). Similarly, the Proposed Plan would limit camping and group sizes more than Alternatives A and D, but less than Alternative B.

4.3.19.8.2.4 Alternative D

Alternative D would designate 277,495 acres (105% more than Alternative A) as SRMAs. Alternative D would therefore have greater beneficial impacts on wildlife and their habitats than Alternative A, but less than Alternative B or the Proposed Plan. Alternative D would designate 142,966 acres as non-motorized focus areas, far more than Alternative A, and far less than Alternative B or the Proposed Plan. Therefore, Alternative D would result in fewer OHV impacts to wildlife than Alternative A, but more than Alternative B and the Proposed Plan. Dispersed camping and group size would be less restricted than under Alternative B or the Proposed Plan, but more than under Alternative A.

4.3.19.9 Impacts of Riparian Decisions on Wildlife and Fisheries

Wildlife that utilizes riparian habitats would be affected by restrictions on livestock grazing in riparian areas under each alternative. Because these management actions are also proposed as livestock grazing decisions, they are discussed in Section 4.3.19.5 Impacts of Livestock Grazing Decisions on Wildlife and Fisheries.

4.3.19.10 Impacts of Soils/Watershed Decisions on Wildlife and Fisheries

4.3.19.10.1 Impacts Common to All Alternatives

Under all alternatives, soil and water decisions would comply with Utah's Standards for Rangeland Health and Guidelines for Grazing and Recreation. In addition, all floodplains and riparian/wetlands would be managed in accordance with Executive Order 11988, which would protect the quality of stream water and Federally listed species habitat. Uses in the MPA would be managed to minimize and mitigate damage to soils, and activities located in areas with sensitive soils would be subject to site-specific NEPA analysis. These restrictions would decrease the number of acres in the MPA subject to the adverse impacts of surface-disturbing activities on wildlife habitats, including surface water contamination and sedimentation by runoff from disturbed soils.

4.3.19.10.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under all action alternatives, vegetation would be maintained based on desired future conditions (DFCs) to provide adequate ground cover to prevent accelerated erosion in wind erodible soils. This would have a positive indirect impact on wildlife by increasing possible forage.

All action alternatives would prohibit surface-disturbing activities within 100-year floodplains, public water reservoirs, and within 100 meters of riparian areas and springs. These actions would help to mitigate the adverse impacts of surface-disturbing activities on wildlife that utilize riparian habitats. A combination of timing and controlled use stipulations would be applied for all slopes greater than 30% in the MPA, which would help to decrease erosion and therefore habitat degradation for wildlife species. Specifically, these action alternatives would also help to mitigate adverse impacts on fish and other aquatic species' habitat due to increased overland flow associated with upland soil disturbance. Seventy-five percent of protected areas (due to extreme slopes) occur in piñon-juniper habitat. Wildlife species such as mule deer, elk, pronghorn, mountain lion, and neotropical migrant birds in piñon-juniper habitat (Table 4.148) would benefit from these stipulations.

4.3.19.10.2.1 Alternative A

Under Alternative A, grazing would be manipulated on portions of ten allotments to lessen impacts on saline soils and reduce salinity in the Colorado River drainage. This action would protect fisheries and aquatic wildlife from salinity impacts, as well as help to lessen the adverse impacts of grazing on wildlife, which are described in Section 4.3.19.5.

4.3.19.10.2.2 Alternative B

Under Alternative B, the Castle Valley and Mill Creek municipal watersheds would be closed to oil and gas leasing and other surface-disturbing activities. This would benefit wildlife species and their habitats as described in Section 4.3.19.6.

Watershed Management Plans would be developed and implemented for 17 areas under Alternative B. These plans are generally beneficial to wildlife species and habitats because of specified restrictions on human activities, grazing, and other surface disturbances.

Grazing systems and the development of AMPs would be used to minimize impacts to saline soils in nine allotments. Both of these management strategies would have long-term beneficial impacts on wildlife and fisheries, as described above.

4.3.19.10.2.3 Proposed Plan

An NSO stipulation to oil and gas leasing and precluding other surface-disturbing activities would be applied in the Castle Valley and Mill Creek municipal watersheds. This stipulation would help to mitigate the adverse impacts of oil and gas development, but to a lesser degree than Alternative B, which would close this area to oil and gas development.

Watershed Management Plans would be developed and implemented for eight areas under the Proposed Plan. The Proposed Plan would provide fewer beneficial impacts than Alternative B.

Grazing systems would be used and AMPs developed to minimize impacts to saline soils in 16 allotments. The Proposed Plan would require the development of AMPs in seven more areas than under Alternative B.

4.3.19.10.2.4 Alternative D

Under Alternative D, the impacts of soil and water resource management decisions on wildlife and fisheries would be the same as under Alternative A.

4.3.19.11 Impacts of Special Designation Decisions on Wildlife and Fisheries

Special Designation areas, such as Areas of Critical Concern (ACECs) and Wild and Scenic Rivers (WSRs) would generally have long-term positive impacts on the wildlife and fisheries that occur within their boundaries by limiting or preventing surface disturbance, human activities, and associated habitat degradation and fragmentation. Impacts to wildlife and fisheries vary between alternatives primarily according to the proposed acreage of these specifically designated areas.

ACECs designated specifically to protect wildlife and vegetation would directly benefit wildlife species and their habitats. ACECs designated to preserve historic, cultural, and scenic values (as opposed to wildlife or vegetation) would indirectly benefit wildlife by limiting human and surface disturbance, preserving habitat, or preventing noise. Therefore, all ACECs are assumed to be beneficial to wildlife. Where established, ACECs would be avoidance areas for all ROWs, including wind, solar energy, and communication sites. Prohibiting these uses within ACECs would prevent adverse impacts to wildlife related to these developments. The designation of a river as suitable for WSR status would beneficially impact wildlife that utilize habitats directly associated with the river (e.g., riparian, wetlands, open water) by mandating the protection of the river's "free-flowing character" and restricting surface-disturbing activities within 1/4 mile of the river.

4.3.19.11.1 Impacts Common to All Alternatives

While they are non-discretionary, WSAs prohibit surface disturbance, permanent new development, and ROWs. In addition, WSAs are closed to mineral leasing. Under all alternatives, where ACECs overlap WSAs, WSA management takes precedence. All alternatives would close WSAs to OHV use or limit such use to designated routes. Therefore, both WSA and ACEC designation would benefit wildlife by reducing surface disturbance in wildlife habitat and habitat fragmentation due to OHV use.

4.3.19.11.2 Alternative A

Under Alternative A, none of the proposed ACEC sites would be established (with the exception of the existing 1,375 acre Negro Bill ONA). No rivers would be designated as suitable for WSR status, but eligible rivers would be managed to preserve their wild and scenic qualities. This alternative would generally be less beneficial than Alternative B and the Proposed Plan, which would designate multiple segments as suitable, but more beneficial than Alternative D.

4.3.19.11.3 Alternative B

Under Alternative B, all thirteen of the proposed ACEC sites would be established and managed with NSO or closed leasing stipulations. Compared to Alternative A, Alternative B would be much more beneficial to wildlife and their habitats by eliminating disturbances related to salable and leasable mineral development in these areas. Alternative B would designate the most river segments as suitable for WSR status, and would therefore have the greatest beneficial impacts on riparian and aquatic wildlife.

4.3.19.11.4 PROPOSED PLAN

Under the Proposed Plan, five of the thirteen proposed ACEC sites would be established. They would be managed with closed or NSO leasing stipulations. The Proposed Plan would be more beneficial to wildlife and their habitats than Alternative A, and less than Alternative B. The Proposed Plan would designate fewer river segments as suitable for WSR status than Alternative B, and would therefore have slightly less beneficial impacts on riparian and aquatic wildlife.

4.3.19.11.5 ALTERNATIVE D

Under Alternative D, none of the thirteen proposed ACEC sites would be established. All eligible river segments would be designated as not suitable for WSR status under Alternative D, which would therefore have no beneficial impacts on wildlife and fisheries.

4.3.19.12 IMPACTS OF SPECIAL STATUS SPECIES DECISIONS ON WILDLIFE AND FISHERIES

4.3.19.12.1 IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, no management action would be permitted on public lands that would jeopardize the continued existence of plant or animal species that are listed, officially proposed, or candidates for listing as Threatened and Endangered (T&E). The BLM would commit to current and future conservation agreements, management plans, and recovery plans specific to T&E and BLM Sensitive Species, as described in the Special Status Species section of Table 2.1 (in Chapter 2). Although meant to protect and conserve special status species, the actions would also benefit other wildlife species that share habitat with the targeted special-status species.

4.3.19.12.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

Under all action alternatives, protective management of prairie dog and sage-grouse habitats would benefit big game species because of their overlapping ranges. Limitations on surface-disturbing activities within greater sage-grouse habitat would indirectly benefit deer and/or elk that winter in the same region by preventing disturbances such as vegetation removal and noise related to traffic or other human activities. Although some protection is common to all action alternatives, they differ in the number of acres affected. Table 4.154 lists the quantitative impacts of sage-grouse and prairie dog habitat conservation on the habitat of mule deer and Rocky Mountain elk, pronghorn antelope, desert bighorn sheep, and Rocky Mountain bighorn sheep.

Table 4.154. Number of Acres Within Big Game Habitats That are Protected for Special Status Species

Big Game Wildlife Species	Relevant Associated Habitat Types	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Mule Deer and/or Elk	Sagebrush, Grassland, Conifer/ Mountain Shrub, Piñon-Juniper, Riparian/Wetland	0	116,176	64,201	18,223
Pronghorn	Grassland and Desert Shrub, Piñon-Juniper	0	250,572	135,449	34,942
Desert Bighorn Sheep	Desert Shrub	0	0	0	0

Table 4.154. Number of Acres Within Big Game Habitats That are Protected for Special Status Species

Big Game Wildlife Species	Relevant Associated Habitat Types	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Rocky Mountain Bighorn Sheep	Sagebrush, Grassland	0	9,855	1,082	0
Total Acres		**0**	**376,603**	**200,732**	**53,165**

4.3.19.12.3 ALTERNATIVE A

Alternative A would not implement any special status species decisions that would affect wildlife other than those common to all alternatives.

4.3.19.12.4 ALTERNATIVE B

Alternative B would place restrictions on development within 469,162 more acres of special status species habitat than Alternative A, thereby benefiting other wildlife species. Habitat protections for greater sage-grouse, Gunnison sage-grouse, white-tailed prairie dog, and Gunnison prairie dog habitats would generally benefit other wildlife that utilize desert shrub or sagebrush and perennial grassland habitats, including mule deer, elk, pronghorn, desert bighorn sheep, mountain lion, various raptors, and upland game species.

Approximately 376,603 acres of special status species habitat that would be protected under Alternative B overlap with big game range, thereby conferring some level of protection to big game habitat as well (see Table 4.154). Pronghorn would benefit the most from special status species protections, followed by deer and/or elk. The habitat of desert bighorn within the MPA does not overlap with any special-status species protected lands under any of the alternatives; therefore, desert bighorn would not experience any benefits from special status species management. The benefits to big game under Alternative B would be far greater than under Alternative A.

4.3.19.12.5 PROPOSED PLAN

The Proposed Plan would place restrictions on development within 306,976 more acres of special status species habitat than Alternative A. The Proposed Plan would therefore benefit wildlife species more than Alternative A, but less than Alternative B.

Approximately 200,732 acres of protected special status species habitat would overlap with big game range under the Proposed Plan (see Table 4.154). As under Alternative B, pronghorn would benefit the most from special status species protections, followed by deer and/or elk, while desert bighorn would not receive any benefit. Although the Proposed Plan would benefit big game more than Alternative A, it would be less beneficial to big game than Alternative B.

4.3.19.12.6 ALTERNATIVE D

Alternative D would place restrictions on development within 74,792 more acres of special status species habitat than Alternative A, but considerably less than Alternative B and the Proposed Plan.

Approximately 53,165 acres of protected special status species habitat would overlap with big game range under Alternative D, which is more than under Alternative A and less than under Alternative B and the Proposed Plan. The benefits to individual species would be similar to those described under Alternative B and the Proposed Plan, but to a lesser magnitude.

4.3.19.13 IMPACTS OF TRAVEL MANAGEMENT DECISIONS ON WILDLIFE AND FISHERIES

The impacts of travel decisions on wildlife would primarily depend on the number of acres open and closed to OHV use under each alternative. OHV use can cause damage to vegetation used as wildlife forage and cover, as well as cause noise disturbance. OHV use therefore generally has adverse impacts on wildlife species, especially birds, in the MPA (Reijnen and Foppen 1994; Gelbard and Belnap 2003). Areas closed to OHV use would include some WSAs. OHV use also contributes to habitat fragmentation and habitat degradation, including the spread of noxious weeds. The impacts of habitat fragmentation due to minerals and travel decisions under each alternative are discussed in Section 4.3.19.18.

A recent United States Geologic Survey (USGS 2007) synopsis of relevant literature summarizes numerous studies of the impacts of OHV use on soil and water resources. The USGS concludes that the research reviewed found important effects of OHV activities on soil and water functioning including soil compaction, diminished water infiltration, diminished presence and impaired function of soil stabilizers (biotic and abiotic crusts, desert pavement), and accelerated erosion rates. Compacted soil inhibits infiltration of precipitation. In turn, soil moisture available to vegetation is diminished, volumes and velocities of precipitation runoff increase, and soil erosion accelerates, leading to the formation of gullies and other surface changes. Additionally, soil compaction may inhibit root growth among plants, in which case organic matter, litter, soil fertility, and vegetative cover are diminished, further exacerbating the soil's susceptibility to erosion. Where biotic and chemical crusts or other soil stabilizers are disturbed or destroyed, soil erosion from water and wind may increase beyond rates found in undisturbed sites with similar soils and conditions; nutrient-cycling processes also are likely to be disrupted, potentially leading to declines in soil fertility. The USGS study is summarized in Appendix G.

4.3.19.13.1 IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, any new route designations would consider wildlife habitat, thereby reducing surface and noise disturbances on wildlife species and their habitats.

4.3.19.13.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

Under all action alternatives (B, D, and Proposed Plan), travel by motorized vehicles on all lands administered by the MFO would be limited to designated roads and designated OHV and motorcycle routes. OHV access for game retrieval, antler collection, and dispersed camping would only be allowed on designated routes. Restricting all vehicles to designated roadways would benefit wildlife by limiting adverse disturbance and noise impacts on wildlife (Fletcher 1980, 1990).

4.3.19.13.3 ALTERNATIVE A

Alternative A would close only 5,060 acres to OHV use (Table 4.155). A total of 620,212 acres would be open to cross-country OHV use under Alternative A (Table 4.156), which is more than under any other alternative. Alternative A would adversely impact wildlife species and their habitats more than the other alternatives because it would continue to manage a large percentage of the MPA as open to OHV use. In addition, travel would be allowed on "existing routes" which also adversely affect wildlife. Existing routes often originate from the unauthorized creation of new trails.

Table 4.155. Wildlife Habitat Closed to OHV Use Under Each Alternative

Habitat Type	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer/mountain shrub	0	46,945	46,945	188
Desert shrub	1,360	20,579	17,934	8,977
Invasive species and weeds	3	483	345	19
Piñon-juniper	2,330	258,913	255,205	42,589
Riparian/wetland	30	3,105	2,450	678
Sagebrush/perennial grass	1,337	16,787	15,968	4,519
Total	**5,060**	**346,812**	**338,847**	**56,970**

Table 4.156. OHV Use Stipulations in Wildlife Habitat Under Each Alternative

Stipulation	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Open to Cross-country Travel	620,212	0	1,866	3,064
Limited to Designated (or Existing in A only) Routes	1,123,987	1,475,074	1,418,334	1,762,083
Closed	5,060	346,812	338,847	56,970

Under Alternative A, almost two times more piñon-juniper habitat would be affected than desert shrub or sagebrush/perennial grasses, which are the next most dominant habitats (see Table 4.155)

There are 367.4 miles of route identified as having possible wildlife habitat conflicts.

4.3.19.13.4 ALTERNATIVE B

No land would be open to cross-country OHV use under Alternative B. OHV use would be limited to designated trails on 1,475,074 acres. This is 622,721 acres (74%) more than under Alternative A. Restricting OHV use to designated rather than existing routes would benefit wildlife by resolving problems caused by the unauthorized creation of new routes, which then become "existing" routes. Specific benefits to wildlife species would include decreased damage to forage and cover vegetation by travel on unauthorized routes, and decreased disturbance of individual wildlife from human presence and noise associated with OHV use, as well as

decreased wildlife habitat fragmentation. Therefore, Alternative B would protect and improve the condition and quality of wildlife habitats and provide more benefits to wildlife species and their habitats than Alternative A. Alternative B would close approximately 346,812 acres to OHV use, which is 341,752 acres more than under Alternative A (see Table 4.155).

Within the areas designated as closed to OHV use, piñon-juniper habitat would be the most prevalent. Wildlife species that depend on piñon-juniper habitat for survival and reproduction (including mule deer, elk, pronghorn, mountain lion, and songbirds) would benefit more than other species from the decision to close areas to OHV use. The impacts to various habitat types would be proportionally similar to Alternative A, although fewer acres would be open to OHV impacts.

There are 367.4 miles of designated routes with possible wildlife habitat conflicts. In Alternative B, 132.3 miles of these routes are not identified for travel.

4.3.19.13.5 Proposed Plan

Under the Proposed Plan, 1,866 acres would be open to cross-country OHV use, which is 618,346 acres less than under Alternative A. OHV use would be limited to designated routes on 1,481,334 acres, 357,347 acres more than under Alternative A. Finally, the Proposed Plan would close 338,847 acres to OHV use, 334,236 acres more than under Alternative A.

The impacts of this alternative on wildlife are comparable to the impacts of Alternative B, although Alternative B would be slightly more beneficial. Fewer acres would be subject to adverse OHV impacts than under Alternative D. The impacts to various habitat types would be proportionally similar to Alternative A, although fewer acres would be open to OHV impacts (see Table 4.155).

There are 367.4 miles of designated routes with possible wildlife habitat conflicts. In the Proposed Plan, 51.8 miles of these routes are not identified for travel.

4.3.19.13.6 Alternative D

Under Alternative D, 3,064 acres would be open to cross-country OHV use; 617,148 acres fewer than under Alternative A. OHV use would be limited to designated routes on 1,762,083 acres, or 638,096 more acres than under Alternative A. Finally, 56,970 acres would be closed to OHV use, which is 52,289 more acres than under Alternative A. Travel decisions under Alternative D would be less detrimental to wildlife than under Alternative A, but more detrimental than under Alternative B or the Proposed Plan. The impacts to various habitat types would be proportionally similar to Alternative A (see Table 4.155).

There are 367.4 miles of designated routes with possible wildlife habitat conflicts. In Alternative D, 11.1 miles of these routes are not identified for travel.

4.3.19.14 Impacts of Vegetation Decisions on Wildlife and Fisheries

4.3.19.14.1 Impacts Common to All Alternatives

Under all alternatives, seed gathering and plant collection would be allowed in all areas meeting Utah's Rangeland Health Standards. This could have short-term, direct, adverse impacts on wildlife species and habitat due to trampling and human disturbance during collection activities,

and in some cases depletion of food sources for some species. The spread of noxious, invasive, and non-native weed species would be controlled through implementation of the BLM weed management policies and action plans. Actions taken to help slow/stop the spread of weeds in the MPA would help reduce the adverse impacts of surface disturbance associated with stock use, oil and gas development, and other activities that result in the adverse alteration of wildlife habitat. Tamarisk and Russian olive would be treated in a number of areas to restore riparian areas. This would have short-term, adverse impacts on wildlife species in the treatment areas, but would have long-term, beneficial impacts by removing undesirable, non-native plant species, thereby improving riparian habitat.

Sagebrush habitat would be managed under the Sage-grouse Habitat Conservation Strategy (BLM 2004c), which would have long-term beneficial impacts on wildlife species that utilize sagebrush habitat (Monsen et al. 2004).

4.3.19.14.2 ALTERNATIVE A

The impacts to wildlife and fisheries would be limited to those common to all alternatives.

4.3.19.14.3 ALTERNATIVE B

Under Alternative B, any loss of sagebrush steppe habitat deemed essential to wildlife would be reclaimed at a ratio of 2:1. This requirement would have long-term, beneficial impacts on wildlife by preventing the net loss of essential sagebrush habitat.

4.3.19.14.4 PROPOSED PLAN

Under the Proposed Plan, any loss of sagebrush steppe habitat deemed essential to wildlife would be reclaimed at a ratio of 1:1. This would have similar impacts as those under Alternative B, except that habitat would be replaced at only half the rate.

4.3.19.14.5 ALTERNATIVE D

Under Alternative D, the impacts of vegetation management decisions on wildlife and fisheries resources would to the same as those described under the Proposed Plan.

4.3.19.15 IMPACTS OF VISUAL RESOURCES DECISIONS ON WILDLIFE AND FISHERIES

4.3.19.15.1 IMPACTS COMMON TO ALL ALTERNATIVES

The impacts to wildlife from visual resources decisions are primarily associated with limitations on surface disturbance intended to reduce impacts to areas with high visual resource values. VRM Class I and II designations are the most restrictive of oil and gas development and other surface-disturbing activities, and would therefore be the most beneficial to wildlife and their habitats (as described in Section 4.3.19.6). In areas designated as VRM Classes I or II, surface-disturbing activities are generally prohibited or limited.

4.3.19.15.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

Under all action alternatives, WSR segments would be managed as VRM Class I or II. 'Limited' and 'very limited' management activities would be allowed in areas designated as VRM Classes

II or I, respectively. All VRM Class I areas would be classified as NSO for oil and gas leasing. A controlled surface use stipulation would be applied to all areas managed as VRM Class II.

4.3.19.15.3 ALTERNATIVE A

Alternative A would designate 750,125 acres (or 41% of MPA) as VRM Class I or II.

4.3.19.15.4 ALTERNATIVE B

Under Alternative B, 827,093 acres would be designated as VRM Class I or II. Alternative B would manage the highest percentage of the MPA (45%) as VRM Class I or II; it would therefore be the most beneficial for wildlife.

4.3.19.15.5 PROPOSED PLAN

Under the Propose Plan, 724,587 acres (or 40% of the MPA) would be designated as VRM Class I or II, less than under Alternatives A and B, and more than under Alternative D.

4.3.19.15.6 ALTERNATIVE D

Under Alternative D, 595,390 acres would be designated as VRM Class I or II. Alternative D would manage the smallest percentage of the MPA (33%) as VRM Class I or II; it would therefore be the least beneficial to wildlife.

4.3.19.16 IMPACTS OF WILDLIFE AND FISHERIES MANAGEMENT DECISIONS ON WILDLIFE AND FISHERIES

4.3.19.16.1 IMPACTS COMMON TO ALL ALTERNATIVES

Under all alternatives, the Hatch Point, Potash-Confluence, and Dolores Triangle Habitat Management Plans (HMPs) would continue to be modified and implemented to benefit wildlife. Each HMP would be managed to benefit target species; however all species within those habitat types would benefit. Beneficial protections that may be included in HMPs include: conservation measures, replacement and mitigation stipulations, monitoring protocols, and species-specific management stipulations.

Livestock would be excluded from 48,220 acres on portions of seven allotments in order to benefit wildlife and recreation. The removal of grazing would lead to long-term beneficial impacts to wildlife utilizing those areas. The adverse impacts of grazing on wildlife are discussed in Section 4.3.19.5.

4.3.19.16.2 IMPACTS COMMON TO ALL ACTION ALTERNATIVES (B, D, AND PROPOSED PLAN)

Under all action alternatives (by utilizing Rangeland Health Standards) modification of grazing seasons and livestock classes to accommodate wildlife would enhance forage needs of wildlife in the MPA. The introduction, transplantation, augmentation, and re-establishment of wildlife species such as (but not limited to) pronghorn, desert bighorn sheep, Rocky mountain bighorn sheep, wild turkey, bison, beaver, otter, and Colorado River cutthroat trout would be considered. Where implemented, these actions would increase the viability and genetic diversity of the affected species' populations.

4.3.19.16.2.1 Impacts to Pronghorn

Under all action alternatives, 78,476 acres in the La Sal (Hatch Point herd) wildlife management unit would continue to be managed for pronghorn habitat, with an additional 743,524 acres of habitat managed in the Bookcliffs management unit (Cisco herd). Management actions benefiting pronghorn would include the following: installing and improving year-round water resources, supporting beneficial changes in livestock grazing classes (changing from sheep to cattle), installing water developments every 2 square miles on summer and fawning areas, constructing fences that allow for pronghorn passage, dismantling unnecessary fences, installing restrictive fences that stop pronghorn passage onto highways, and implementing vegetation treatments to increase forage on approximately 4,400 acres.

4.3.19.16.2.2 Impacts to Bighorn Sheep

Under all action alternatives, the recommendations for management actions in the BLM Bighorn Sheep Management Plan (1993b, as revised), the Utah BLM Statewide Desert Bighorn Sheep Management Plan (1986a, as revised), and the Revised Guidelines for the Management of Domestic Sheep and Goats in Native Wild Sheep Habitats (BLM 1998a) would be followed. The current population of desert bighorn sheep would be supported on 330,892 acres, and management would focus on increasing bighorn populations. A timing limitation stipulation for oil and gas and other surface-disturbing activities applied to 9,278 acres of habitat in the Hatch Point area would reduce noise and human activity during bighorn lambing and rutting seasons. Approximately 317,523 acres on 13 grazing allotments would be managed as desert bighorn sheep habitat; reduced livestock grazing could make additional forage available to desert bighorn sheep. Conversion of cattle allotments to sheep would be prohibited and the Hatch Point Allotment would be converted to cattle; these actions would help prevent the passage of diseases between domesticated sheep and desert bighorn sheep. Timing limitations for filming would be put in place on 123,490 acres to protect bighorn from the disturbance of film crews during bighorn lambing and rutting. Habitat management decisions benefiting bighorn sheep would include: installing water developments every 5 square miles in or within 2 miles of escape terrain; precluding exotic ungulates, wild horses, or burros within 10 miles of habitat; constructing fences that would allow for bighorn sheep passage; and dismantling unnecessary fences. In addition, water developments would be maintained to help bighorn sheep survive drought periods.

4.3.19.16.2.3 Impacts to Deer and/or Elk

Under all action alternatives, current mule deer and/or elk habitat (534,329 acres in the Bookcliffs, 313,551 acres on the La Sal Mountains) would be managed to improve vegetative and ecological conditions for both deer and/or elk. A timing limitation stipulation would be applied to all oil and gas and other surface-disturbing activities within 105,636 acres of BLM-designated crucial and substantial deer and/or elk habitat, which would protect these species from human-caused disturbances during crucial times of year such as fawning and/or calving periods. Deer habitat would be enhanced by allocating all forage to deer in crucial winter range on acquired state lands in Upper Castle Valley. Elk habitat would be enhanced by increasing elk forage on approximately 40,000 acres of elk winter range through vegetation treatments.

4.3.19.16.2.4 Impacts to Raptors

Raptor management would be guided by the use of Best Management Practices for Raptors and Their Associated Habitats in Utah (see Appendix O), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses. BLM would also cooperate with utility companies, UDWR, and USFWS to prevent raptor electrocution. Seasonal closures or spatial restrictions would be used to eliminate disturbance near raptor nests from recreation, mineral development, and other activities that might result in nest abandonment.

4.3.19.16.2.5 Impacts to Migratory Birds

Adherence with the Migratory Treaty Bird Act and Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) under all action alternatives would have beneficial impacts on migratory birds, including priority species identified on the USFWS "Birds of Conservation Concern" list (2002f and as updated) and the "Partners-in-Flight" priority species list (as updated). The use of adaptive management strategies would more effectively conserve habitat and avoid impacts to these species. Avoidance of surface-disturbing activities and vegetation-altering projects during the nesting season (May 1 through July 30), including broad-scale use of pesticides, would improve the habitat of migratory birds in the MPA and reduce adverse disturbance of birds and their habitats. These benefits would be most pronounced in the Cisco Desert Bird Habitat Conservation Area, the Colorado and Dolores River Bird Habitat Conservation Area, the Green River Bird Habitat Conservation Area, and the Cottonwood and Willow Creek Bird Habitat Conservation Area (see Appendix N).

Under all action alternatives, the prioritization of habitat types most commonly used by migratory birds (lowland riparian, wetlands, and low and high desert shrub) for maintenance and improvement would increase the availability of high-quality habitat and reduce the adverse impacts of invasive plants (e.g., cheatgrass, tamarisk, Russian olive).

4.3.19.16.3 Impacts Varying among Alternatives

Impacts of wildlife and fisheries management decisions that would vary between alternatives would primarily result from temporal and spatial restrictions on development and other surface-disturbing activities in BLM-designated wildlife habitats. These protections would benefit big game species by reducing surface disturbance and other human-related disturbances in crucial locations and during crucial times of the year and improve the quality and condition of wildlife habitats. They would also benefit other wildlife species such as birds, small mammals, and reptiles that use the same habitats. Additional impacts that may affect wildlife would come from the size of designated and managed wildlife habitats and the extent of other resource uses within those habitats, as well as how prescriptions would affect the biotic condition and quality of those wildlife habitats.

Under all alternatives, protections for deer and/or elk habitat occur primarily in sage/shrublands, piñon-juniper woodlands, and grasslands, while those in pronghorn habitat occur primarily in desert shrubland and desert grasslands. Land protected for desert bighorn is dominated by desert shrub, while Rocky Mountain bighorn habitat consists mainly of mountain and desert shrublands and limited piñon-juniper woodlands. Therefore, wildlife species that occur mainly in shrubland

and piñon juniper woodland habitats (see Table 4.148) would benefit most from the special protection of big game habitats.

4.3.19.16.3.1 Alternative A

Under Alternative A, the management of 260,769 acres of deer and/or elk winter range would restrict exploration, drilling, and other development activity from November 1 through May 15. Development restrictions would protect pronghorn fawning habitat between May 15 and June 20. Approximately 42,500 acres of desert bighorn sheep habitat would be protected by preventing human disturbance during breeding and lambing seasons. Approximately 194,560 acres of land would be designated and managed as Rocky Mountain bighorn sheep habitat.

Alternative A would have the fewest acres of wildlife habitat subject to special wildlife conditions (497,829 acres), and would therefore benefit wildlife and fisheries resources the least.

4.3.19.16.3.2 Alternative B

Under Alternative B, the management of 635,774 acres of crucial and substantial deer and/or elk winter habitat would preclude surface-disturbing activities from November 1 through May 15. Alternative B would place restrictions on almost 2.5 times as much deer and/or elk habitat as Alternative A.

Management of approximately 822,001 acres of crucial antelope habitat would preclude surface-disturbing activities from May 1 through June 15 to protect fawning areas. In addition, spring livestock grazing would be modified on 188,975 acres of crucial pronghorn habitat by removing livestock by February 28 each year to encourage forb production and vegetative cover. Livestock would also be removed from fawning areas on Hatch Point between May 1 and June 30 to reduce competition for space and forage between livestock and pronghorn fawns. The elimination of spring grazing in Alternative B would improve habitat quality and condition compared to Alternative A, and would also lead to greater carrying capacity and herd recruitment. More acreage would be managed as pronghorn habitat (and for a longer time period) under Alternative B than Alternative A and 188,975 acres would be managed to improve the quality and condition of pronghorn habitat.

A total of 130,419 acres of desert bighorn lambing, rutting, and migration habitat would be managed under No Surface Occupancy (NSO) stipulations for oil and gas as well as precluding all other surface-disturbing activities. In addition, within 46,319 acres of desert bighorn sheep lambing habitat, camping would be limited to designated sites. Livestock grazing would be removed by March 31 on the North River and Taylor (Dry Mesa Pasture only) allotments. More habitats would be managed for desert bighorn sheep under Alternative B than under Alternative A. Limited grazing, camping restrictions and no surface occupancy in Alternative B would improve habitat quality and condition compared to Alternative A and would also lead to greater carrying capacity and herd recruitment.

Under Alternative B, 458,242 acres of land would be designated and managed as Rocky Mountain bighorn sheep habitat. This is substantially more than the 194,560 acres designated as such under Alternative A. This increase in the habitat size improves carrying capacity, thus benefiting bighorn more than Alternative A.

Under this alternative, there would be 1,548,607 more acres (or three times more area) subject to special wildlife conditions than under Alternative A. Therefore, Alternative B would protect and improve the condition and the quality of wildlife habitats, and be more beneficial to wildlife than Alternative A.

4.3.19.16.3.3 Proposed Plan

Under the Proposed Plan, management of 349,955 acres of crucial deer and/or elk habitat would preclude surface-disturbing activities from November 15 through April 15 each year. The Proposed Plan would restrict activities on more deer and/or elk habitat than Alternative A, but less than Alternative B.

Management of approximately 293,741 acres of pronghorn antelope fawning habitat would preclude surface-disturbing activities from May 1 through June 15. In addition, spring livestock grazing would be adjusted on a case-by-case basis within 188,975 acres of crucial pronghorn habitat to encourage forb production. Rest/rotation management systems would also be considered for grazing areas within crucial pronghorn habitat. Limited grazing in the Proposed Plan would improve habitat quality and condition more than under Alternative A, but less than Alternative B and would also lead to greater herd recruitment. The Proposed Plan would restrict surface-disturbing activities and grazing on more acres of pronghorn habitat than Alternative A, but fewer than Alternative B.

A total of 111,337 acres of desert bighorn lambing, rutting, and migration habitat would be managed with NSO stipulations for oil and gas as well as precluding all other surface-disturbing activities. However, within migration corridors, pipeline construction and geophysical exploration for oil and gas development would be allowed outside lambing and rutting periods from June 16 through September 30 and from January 1 to March 31. In addition, within 46,319 acres of desert bighorn sheep lambing habitat, camping and livestock grazing would be limited. Limited grazing, camping and surface disturbance in the Proposed Plan would improve habitat quality and condition more than under Alternative A but less than Alternative B and would also lead to greater herd recruitment. More habitat would be conserved for desert bighorn sheep under the Proposed Plan than under Alternative A. However, the Proposed Plan would not be as beneficial to desert bighorn sheep or the other wildlife species that share its habitat as Alternative B, since the Proposed Plan would restrictively manage fewer acres.

Under the Proposed Plan, 310,726 acres of land would be designated and managed as Rocky Mountain bighorn sheep habitat. This is substantially more acres and carrying capacity than would be designated under Alternative A, but less than under Alternative B.

The Proposed Plan would manage 567,930 more acres (or twice as much area) under special wildlife conditions than Alternative A. Therefore, the Proposed Plan would be more beneficial to wildlife species in the MPA than Alternative A. The Proposed Plan would be less beneficial to wildlife species and their habitats than Alternative B, since the Proposed Plan would manage half as many acres under special wildlife conditions than Alternative B.

4.3.19.16.3.4 Alternative D

Alternative D would preclude surface-disturbing activities on 349,955 acres of crucial deer and/or elk habitat from December 1 through April 15 each year. This restriction is the same as the Proposed Plan.

Approximately 78,477 acres of pronghorn antelope fawning habitat would preclude surface-disturbing activities from May 1 through June 15. Alternative D would be more beneficial to wildlife than Alternative A, but less so than Alternative B or the Proposed Plan. Alternative D would not offer specific management opportunities to maintain or improve antelope habitats; therefore the condition and quality of 188,975 acres of crucial antelope habitat would be degraded or removed, reducing herd recruitment. Alternative D would be less beneficial to antelope habitat than Alternatives A, B, and the Proposed Plan.

A total of 46,319 acres of desert bighorn lambing and rutting habitat would preclude surface-disturbing activities from April 1 to June 15 and from October 15 to December 15. Livestock restrictions would be the same as under Proposed Plan. In addition, camping would be unrestricted within this area. Limited grazing in Alternative D would improve habitat quality and condition more than under Alternative A, the same as the Proposed Plan, but less than Alternative B and would also lead to herd recruitment. Alternative D would not be as beneficial to desert bighorn sheep as Alternative B, or the Proposed Plan

Under Alternative D, 194,560 acres of land would be designated and managed as Rocky Mountain bighorn sheep habitat. This is equal to the amount of land designated under Alternative A, but less than under Alternative B or the Proposed Plan. Therefore, Alternative D would be less beneficial to bighorn sheep than Alternative B and the Proposed Plan and the same as A

There would be 171,482 more acres subject to special wildlife conditions under Alternative D than under Alternative A. Therefore, Alternative D would be more beneficial to wildlife than Alternative A and less beneficial to wildlife than Alternative B or the Proposed Plan.

4.3.19.17 Impacts of Woodlands Decisions on Wildlife and Fisheries

Woodlands decisions' impacts on wildlife would depend primarily upon the number of acres of wildlife habitat open to woodland harvest under each alternative. Adverse impacts to wildlife from woodland harvest include direct habitat loss, habitat degradation, and habitat fragmentation. Indirect, adverse impacts of wood gathering on wildlife species and their habitats include trampling and removal of native vegetation, which result in habitat degradation that can include reduction of prey species, forage species, and cover.

Although large areas of the MPA are open to woodland harvest under all alternatives, adverse impacts would be concentrated in areas with vegetation types that would support public and commercial harvesting activities. Piñon-juniper woodland and conifer/mountain shrub are generally the only habitat types considered for harvest. Therefore, the impacts under each alternative were assessed according to the area of those vegetation types open to woodland harvest (Table 4.157).

Table 4.157. Number of Acres in the MPA Open and Closed to Woodland Harvesting

Zone	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Total Closed	601,146	863,227	646,694	601,146
Total Open	1,217,635	961,039	1,172,436	1,217,635
Open Areas with Woodland Vegetation (Piñon-juniper or Conifer / Mountain Shrub vegetation)	455,134	300,950	420,967	455,134

4.3.19.17.1 Impacts Common to All Alternatives

The Healthy Forests Restoration Act of 2003 would be implemented under all alternatives. This action would help mitigate the adverse impacts of woodland product use on wildlife species and their habitats in areas of the MPA open to wood harvesting.

4.3.19.17.2 Alternatives A and D

Approximately 455,134 acres of woodlands with piñon-juniper or conifer vegetation would be open to harvest under Alternatives A and D. These alternatives would have the largest impact on wildlife.

4.3.19.17.3 Alternative B

Approximately 300,950 acres of woodlands with piñon-juniper or conifer vegetation would be open to woodland harvest under Alternative B, which would have the fewest adverse impacts on wildlife.

4.3.19.17.4 Proposed Plan

Approximately 420,967 acres of woodlands with piñon-juniper or conifer vegetation would be open to harvest under the Proposed Plan. Therefore, the Proposed Plan would be less detrimental to wildlife than Alternatives A and D, but more detrimental than Alternative B.

4.3.19.18 Impacts of Habitat Fragmentation on Wildlife

In addition to directly disturbing wildlife habitat, roads associated with minerals and travel decisions also fragment adjacent (undisturbed) habitat, thereby degrading its value to wildlife. Habitat fragmentation may be less obvious than direct impacts such as vehicle collisions with wildlife or vegetation removal, but often carries considerable consequences for long-term population and reproductive success. Large expanses of habitat may be required to meet the minimum habitat requirements of the largest, most widely roaming species, including top carnivores and large migrating herd animals.

The impacts of habitat fragmentation from foreseeable oil and gas development and each alternative's travel management plan were analyzed for deer and/or elk, desert bighorn, Rocky Mountain bighorn, sage-grouse, and migratory birds (discussions of impacts to sage-grouse are provided in Section 4.3.15, Special-Status Species). These species were selected for analysis for

three reasons: 1) they are species of high interest; 2) published studies were available that provided suitable fragmentation thresholds to assess impacts to the species; 3) GIS data were available to support the analyses. Other wildlife species (e.g., amphibians, reptiles, small game, and raptors) would likely also be impacted by habitat fragmentation, but did not meet the analysis criteria above.

4.3.19.18.1 General Methodology

GIS models were created to analyze the degree of habitat fragmentation under each alternative. The models were based on the BLM's best available GIS data for existing roads within the MPA (the Travel Plan from Alternative A). The model also utilized habitat acreages proposed under Alternative B for each species, which is the most inclusive of BLM-proposed habitat. Within areas of the MPA that would be open to oil or gas well development (under Standard, Controlled Surface Use, or Controlled Surface Use and Timing Stipulations), the number of wells expected under the RFD scenario were randomly distributed by RFD area. Only roads impacts were considered in the models; individual wells were assumed to have no area and no effect on fragmentation.

Once the wells had been distributed within the network of existing roads, the model generated new roads that connected each well to the nearest existing road. Roads were generated as the shortest straight line from well to existing road, without consideration for topography or ease of travel. The habitat fragmentation analysis considered the impacts of all BLM-identified existing roads and new computer-generated roads on the habitat of each wildlife species examined.

Several potential sources of error affect these analyses. First, not all existing roads were included in the GIS database utilized in the models due to unofficial and uninventoried roads. Therefore, these analyses may slightly underestimate some adverse impacts from habitat fragmentation. Second, many roads in the MPA are rarely traveled by vehicles (personal communication, Katie Stevens), and would therefore have little contribution to habitat fragmentation. Including roads with little travel would tend to overestimate the impacts of roads on wildlife habitat. Because the impacts of under- and over-estimation would be consistent across all alternatives, the results presented should be useful for comparative purposes.

4.3.19.18.2 Analysis of Impacts to Wildlife

4.3.19.18.2.1 Mule Deer

Methodology: Habitat fragmentation for mule deer was assessed by determining the proportion of habitat where road densities would exceed 0.16 km/km². Habitat where this threshold would be exceeded was considered unfavorable, following Sawyer et al. (2006a, 2006b), who found in a case study over a year's time that mule deer preferentially use habitat where road densities are ≤ 0.16 km/km² in a natural gas field in western Wyoming. A large body of evidence finds that mule deer are impacted by the density of roads. Road density was calculated per km^2 of BLM-designated habitat in the MPA.

Results: Table 4.158 presents the proportion of BLM-designated mule deer and/or elk habitat that would be considered unfavorable to mule deer due to fragmentation by roads under each alternative.

Table 4.158. Percent of Mule Deer and/or Elk Habitat Considered Unfavorable After Fragmentation by Roads (road density > 0.16 km/km²)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Percent Mule Deer and/or Elk Habitat Unfavorable	50%	39%	42.5%	48%

Under Alternative A, approximately half of the mule deer and/or elk habitat in the MPA would be unfavorable to mule deer due to existing roads and those expected due to reasonably foreseeable minerals development. Existing roads are by far the largest contributor to this fragmentation, with less than 100 miles of new roads expected due to minerals development. Alternative B would be the least detrimental to mule deer, adversely affecting 39% of the available habitat, 11% less (of the total) than under Alternative A.

4.3.19.18.2.2 Elk

Methodology: Habitat fragmentation for elk was assessed by determining the proportion of habitat where road densities would exceed 0.62 km/km². Habitat where this threshold would be exceeded was considered unfavorable, following Lyon (1983), who found that elk preferentially use habitat where road densities are </= 0.62 km/km². Road density was calculated per square km of BLM-designated habitat in the MPA.

Results: Table 4.159 presents the proportion of BLM-designated mule deer and/or elk habitat that would be considered unfavorable to elk due to fragmentation by roads under each alternative.

Table 4.159. Percent of Mule Deer and/or Elk Habitat Considered Unfavorable After Fragmentation by Roads (road density > 0.62 km/km²)

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Percent Mule Deer and/or Elk Habitat Unfavorable	39%	29%	32%	33%

Under Alternative A, approximately 39% of the mule deer and/or elk habitat would be unfavorable to elk due to existing roads and those expected due to reasonably foreseeable minerals development within the MPA. Existing roads are by far the largest contributor to this fragmentation, with less than 100 miles of new roads expected due to minerals development. Alternative B would be the least detrimental to elk, adversely affecting 29% of the available habitat, 10% less (of the total) than under Alternative A.

4.3.19.18.2.3 Bighorn Sheep

Methodology: The impacts of habitat fragmentation on both Rocky Mountain and desert bighorn sheep were assessed using habitat patch size, rather than road density (as with mule deer and/or elk above). This assessment assumed that patch sizes smaller than 159 km² were generally unsuitably fragmented, following Singer et al. (2001), who found that bighorn sheep released into habitat patches of at least 158.7 km² ± 60.3 km² colonized an average of one neighboring

patch, while bighorn released in smaller patches did not colonize neighboring areas and eventually left the area. Patch colonization is a necessary precursor to reproduction and population maintenance. Desert and Rocky Mountain bighorn sheep are more sensitive to encroachment and habitat fragmentation than are other ungulates in the MPA (Singer et al. 2001).

Desert Bighorn Sheep Results: Table 4.160 presents the acres of BLM-designated desert bighorn sheep habitat (128,028 acres of the total habitat of 330,892 acres) that would be found in patches larger or smaller than 159 km² under each alternative.

Table 4.160. Desert Bighorn Sheep Habitat Fragmentation

Alternative	Acres of Habitat in Patches <159 km²	Acres of Habitat in Patches >=159 km²
Alternative A	128,028	0
Alternative B	128,832	0
Proposed Plan	128,659	0
Alternative D	128,619	0

Under Alternatives A, B, D, and the Proposed Plan no unfragmented or favorable habitat exists within the MPA. Therefore, all desert bighorn habitat would effectively be unsuitable due to fragmentation. However, as stated above in the General Methodology section, many roads within desert bighorn habitat are not heavily traveled, and may not have as strong of an impact as the results suggest. Alternative B (with the fewest number of new roads planned) would provide the greatest amount of suitable bighorn habitat.

Rocky Mountain Bighorn Sheep Results: Table 4.161 presents the acres of BLM-designated Rocky Mountain bighorn sheep habitat that would be found in (unfragmented) patches larger or smaller than 159 km² under each alternative.

Table 4.161. Rocky Mountain Bighorn Sheep Habitat Fragmentation Analysis (acres)

Alternative	Acres of Habitat in Patches <159 km²	Acres of Habitat in Patches >=159 km²
Alternative A	117,518	310,814
Alternative B	67,729	361,113
Proposed Plan	70,202	358,551
Alternative D	70,202	358,503

Alternative B would be the most favorable alternative for Rocky Mountain bighorn within the MPA. Alternative A would fragment approximately 47,316 more acres into unsuitably small patches than the Proposed Plan or Alternative D, and 49,789 more acres than Alternative B.

4.3.19.18.2.4 Migratory Birds

Methodology: Fragmentation of migratory bird habitat was assessed by calculating the percentage of migratory bird habitat that would be impacted by vehicle and pedestrian traffic. The potential area of impact was assumed to be a 400-meter buffer along each side of all roads in designated migratory bird habitat. This buffer represents an average distance based on applicable literature (Clark and Karr 1979; Connelly et al. 2000; Crawford et al. 2004; UDWR 2002).

Because numerous migratory bird species use various habitats in the MPA, impacts were analyzed based on habitat types, which could then be extrapolated to specific bird species.

Results: Table 4.162 presents the percentage of each habitat type that falls within the 400-meter buffer surrounding roads in the in the MPA by alternative, as well as representative bird species that would be impacted. Although other birds utilize these habitats, these migratory birds were selected for analysis because many of them are found on lists of Sensitive species (Partners in Flight and Birds of Conservation Concern). The presence of roads can have many detrimental impacts on avian communities, including displacement, loss of habitat, and vehicular-related mortalities. Vehicles often hit and kill birds that are attracted to roadside vegetation, spilled grain, or dead animals (Forman and Alexander 1998).

Table 4.162. Percentage of Vegetation Habitat Types Impacted by 400-meter Road Buffer for Migratory Birds

Vegetation Type	Associated Species	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Conifer and Mountain Shrub	Clark's Nutcracker, Flammulated Owl, Grace's Warbler, Gray Vireo	24.1	15.0	16.8	19.4
Desert Shrub	Ash-throated Flycatcher, Brewer's Sparrow, Golden Eagle	74.6	50.9	56.2	58.0
Piñon-Juniper	Black-throated Gray Warbler, Gray Vireo, Juniper Titmouse, Piñon Jay	48.2	37.7	41.1	42.7
Riparian and Wetland	Blue Grosbeak, Cooper's Hawk, Hermit Thrush, Peregrine Falcon, Northern Harrier	65.3	45.9	54.3	56.7
Sagebrush and Perennial Grassland	Horned Lark, Brewer's Sparrow, Sage Thrasher, Western Meadowlark	69.9	58.7	64.4	65.2
Average		**60.2**	**44.0**	**48.4**	**50.0**

Under each of the alternatives, birds that use desert shrub habitats would experience the most habitat fragmentation. Migratory birds that utilize piñon-juniper woodlands would be the next most heavily impacted by road effects and habitat fragmentation.

Of all the alternatives, Alternative A would cause the most fragmentation by allowing approximately 294,700 more acres of disturbance compared to Alternative B, 216,099 more than the Proposed Plan, and 185,650 more than Alternative D. Alternative B would cause the least amount of road-related disturbance to migratory bird habitat (in total and within each habitat type).

4.3.19.19 Summary of Impacts

See Table 2.2 of Chapter 2 for a summary of impacts to wildlife and fisheries resources.

4.3.20 Woodlands

This section discusses impacts to woodlands from management actions of other resources and resource uses discussed in Chapter 2. Existing conditions concerning woodlands are described in Chapter 3.

For analysis purposes, the management of non-WSA land with wilderness characteristics, high use recreation areas, some ACECs and all WSAs prohibits the harvesting of woodland products. This restriction would result in adverse impacts to the harvesting of woodland products. The great majority of this harvesting is casual collection by individuals, such as for firewood, fence posts, Christmas trees, landscaping, greenwood cutting, and sundry use). Conversely, it was assumed that areas within the MPA that were open to woodlands harvesting would have beneficial impacts on the resource because 1) opportunities would be available to the public to harvest wood for a variety of uses, and 2) managed woodland harvesting (harvesting-related fuel load reductions).would reduce wildland fire risks in dense woodland stands. The criteria for impacts analysis were the number of acres available and unavailable for woodland harvesting within the MPA.

There have been no timber sales in the MPA in the recent past. Therefore, for analysis, it is assumed that there would be no timber sales within the MPA during the life of the plan. Any future timber sale would only be allowed within open to woodland harvest areas, and would be analyzed on a site-specific basis.

Utah Riparian Policy prohibits the harvest of riparian species such as cottonwood and willow (except for Native American uses). Harvest of these riparian species is therefore not analyzed further.

4.3.20.1 Impacts Common to All Alternatives

Under all alternatives, permits for woodland harvesting would continue to be sold, and wood gathering areas would continue to be designated. These management actions would reduce the need for fire treatments in dense woodlands, support the goals of the Fire Management Plan, and improve woodland ecosystem health by thinning woodlands stands and allowing the removal of dead and diseased trees. This management action would have long-term, beneficial impacts to woodland resources.

4.3.20.2 Impacts Common to All Action Alternatives (B, D, and Proposed Plan)

Under Alternatives B, D, and the Proposed Plan implementing the Healthy Forest Initiative and the 2003 Healthy Forests Restoration Act would have long-term, beneficial impacts on woodland resources, along with the MPA Fire Management Plan mentioned above, by maintaining and/or restoring woodland ecosystem health and ensuring the sustainability of woodland resource productivity for long-term harvesting.

4.3.20.3 Alternatives Impacts

Air quality, cultural resources, human health and safety, lands and realty, livestock grazing, paleontology, minerals, special status species, soil/watershed, travel management, vegetation, visual resources , and wildlife and fisheries management actions would have negligible to minor impacts on woodland resources and will not be analyzed further in this section. The impacts would be negligible because maintaining air quality within the MPA, protecting the public from AML site hazards and reducing the risks of hazardous materials spills and cleanup, establishing utilization levels and maintaining proper functioning condition on rangelands, allowing fossil study and recreational collection of fossils, leasing areas for minerals exploration and development, maintaining and improving native vegetation communities, protecting scenic quality under designated VRM Class objectives, and maintaining and improving wildlife habitat would neither reduce or enhance the opportunities for woodland harvesting nor inhibit the ability of the Moab FO to maintain a healthy, sustainable woodland ecosystem.

Decisions concerning fire management, recreation, special designations, non-WSA lands with wilderness characteristics and woodlands will be discussed below.

4.3.20.3.1 Impacts of Fire Management Decisions on Woodlands Resources

Under all alternatives, woodland resources would be subject to fire management fuels treatments to reduce the risk of wildland fire through a fire management program. Estimated fuels reduction treatments of 5,000 to 10,000 acres/year would be conducted dependent on budgetary and time constraints. This could cause surface disturbance-related soil erosion and increase the likelihood of noxious weed invasion and establishment and long-term displacement of woodland species. These fire-related activities would increase the likelihood of short-term and long-term, adverse impacts on woodland resources productivity. Fire treatments would also have short-term adverse impacts on woodlands harvesting from restrictions placed on entry into fuels reduction-treated areas during vegetation re-growth. Fire management actions under this alternative would be beneficial in the long-term because they would reduce the risk of wildland fire in dense stands, improve fire condition classes, and protect woodland resources for sustainable yields of woodland products.

4.3.20.3.2 Impacts of Non-WSA Lands with Wilderness Characteristics Decisions on Woodlands Resources

4.3.20.3.2.1 Alternative A

Under this alternative, no non-WSA lands would be managed for wilderness characteristics, which would result in no impacts to woodland harvesting from these decisions. Woodland resources may be impacted because woodlands would remain intact.

4.3.20.3.2.2 Alternative B

Under Alternative B, 266,485 acres of non-WSA lands would be managed for wilderness characteristics, with prohibitions on wood cutting. These areas have limited woodland resources, are remote and isolated, and have limited motorized access. For these reasons, non-WSA lands with wilderness characteristics are not popular for woodcutting activities. Thus, there would be no long-term, adverse impacts on the harvesting of woodland products within the MPA. Woodland resources would be retained on those 266,485 acres.

4.3.20.3.2.3 Proposed Plan

Under the Proposed Plan, 47,561 acres of non-WSA lands would be managed for wilderness characteristics, with prohibitions on harvesting in these areas. Three of these areas have limited woodland resources and have limited access. (Beaver Creek non-WSA lands are remote and isolated from populated areas). For these reasons, these areas are not popular for woodcutting activities. Thus, there would be no long-term, adverse impacts on the harvesting of woodland products within the MPA. Woodland resources would be retained on those 266,485 acres.

4.3.20.3.2.4 Alternative D

Under Alternative D, no non-WSA lands would be managed for wilderness characteristics, resulting in no impacts to woodland harvesting from these types of decisions. Woodland resources may be impacted because woodlands would remain intact.

Table 4.163 illustrates acres closed to Woodland Harvest within non-WSA lands with wilderness characteristics, by alternative.

Table 4.163. Acres Closed to Woodland Harvesting within Non-WSA Areas Identified with Wilderness Characteristics

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Non-WSA acres managed for wilderness characteristics (acres)	0	266,485	47,561	0

4.3.20.3.3 Impacts of Recreation Decisions on Woodlands Resources

SRMAs and portions of SRMAs that are heavily used by recreationists are closed to woodland harvest to prevent unnecessary degradation to vegetation. SRMAs include Canyon Rims, Colorado Riverway, and portions of Labyrinth Rims/Gemini and South Moab. A comparison of acres closed to woodland harvesting within SRMAs is shown below in Table 4.164.

Table 4.164. Acres Closed to Woodland Harvesting within SRMAs

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
SRMA acres closed to woodland harvesting	180,657	234,590	255,555	180,657

For the Proposed Plan and Alternative D, the impacts of recreation management actions on woodland resources would be similar to those discussed for Alternative B.

4.3.20.3.4 Impacts of Special Designations Decisions on Woodlands Resources

4.3.20.3.4.1 All Alternatives (Including the Proposed Plan)

Wilderness Areas and Wilderness Study Areas (non-discretionary decision). For all of the alternatives, the preservation of wilderness values within WSAs and Wilderness areas on approximately 354,015 acres preclude any activities that could degrade or cause the loss of wilderness values. No woodland harvest is allowed within Wilderness Study Areas or Wilderness Areas.

4.3.20.3.4.2 Alternative A

ACECs. Under the No Action Alternative, there are no ACECs designated, resulting in no impacts to woodland products harvesting from decisions associated with ACECs.

Wild and Scenic River Segments. Under this alternative, 24 miles of river segments along the Colorado River (segments 1, 2, and 3) and 22 miles along the three segments of the Dolores River would be recommended as eligible. Until suitability determinations were made, the segments would be managed to protect their outstandingly remarkable values (ORVs). Protection of these river segments would prohibit harvesting, which would have long-term, adverse impacts on woodland resources because harvesting would not be permitted in woodland areas along the 46 miles of river corridor.

4.3.20.3.4.3 Alternative B

ACECs. Under Alternative B, approximately 55,050 acres would be managed to preserve the relevant and important values within the proposed ACECs (Behind the Rocks, Bookcliffs, Colorado River, Labyrinth Canyon, Mill Creek, Upper Courthouse, Westwater Canyon, White Wash, Wilson Arch), including prohibitions on woodland products harvesting. Compared to Alternative A, this alternative would prohibit woodland harvesting within a larger area of the MPA and would have more long-term, adverse impacts to availability of woodland resources.

4.3.20.3.4.4 Proposed Plan

ACECs. The Proposed Plan would prohibit woodland resource harvesting on approximately 15,498 acres within the ACECs designated in the Proposed Plan. This area represents less than 2% of the MPA, and the impacts on woodland harvesting would be adverse in the long-term, but minor because the area of impact would be relatively small in comparison to the total MPA.

4.3.20.3.4.5 Alternative D

ACECs. No ACECs would be designated under this alternative. Table 4.165 illustrates acres closed to Woodland Harvesting within Potential ACECs, by alternative.

Table 4.165. Acres Closed to Woodland Harvesting within Potential ACECs

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
ACEC acres closed to woodland harvesting (within ACECs designated in that alternative or Plan)	0[1]	55,050	15,478	0

[1] Represent total acres of proposed ACECs by alternative.

4.3.20.3.5 Impacts of Woodlands Decisions on Woodlands Resources

4.3.20.3.5.1 Alternative A

Woodland harvesting would be used to support fire management goals of fuels reductions, and harvesting and salvage would be allowed in beetle-kill areas. The management actions for woodland resources under this alternative would have long-term, direct, beneficial impacts on the resource by: 1) permitting selective harvesting and salvage that would reduce the risks of stand-destroying wildland fire (and reduce the potential for long-term loss of the resource and woodland productivity) in the MPA; and 2) improving woodland resource conditions through selective removal of dead and diseased trees, and selective thinning of dense stands of woodlands.

4.3.20.3.5.2 Alternative B

This alternative would have similar beneficial impacts as discussed under Alternative A, but to a lesser degree, because fewer acres would be managed for harvesting and salvage (Table 4.166).

Table 4.166. Woodland Acres in the MPA

	Alternative A	Alternative B	PROPOSED PLAN	Alternative D
Open to Woodland Harvesting	1,243,734	958,124	1,168,988	1,243,734
Actual Woodland Coverage in Open Areas	437,216 (35% of Open Area)	329,895 (31% of Open Area)	411,905 (34% of Open Area)	437,216 (35% of Open Area)
Closed to Harvesting	609,385	863,250	652,386	609,385

4.3.20.3.5.3 Proposed Plan

The Proposed Plan would have similar beneficial impacts as discussed under Alternative A, but to a slightly lesser degree, because relatively fewer acres would be available for harvesting and salvage (see Table 166). The adverse restriction-related impacts to harvesting discussed under Alternative B would be the same for the Proposed Plan. The comparison of this alternative to Alternative A would be the same as discussed for Alternative B.

4.3.20.3.5.4 Alternative D

The impacts on woodland resources under this alternative would be the same as those discussed under the Alternative A as both alternatives would manage the same number of acres for woodland harvesting, salvage, and wood gathering and the same number of acres for exclusion from these activities.

4.3.20.4 Summary of Impacts

Table 2.2 (of Chapter 2) summarizes the impacts of the various alternatives and their program actions on woodland resources.

4.3.21 Unavoidable Adverse Impacts

Unavoidable adverse impacts are those that remain following the implementation of mitigation measures or impacts for which there are no mitigation measures. Mitigation measures include stipulations and the BMPs specified for the RMP alternatives. They also include compliance with the applicable laws, regulations, policies, and guidelines. Furthermore, implementation decisions require project-specific planning and NEPA analysis where additional mitigation measures are imposed as conditions of approval.

Some unavoidable adverse impacts would occur as a result of implementing the decisions in the RMP. Implementation decisions require appropriate project-specific planning and NEPA analysis and constitute BLM's final approval authorizing on-the-ground activities to proceed.

Surface-disturbing activities (e.g., construction of well pads and roads, pits and reservoirs, pipelines and power lines, mining, and vegetation treatments), OHV use, fire management and ecology, some recreational activities, and operation and maintenance of existing facilities and infrastructure in the MPA will cause fugitive dust, exhaust emissions, and smoke, thereby adversely impacting air quality.

Surface-disturbing activities, OHV use, fire management and ecology, some recreational activities, uncontrolled animal concentrations, and operation and maintenance of existing facilities and infrastructure in the MPA may cause soil erosion and soil compaction. These same activities, in combination with precipitation events, also may result in runoff and sedimentation to existing surface waters. Additional unavoidable adverse impacts from these activities include transport and spread of noxious weeds in the MPA. Noxious weeds will continue to spread via the wind, in water courses, and by attaching to livestock, wildlife, humans, and vehicles. The presence of noxious weeds in the MPA is considered an unavoidable impact.

Surface-disturbing activities and the development of mineral, energy, and other facilities in the MPA are expected to cause the unavoidable degradation, loss, and fragmentation of habitats. OHV use, fire management and ecology, some recreational activities, concentrated livestock grazing, and operation and maintenance of existing facilities and infrastructure in the MPA may contribute to the unavoidable degradation, loss, and fragmentation of wildlife habitats.

Protection of some resource values (e.g., wildlife, special status species, cultural, and paleontological resources) will adversely impact the use of other resources, such as minerals and renewable energy. Conversely, use of minerals and renewable energy are expected to adversely impact the distribution of some wildlife, special status species, and vegetative communities.

Minerals exploration and development, rights-of-way development, road and trail construction, fence and water developments, and mechanical vegetation manipulation would cause unavoidable adverse impacts on the natural character of the planning area as well as on opportunities for solitude and primitive recreation that would not be mitigated through project location and design.

Surface-disturbing activities and development from BLM actions unavoidably will change the landscape, scenic quality and setting in the MPA. Non-BLM actions on lands adjacent to BLM administered lands also will change the landscape and setting. Fire, insect and disease damage, and development also are expected to temporarily impact the scenic quality of the MPA. Surface-disturbing activities, OHV use, vandalism, and natural processes (e.g., fire and erosion) may adversely impact cultural and paleontological resources in the MPA.

There would continue to be impacts to cultural and paleontological resources associated with dispersed recreation activities, OHV use, vandalism, and other types of activities not authorized by the BLM. Unavoidable damage to cultural resources from permitted activities could occur if resources undetected during surveys were identified during ground disturbing activities. In these instances, further impacts would be ceased upon discovery and the resource would be mitigated to minimize data loss.

4.3.22 Short-term Use Versus Long-term Productivity

Short term use is defined as activities that occur within a time frame of 1 to 5 years. Long term productivity is defined as a time frame of over 5 years and within the life of the plan (15 to 20 years).

4.3.22.1 Air Quality

Prescribed fire may result in short and long-term (to a lesser degree) degradation of air quality through increases in wind-borne particulate (PM_{10} and $PM_{2.5}$) due to loss of vegetation. Such degradation is not projected to be substantial if revegetation measures are adequately monitored and supported for regrowth.

Adverse impacts to air quality are not projected to occur under any of the proposed mineral development alternatives.

4.3.22.2 Cultural Resources

Following the Section 106 process and standard BLM policy would generally maintain the long-term productivity (i.e., the availability or presence) of cultural sites in the project area.

4.3.22.3 Fire Management

The unavoidable impacts described above would potentially impact the long-term efficiency of fire management in the MPA. However, if non-surface-disturbing vegetation treatments and fire suppression were effectively implemented, they would not result in a long-term loss of key ecosystem components or the long-term productivity of natural resources in the MPA.

4.3.22.4 Health and Safety

There would be no loss in either short-term or long-term productivity as they relate to hazardous materials.

4.3.22.5 Lands and Realty

There would be no loss of long-term productivity from short-term uses.

4.3.22.6 Livestock Grazing

Management of some resources would cause short-term detriment to livestock grazing but would eventually be a benefit to the resource and contribute to long-term productivity of rangeland resources. Vegetation treatments would cause short-term loss of acres and AUMs available to livestock but could contribute to a greater area and amount of forage in the future. The exclusion of livestock grazing in areas to benefit wildlife or watersheds would result in a long term loss of forage for grazing.

Some management actions could possibly decrease the long-term productivity of livestock grazing, such as construction, minerals extraction, and other surface-disturbing activities that are planned to continue long-term. However, these are unlikely to eliminate the long-term productivity of livestock forage in the MPA for the foreseeable future.

4.3.22.7 Minerals

Once fossil fuel and mineral resources are extracted and the short-term, beneficial uses (e.g., increased supply of minerals to meet demand, increased royalties) are realized, the resources would no longer be available for long-term or future production.

4.3.22.8 Non-WSA Lands with Wilderness Characteristics

The construction of oil and gas exploration or coal-bed methane access roads and well pads would produce a long-term loss of naturalness and opportunities for solitude and primitive recreation in producing areas and other locations where reclamation is problematic or unsuccessful. The effects of prescribed fire for vegetation treatments would, in the long-term, enhance vegetation condition and the natural character of non-WSA lands. A more natural landscape would improve opportunities for both solitude and primitive forms of recreation. Further, construction of riparian fences or new water developments, would degrade the natural character of non-WSA lands in the short term, but enhance the riparian vegetation community in the long term, providing for a more natural landscape and settings for primitive recreational activities.

Other long-term activities that would degrade wilderness characteristics include above-ground rights-of-ways and power line corridors, construction of roads and trails, and allocation of areas and routes to motorized vehicle use. Further, implementation of these structures, land treatments, and uses would change the natural setting to a more developed and industrial landscape that is not conducive to primitive recreation activities and experiences of solitude. Land and vegetation disturbance, the presence of human-made structures on the land, and the noise and presence of people, equipment, and vehicles does not support an experience of solitude and conflicts with primitive recreational activities

4.3.22.9 Paleontological Resources

Short-term uses of BLM lands for activities involving surface-disturbance or increased public access would have long-term impacts on non-renewable paleontological resources. In paleontologically sensitive areas/geologic units, surface-disturbing activities affecting paleontological resources would include mineral development including oil and gas, trampling by livestock, and the construction of infrastructure such as roads, trails, reservoirs, buildings, and fire lines. Travel decisions involving OHV use would also have long-term adverse impacts on paleontological resources in sensitive areas/geologic units. Enhancing or restricting public access due to resource conflicts would create the potential for long-term impacts, either adverse or beneficial. In most cases, implementation of paleontological mitigation measures would reduce adverse impacts to below the level of significance, and result in beneficial impacts by salvaging and preserving fossils that otherwise may have never been discovered in a public museum where they would be permanently available for scientific research, education, and public display. Accordingly, these long-term impacts would not result in a loss of the long-term productivity of this resource.

4.3.22.10 Recreation

Recreation users can be displaced or their experiences or desired outcomes can be substantially interfered with by other land uses. Short term uses such as mineral exploration could disrupt recreation users for a short term. However, long-term disturbance of areas for mineral development could affect the long-term use of some lands for certain recreation users.

4.3.22.11 Riparian Resources

The short-term use of riparian areas for recreation and livestock grazing would not impact the long-term productivity as long as Utah BLM Standards for Rangeland Health are met, thereby reducing or eliminating effects of those actions known to cause degradation of riparian habitat or loss of PFC. Short-term use of riparian areas for utility corridors would impact the long-term productivity of riparian resources where infrastructure replaces riparian resources or alters its physical or biological processes.

4.3.22.12 Socioeconomic Resources

Short-term use of resources in the MPA would have negligible impacts on the long-term social and economic health and stability in Grand and San Juan Counties.

4.3.22.13 Soil and Water

Short-term uses that cause surface disturbance of sensitive soils—including improper livestock grazing, recreation and travel, fire management, and minerals development—would result in reduction of long-term soil productivity due to the reclamation limitations of these soils and in a propensity for erosion.

4.3.22.14 Special Designations

Any loss of relevant and important values within potential ACECs, or outstanding remarkable values in WSRs, would persist throughout the life of the RMP, and would constitute a long-term loss of these values as a result of short-term uses.

4.3.22.15 Special Status Species

As discussed throughout this section, some of the short term, multiple uses of the MPA are likely to impact or reduce SS species populations and/or their habitat. These uses include oil and gas development, improper livestock grazing, camping, off-road vehicle travel and woodland harvest. Most of these impacts would be partially mitigated by the actions discussed in the Management Common to All sections for each management decision. Implementation of these conservation measures, as well as adherence to BLM requirements and the Endangered Species Act would prevent these short-term resource uses from substantially impacting the long term productivity of SS species habitat in the MPA.

4.3.22.16 Travel Management

Future actions to control fuel loading and to manipulate vegetation could have short-term impacts by restricting travel in treatment areas. Limiting use to designated routes would result in perceived short term loss of access, but long term access on designated routes would be maintained due to decreases in impacts to other resource values. Otherwise, short-term use of resources in the MPA would have no impact on the long-term productivity of travel.

4.3.22.17 Vegetation

As discussed throughout this section, some of the short-term, multiple uses of the MPA would negatively impact the short-term productivity of native vegetation. These uses include oil and gas development, improper livestock grazing, camping, off-road vehicle travel, and woodland harvest. These impacts, however, provide economic benefits, and would be partially mitigated by the protective measures discussed in the Management Common to All sections for each management decision. Effective implementation of these protective measures would prevent these uses from substantially impacting the long-term productivity of these resources.

4.3.22.18 Visual Resources

Disturbance due to vegetation treatments for fire management, facility/campground construction, minerals exploration and development, and exotic species control would have short-term adverse impacts on visual resources. However, some of these activities would also have long-term, beneficial impacts on visual resources and scenic quality by reducing the potential for visual quality degradation from wildland fire, or by producing variations in the vegetation mosaic that would create a more diverse (and a potentially more visually interesting) landscape. Reclamation of minerals-related surface disturbances would reduce the impacts to the short-term. However, long term mineral development would impact the long-term productivity of visual resources in visually sensitive areas.

4.3.22.19 Wildlife and Fisheries Resources

Short-term, multiple uses of the MPA would negatively impact wildlife habitats. These uses include oil and gas development, improper livestock grazing, dispersed and developed camping, off-road vehicle travel, and woodland harvest. Permanent alteration of wildlife habitat due to clearing activities such as oil well pad installation and woodland harvest would constitute long-term adverse impacts on wildlife.

Most of these impacts would be partially mitigated by the protective measures discussed in the Management Common to All Alternatives sections for each management decision. Effective implementation of these protective measures would prevent these uses from substantially impacting the long-term productivity of wildlife and fisheries resources.

Short-term uses of BLM lands for some permitted activities could affect the long-term sustainability of some special status species habitat. Uses could affect species by displacing animals or removing plants from primary habitats and removing components of these habitats which may not be restored for greater than 20 years. For example, since translocation of sage-grouse between populations has not proven successful, long-term loss of sage-grouse habitat due to the oil and gas development and other mineral activity could result in the displacement and/or loss of localized sage-grouse populations.

4.3.22.20 Woodlands

Short-term uses that could affect the long-term productivity of woodland resources would include those activities that inhibit the re-establishment and renewal of woodland resources. Short-term uses that could adversely impact the long-term productivity of woodland resources include 1) fuels reduction treatments that could limit woodland resources productivity and could have short-term adverse impacts on woodlands harvesting from restrictions placed on entry into fuels reduction-treated areas, and 2) failure to prevent noxious weed invasion and establishment after woodland treatment or other surface disturbances, which could adversely alter successional patterns and fire regimes that favor non-woodland vegetation.

4.3.23 Irreversible and Irretrievable Commitment of Resources

Section 1502.16 of CEQ regulations requires that the discussion of environmental consequences include a description of "any irreversible or irretrievable commitment of resources which would be involved in the proposal should it be implemented." An irreversible commitment of a resource refers to decisions impacting the use of nonrenewable resources, and results in the resource being permanently lost. For example, the production of oil and gas is an irreversible commitment of these resources. An irretrievable commitment of a resource refers to decisions resulting in the loss of production or use of a resource. For example, in the construction of a road, the forage is lost for as long as the road remains.

No irreversible and irretrievable commitment of resources are anticipated for air quality, health and safety, livestock grazing, recreation, socioeconomics, travel management, vegetation, visual resources, and wildlife.

4.3.23.1 Cultural Resources

Because the location and nature of all cultural resources in the area under consideration are unknown, it is not possible to determine the amount or level of irreversible and/or irretrievable impacts to cultural resources in the MPA. However, it is likely that, in spite of Section 106 of the NHPA and BLM policy and guidelines, some non-mitigatable impacts would occur and would likely be irreversible since restoration of an archaeological site is typically very difficult.

4.3.23.2 Fire Management

The prohibition of fuels reduction and vegetation treatments could result in irretrievable losses in habitat value as vegetation types move away from DWFC. However, non surface-disturbing vegetation treatments and/or effective suppression followed by effective rehabilitation/restoration could prevent these impacts from being irreversible.

4.3.23.3 Lands and Realty

All alternatives permit Land Tenure Adjustments (sales, exchanges) that may result in the irretrievable loss of lands from public ownership when they are transferred to state or private ownership.

4.3.23.4 Minerals

The extraction and development of mineral resources from the MPA would result in both an irreversible and irretrievable loss of those mineral resources due to the finite nature of the resource. The impacts would be irretrievable and irreversible because once extracted, the mineral resource cannot be used again, nor can it be replaced in the foreseeable future.

4.3.23.5 Non-WSA Lands with Wilderness Characteristics

Within non-WSA lands not managed to protect, preserve, and maintain their wilderness characteristics, the loss of naturalness and/or solitude due to surface-disturbing activities (such as mineral development, wood harvest or cross country OHV use) could be irretrievable.

4.3.23.6 Riparian Resources

Irretrievable loss of riparian habitat could occur due to grazing, visitor trampling, and construction-related removal of riparian habitat. It is possible that noxious weed infestation of disturbed riparian areas could become an irreversible impact based on past difficulties in controlling invasive species, such as tamarisk and Russian olive, in riparian habitat. An irretrievable loss of riparian habitat could also occur if riparian habitat is converted to upland habitat (by filling, draining, or other landscape alterations) in association with the placement of utility corridor infrastructure.

4.3.23.7 Soil and Water

Surface-disturbing activities may result in soil erosion. Soil formation requires thousands of years to replenish. Eroded soil and lost productivity cannot be recovered. The loss of topsoil from soil erosion results in an irretrievable loss of soil productivity.

Depletion of water from BLM actions may result in an irretrievable commitment of water. The production of water from oil and gas wells in the planning area may be an irretrievable commitment of groundwater once it reaches the surface.

4.3.23.8 Special Designations

In ACECs or WSRs not designated in an alternative, surface-disturbing activities (such as mineral development and cross country OHV use) could result in adverse impacts to relevant and

important values and outstandingly remarkable values, respectively. However, these impacts are not expected to result in an irreversible and irretrievable commitment of these resource values.

4.3.23.9 Special Status Species

Irretrievable impacts associated with surface-disturbing activities proposed throughout the MPA include the loss of Special Status species habitat from mineral development, fire treatments, or OHV use.

4.3.24 Cumulative Impacts

Cumulative impacts occur when there are multiple impacts on the same resources. These are incremental impacts of proposed activities or projects when combined with past, present, and future actions. As stated in 40 CFR 1508.7 (1997), a "cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Resource decisions from this RMP could combine with other past, present, and reasonably foreseeable future actions to produce cumulative impacts to resources within the MPA. These resources could include air quality, livestock grazing, mineral development, wildlife habitat, and recreation use. Co-occurring planning projects in the region that could contribute to cumulative impacts include the Manti-La Sal National Forest and the BLM Monticello, Price, and Vernal RMPs. Also, similar management direction and resource uses would occur in the adjacent BLM Field Offices in Colorado. Activities on Utah School and Institutional Trust Land Administration lands (SITLA), private lands, and City and County use plans for surrounding communities could have cumulative impacts where land is developed adjacent to BLM lands.

Past actions that have affected the resources in the Moab planning area are reflected in the "Affected Environment" section in Chapter 3 of the Proposed RMP/FEIS. Present, ongoing and reasonably foreseeable actions are included in the "Reasonably Foreseeable Actions" described below.

The following reasonably foreseeable actions were identified that may contribute cumulative impacts to the project. Reasonably foreseeable actions are planned or proposed, not speculative or in the distant future. They also include continuation of recent trends in use. The following actions are identified as reasonably foreseeable:

- Land and Resource Management planning in the planning area and surrounding adjacent areas.
- Residential growth and business development throughout the planning area.
- Continued expansion of mineral extraction activities including oil and gas on BLM lands within the planning area and surrounding adjacent areas along with State and private lands.
- Utility corridor development.
- Increase in motorized and non-motorized recreational use of BLM lands.
- National Fire Plan activities for federal and state land management agencies.
- Continuing implementation of Utah BLM's Rangeland Health Standards and Guides.

- Expansion of U.S. Highway 191, including development of a network of bike paths.
- BLM's 13 Western States Vegetation Environmental Impact Statement.
- Planning for streams not meeting State water quality standards.
- Continued noxious weeds infestation.
- Continued human-caused, including prescribed burning, and natural ignitions.
- Vegetation treatments and sagebrush restoration.
- New coal-fired power plants.

4.3.24.1 AIR QUALITY

Activities contributing to cumulative impacts to air quality include prescribed burning; construction, equipment operation, and surface-disturbing activities related to oil and gas development; and OHV activity throughout most of the MPA. The emissions analysis conducted for this analysis does not quantify potential impacts to air quality but provides a basis for comparing alternatives and estimating future emissions as related to current emissions. Modeling of cumulative air impacts requires specific information not available at the programmatic analysis stage. Cumulative impacts from projects will be addressed at the project planning level, as appropriate.

Direct and indirect short-term impacts include increases in airborne particulate and gaseous emissions from prescribed burning, construction sites, and/or OHV trails/use areas. OHV related air-quality emissions are generally very short-term and site-specific in nature and are not projected to affect the wider planning area. Assuming appropriate application of control measures and strict adherence to existing regulatory and permitting processes, no appreciable cumulative, short-term, adverse air-quality effects can be projected specific to oil and gas development. Ozone concentrations in Canyonlands National Park, a Class 1 area, are already very close to the NAAQS criteria. The 4th highest daily maximum 8-hr three-year average ozone concentration in Canyonlands National Park in 2007 was 0.070 µg/m^3. The NAAQS for the same averaging period is 0.075 µg/m^3. Emissions of VOCs and NOx, both precursors to ozone formation, are projected to increase by 4% and 7% respectively due to projected oil and gas development under the Proposed Plan. These slight increases could further impact air quality at the Canyonlands National Park site and threaten to push the area into non-compliance with NAAQS. More definitive and quantitative predictions of concentrations related to oil and gas development requires air dispersion modeling, which has not been employed in this analysis because the locations of oil and gas wells cannot be determined at the programmatic planning level. However, air dispersion modeling is recommended for project specific NEPA in the MPA for which specific well locations would be known. Appropriate application of control measures and strict adherence to existing regulatory and permitting processes, will also aid in minimizing any potential cumulative adverse air quality impacts.

Long-term cumulative impacts from the activities proposed for all resource decisions on air quality include increases in particulate and gaseous emissions from equipment specific to oil and gas development, and associated use of service roads.

Implementing the National Fire Plan across Utah would cause additional short-term localized increased in particulate emissions from planned ignitions. However, a long-term reduction in the risk of violations of air quality standards from large, uncontrolled smoke emissions would occur.

Increased motorized recreational use, ongoing growth and development, and new coal-fired power plants would contribute particulate matter emissions and fugitive dust emissions. The contribution of emissions from activities occurring under the Proposed Plan and the alternatives to the past, present, and reasonably foreseeable actions are incremental.

4.3.24.2 Cultural Resources

Impacts associated with resource decisions from this RMP, combined with other past, present, and reasonably foreseeable actions, could produce cumulative impacts on cultural resources and resources of religious or traditional importance to Native American tribes associated with the decision area. The potential for cumulative impacts includes neighboring lands with connected cultural resources including adjoining BLM Field Offices, state and private lands within the planning area, the Uintah and Ouray Indian Reservation, and the Manti-LaSal National Forest. The same general management direction and resource uses occur on all BLM managed lands and the Forest Service. Surface-disturbing activities such as mineral development taking place across the region can contribute to cumulative impacts of cultural resources. However, these activities would require adherence to cultural resource laws and regulations, resulting in the inventory and identification of cultural sites, avoidance, and in some cases data recovery.

Oil and gas development and mineral exploration and development has occurred across this region in the past and would continue into the future, both on BLM lands under the RMP and on state and private inholdings. Minerals development of inholdings and lands adjacent to the MPA will continue to increase the human presence in the general area, thereby increasing the risk to cultural resources from looting, vandalism, and inadvertent impacts. However, the cumulative impacts of these activities on cultural resources in the general vicinity of the planning area would likely be less than the potential impacts from the continually increasing recreational visitation that cultural sites in the region are subject to; recreational activity in and around the MPA would continue to increase regardless of which alternative the BLM selects for its RMP. The advent of the internet has resulted in the wide publicizing of the locations and types of cultural resources in and around the planning area. This, combined with handheld GPS technology and the easy and rapid access afforded by the substantial increase in OHV ownership and recreational use, will continue to subject cultural resources in the region to heightened risk of damage, vandalism, and/or looting.

Many decisions related to visual resource management, special designations, and restrictions on surface disturbance have the potential to provide a net positive benefit to cultural resources within the MPA. These decisions would reduce or control the frequency and extent of ground-disturbing activities that present the greatest threat to maintaining the use values of cultural resources. In general, all minerals and recreation decisions under all alternatives have the potential to increase or at least maintain current levels of adverse impacts to cultural resources. Decisions for minerals and recreation generally increase or maintain current levels of surface and subsurface disturbance and have as an indirect effect an increase in human activity within those areas of minerals development and recreational use. Increased human activity tends to equate with increased adverse impacts to cultural resources, even if these impacts are inadvertent.

In general, implementation of the array of resource decisions under Alternative B would have the lowest degree of potential negative impact on cultural resources within the MPA, and in many cases Alternative B has the highest overall benefit for cultural resources. Overall, fewer acres of land would be open for ground-disturbing activities under this alternative than under any other

alternative. Although no direct correlation exists between acres of surface and subsurface disturbance and numbers of cultural resources impacted, this general trend holds true. By comparison, Alternative D and Alternative A have the potential for roughly comparable levels of potential adverse impact to cultural resources. Decisions under the Proposed Plan would have a potential for adverse impacts between those in Alternative B and those in Alternative D. Under all alternatives, specific undertakings that could result in surface and subsurface disturbance and have the potential to impact cultural resources are subject to the Section 106 process of the NHPA which calls for the identification of historic properties (i.e., National Register listed sites or sites determined eligible for listing on the National Register) within the area of potential effects and the consideration of alternatives to the planned undertaking that could avoid impacts to said properties. In the event that avoidance is not possible, mitigation of the impacts is to be considered.

The incremental contribution of the Proposed Plan and the alternatives on the cumulative impacts to cultural resources is anticipated to be minimal since cultural resources are managed in compliance with Federal laws, regulations, and policies.

4.3.24.3 Health and Safety

Cumulative impacts would be the same under all of the alternatives. The potential impacts would be due to management actions and planning within those lands surrounding the MPA, including the Vernal, Price, Monticello, Grand Junction, Montrose and Durango BLM offices, Arches and Canyonlands National Parks and the Manti-LaSal National Forest. Minerals development within surrounding areas would increase the use, generation and transportation of hazardous materials. City and County use plans for surrounding communities could have cumulative effects, whereby mineral resources are developed adjacent to BLM lands. State lands, including SITLA, that are surrounded by BLM land could have impacts from inholding development.

Hazardous materials are regulated by the EPA and administered by state agencies regardless of land status. The incremental contribution of the Proposed Plan and the alternatives on the cumulative impacts to health and safety is anticipated to be minimal if all applicable laws, regulations, safeguards, and procedures are followed.

4.3.24.4 Lands and Realty

The number of land-use authorizations, particularly rights-of-way and permits, is a function of demand for these uses. Future development of adjacent Federal, state, and private lands would likely result in additional requests for and approval of land-use authorizations for facilities such as roads, utilities, and communication sites.

City and County use plans could have cumulative impacts where land is developed adjacent to BLM lands. Both the Grand and San Juan County Use Plans have a no net loss of private land as a result of government agency land ownership adjustments. This position could affect land ownership and the cumulative impacts of future development by favoring disposals of public land over purchases of private land.

The designation of right-of-way avoidance and exclusion areas on BLM lands, along with similar restrictions on right-of-way development on adjacent lands, particularly National Forest lands, would contribute to the cumulative impact of reducing routing options for right-of-way facilities

such as utilities and roads. Alternative B has the most avoidance and exclusion areas followed next by the Proposed Plan.

4.3.24.5 Livestock Grazing

Cumulative impacts to livestock grazing can result from activities and actions within the MPA that affect available forage. This includes BLM lands, private lands, State lands, and lands on the Manti-La Sal National Forest. Surface-disturbing activities such as mineral development can reduce the amount of vegetation available for livestock grazing. However, these disturbances have resulted in minor impacts to livestock grazing in the past and up to the present time. These disturbances are also projected to be minor in the future. Activities such as vegetation treatments and fire rehabilitation projects can provide additional forage for livestock grazing.

Due to resource conflicts resulting primarily with wildlife habitat and recreation use, the Proposed Plan and the alternatives recommend areas as not available for livestock grazing. The acreage not available to grazing under the Proposed Plan and the alternatives is as follows: Proposed Plan – 114,234 acres; Alternative A – 126,907 acres; Alternative B – 153,797 acres; and Alternative D – 52,214 acres. In all cases, this amounts to only a small percentage of the 1.8 million acres of public lands within the MPA.

Therefore, the incremental contribution of the Proposed Plan and the alternatives on the cumulative impacts to livestock grazing is minimal.

4.3.24.6 Minerals

The restrictions imposed by resource programs under the Proposed Plan and alternatives result in impacts to mineral development. These restrictions are depicted on maps 2-5 A-D. For oil and gas, the restrictions include closed to leasing along with no surface occupancy, controlled surface use, and timing limitation stipulations. These restrictions reduce the unrestricted number of wells that were projected in the Reasonably Foreseeable Development scenario for oil and gas. In general, the restrictions also increase development costs and reduce production. An average of 600 wells is projected on all lands (State, Forest Service, private) within the MPA over the next 15 years when no restrictions are applied.

The restrictions identified above are not applied to non-Federal (state and private) wells. While other restrictions may be applied to non-Federal wells, the impact of such restrictions cannot be quantified for this analysis. Similar restrictions could be applied on the Manti La Sal National Forest but the potential for oil and gas development is low. The projections of well numbers under each alternative as compared to the baseline are as follows:

Baseline - 600; Alt A - 452; Alt B - 255; Proposed Plan - 432; Alt D - 448

As shown above, the incremental contribution to the overall cumulative impacts on minerals, resulting in a reduction of the projected oil and gas wells from the baseline, is highest under Alternative B followed by the Proposed Plan. The impacts to locatable and salable minerals are projected to be minimal for the Proposed Plan and all the alternatives.

4.3.24.7 Non-WSA Lands with Wilderness Characteristics

Within the MPA, a total of 553,956 acres of non-WSA lands were evaluated for wilderness characteristics. Out of these acres, a total of 266,485 acres (32 areas) was found to have

wilderness characteristics and are proposed for management in Alternative B. Under the Proposed Plan, wilderness characteristics would be managed on 47,761 acres (3 areas). No lands would be managed for wilderness characteristics under Alternatives A and D. Therefore, the potential for adverse cumulative impacts to lands with wilderness characteristics would be the greatest under alternatives A and D (266,485 acres). Alternative B would have no cumulative impacts to lands with wilderness characteristics and the Proposed Plan would result in cumulative impacts to about 218,724 acres (266,485 acres – 47,761 acres = 218,724 acres) of lands with wilderness characteristics.

The analysis of cumulative impacts for areas with wilderness characteristics (designated wilderness, WSAs, and areas identified with wilderness characteristics) includes all Federal lands with wilderness characteristics in Utah that are currently being managed for management of wilderness characteristics to protect those values. Under Alternative B, wilderness characteristics would be maintained on 266,485 acres. This would make the statewide total of Federal lands where wilderness characteristics are protected by law or administrative decision to 5,932,521 acres or about 4.5% of the statewide total. Under the Proposed Plan, wilderness characteristics would be maintained on 47,761 acres. This would make the statewide total of Federal lands where wilderness characteristics are protected by law or administrative decision to 5,713,797 or about 0.8% of the statewide total. Alternatives A and D would contribute to the loss of areas with wilderness characteristics in the region.

4.3.24.8 Paleontological Resources

Unauthorized activities such as OHV use, dispersed recreation, and vandalism would continue to have adverse impacts to paleontological resources under all alternatives. These impacts would be reduced under Alternative B and to a lesser extent under the Proposed Plan because they provide more constraints on OHV use and dispersed recreation activities. There would also be impacts as a result of permitted surface-disturbing activities such as mineral development in areas containing significant paleontological resources. The potential for inadvertent adverse impacts to paleontological resources from surface-disturbing activities would be greater under Alternatives A and D. However, existing laws, regulations, and policies provide for mitigation through avoidance or data recovery efforts. Although it is expected that some fossils would be destroyed in the course of legitimate uses of public lands, mitigation measures would likely bring paleontologist to areas where fossils had not been previously studied. Thus, fossils that would otherwise have disintegrated over time due to weathering and erosion would be collected, placed in repositories, and protected in perpetuity. Cumulative impacts on paleontological resources could occur through incremental degradation of the resource base by a variety of sources, reducing the information and interpretive potential of the paleontological resources in the region. Activities on lands that are not protected by Federal laws or policies protecting paleontological resources could decrease the regional resource base, increasing the scientific value of the paleontological resources within the decision area.

The incremental contribution to the overall cumulative impacts on paleontological resources would be greatest under Alternatives A and D. Alternative B would have the least potential for adverse cumulative impacts followed to a lesser extent by the Proposed Plan.

4.3.24.9 RECREATION

Past and present actions that have had and are having impacts on recreation include mineral development, wildland fire suppression and fuels treatments, OHV travel, utility corridor development, grazing and recreational activities in riparian areas, and management within existing SRMAs and the ERMA. Reasonably foreseeable future or potential prescriptions and impacts on recreation are included in each of the resources discussed in this section. Other administrative agencies, including the Forest Service and adjacent BLM FOs, and state and local agencies contribute to the cumulative impacts.

The potential cumulative impacts on recreation from actions within the MPA and adjacent and local administrative agencies are:

- Oil, gas, locatable, and salable minerals exploration and development could have a long-term, cumulative effect on the recreational viewshed from surface disturbances and facilities. VRM mitigation would reduce these effects, but it is likely that the activities would remain visible from points of view within the MPA and from viewpoints within the adjacent National Parks.
- Wildland fire suppression would temporarily affect recreation use in or adjacent to areas where prescribed fire or other vegetation treatments are being conducted. The long-term cumulative effects would reduce fire risks to recreation area and facilities within the MPA and on lands under other administrative agencies. Prescribed burning would temporarily degrade air quality (and scenic quality), but with the reduced risks of wildland fire, there would be a cumulative decrease in smoke emissions.
- OHV travel management would have beneficial cumulative effects on recreational experiences and resources by reducing surface impacts to soils, cultural resources, riparian areas, and wildlife habitat by generally confining travel to designated routes within the MPA. The reduction in OHV-related surface disturbances would also cumulatively reduce the spread and establishment of exotic, invasive plant species.
- Riparian areas would be beneficially affected by cumulative actions to improve ecological conditions within these sensitive areas, which would improve recreation experiences for wildlife viewing, camping, and hiking.
- The cumulative effect on recreation resources would be enhanced in the long-term by managing existing and proposed SRMAs and the ERMA in the MPA and in adjacent BLM FOs (Price, Monticello). The designation of SRMAs would help to reduce the conflicts between the different recreation uses. The cumulative effect of managing the MPA to respond to the expected increase in visitation, changes in recreational demand, and the wide range of recreational activities would have beneficial effects on recreation.

The incremental contribution to the overall cumulative impacts on recreation opportunities, setting, and experience would be greatest under Alternatives A and D, as restrictions on surface development and protections afforded to natural resources within the planning area would be less intensive under these alternatives. Alternative B would contribute the least amount to the cumulative impacts because it would provide the greatest protection to natural resources and the highest level of non-motorized recreation opportunities. The Proposed Plan would contribute an amount in between Alternative B and Alternative D to the cumulative impacts on recreation.

4.3.24.10 Riparian Resources

Past and present actions within the MPA and on adjacent USFS-administered lands, state lands, and private lands that affect and have affected riparian areas include livestock grazing, recreational uses (including OHVs, non-motorized recreation, etc), mineral exploration and development, and upstream water withdrawals and impoundments. In general, these actions have all had cumulatively adverse impacts on riparian health. Livestock grazing, recreation, and mineral-related activities have led to surface disturbance, soil compaction, removal of riparian vegetation, bank trampling, and alteration of riparian areas' physical structure. They have also resulting in the widespread introduction of invasive weeds. Water withdrawals and impoundments have limited the health and extent of riparian zones by decreasing water availability, and encouraged the introduction of invasive plants through the stabilization of formerly dynamic sediment deposits, such as bars and banks.

Reasonably foreseeable future actions that would affect riparian areas include an expansion of recreational use and ongoing mineral exploration, development, and extraction. All of these actions could have a potential adverse effect on riparian areas. Beneficial impacts would result from Forest Service planning efforts, which will reduce negative impacts to riparian resources on National Forest lands. Future impacts on private lands may include both positive and negative impacts as described above.

Under the Proposed Plan and the alternatives, riparian resources would benefit from management for Properly Functioning Condition, in accordance with the Utah Standards for Public Rangeland Health for BLM Lands in Utah and with the Grazing Guidelines for Grazing Management. This would mitigate many of the adverse impacts from past, present, and future actions. In addition, continuing closure of several allotments to grazing with perennial streams and riparian vegetation would continue the restoration and enhancement of riparian resources in these areas. The Proposed Plan and the alternatives would also preclude surface-disturbing activities within 100-year floodplains and 100 meters of riparian areas which should benefit riparian resources.

Therefore, the incremental contribution of the Proposed Plan and the alternatives to the cumulative impacts on riparian resources is expected to be minimal.

4.3.24.11 Socioeconomic Resources

Resource decisions from the Proposed Plan and the alternatives would combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to the social and economic conditions of Grand and San Juan Counties. Resource decisions for the Monticello Field Office, Arches and Canyonlands National Parks and the Manti La Sal National Forest, which are adjacent to the MPA, could potentially result in socioeconomic impacts to local communities. Changes in management actions that increase or decrease visitation to these areas could have beneficial or adverse impacts on the local economy, with regard to tourism-based revenue.

Mineral development outside the MFO's jurisdiction, but within or near the MPA could also impact social and economic conditions. According to the BLM's RFD, the total maximum amount of wells predicted to be drilled on all lands within the planning area over the life of the RMP is 600 wells. According to the Alternative A, the No Action Alternative, the maximum amount of wells projected for BLM lands is 451. Additional development of producing oil and gas wells could bring additional tax and royalty revenue to the counties, beyond the amount

estimated in the analysis above. Additional jobs may be created with the production of 151 more wells, but as stated above, the amount of full-time, local residents employed by oil and gas developers is a relatively small portion of the employed population.

Additional mineral development, including the potential increase in uranium mining on non-BLM lands and the establishment of the Lisbon Valley Copper Mine, could have short and long-term beneficial impacts on local economic conditions with regard to employment and tax revenue. The Lisbon Valley Copper Mine is expected to employ approximately 145 people and produce more than 12,500 tons of ore per day (BLM 2004e). A potential increase in uranium extraction throughout the MPA could have some short-term beneficial economic impact on local communities; however, uranium development is not projected to be extensive, and therefore should not adversely impact visitor experience and recreation-related revenues.

In addition to BLM management decisions, the remediation of the Moab Uranium Mill Tailings by the Department of Energy (DOE) could potentially impact socioeconomics. Beneficial economic impacts would likely come from short and long-term increases to the regional tax base. An increased demand for temporary housing by a workforce coming in from outside the region and support services (hotels and restaurants) would bring a temporary increase in tax revenues. Direct and indirect employment related to the transport of the tailings would result in over 300 jobs and over $13,400,000 in labor earnings. Employment related to the site monitoring and ground water remediation is not anticipated to have long-term substantial impacts on local employment levels, earnings, and revenues from goods and services (DOE 2005).

Utah Department of Transportation (UDOT) is currently developing a network of bike paths and transit facilities that would provide alternative access to Moab's popular recreation sites. The project, entitled the North Moab Recreation Areas Alternative Transportation Project, is anticipated to increase safety of visitors by separating non-motorized from motorized users, enhance visitor experience by allowing them to see the area via bicycle or walking, and benefit the environment by reducing air and noise pollution and reducing the footprint of motorized vehicles on the desert ecosystem. UDOT has estimated that the completed project would alleviate an estimated 20% of traffic congestion in the area and approximately 500,000 people would use the transit hub and non-motorized infrastructure annually. This project would likely have long-term beneficial impacts on local social and economic conditions, as the trail system would provide increased opportunities for recreation in the Moab area.

4.3.24.12 Soil and Water

Past and present actions that affect and have affected soil and water resources include livestock grazing, recreational uses (including OHVs, non-motorized recreation, etc), mineral exploration and development, woodland harvest, and vegetation treatments (including those for fire management). In general, these actions have all had cumulatively adverse impacts on soil resources by causing surface disturbance contributing to reduced soil productivity, soil compaction, erosion, and subsequent sedimentation. They have also resulted in the widespread introduction of invasive weeds, which can affect water resources through increased evapotranspiration rates, and soil resources through alterations to soil chemistry and productivity. Water withdrawals and impoundments have limited water availability and quality.

Reasonably foreseeable future actions in the MPA and on Federal, state, private, and other lands within and adjacent to the MPA that would affect soil and water resources include an expansion

of recreational use and ongoing mineral exploration, development, and production. All of these actions will have an adverse effect on soil and water resources in the MPA. Beneficial impacts would result from Forest Service planning efforts, which would reduce negative impacts to soil and water resources on adjacent Forest Service lands and on MPA lands adjacent to and downslope and downstream from Forest Service lands. Future impacts from private land uses may be positive or negative, as described above.

Under all alternatives, soil and water resources would benefit from management, in accordance with the Utah Standards and Guidelines for Rangeland Health. Adherence with these standards would reduce many of the adverse impacts from future actions. In general, Alternatives A and D would be the least protective of soil and water resources, result in the least beneficial impacts to soil and water resources, and have the least mitigating effect on past impacts to soil and water resources in the MPA. Alternative B would be the most protective and would provide the greatest reductions of cumulative impacts by excluding the most areas from grazing and other forms of surface disturbance, and prioritizing the most WMPs. The Proposed Plan would provide a level of protection and mitigation of cumulative impacts between that in Alternative B and D; however, Alternative A excludes more acreage from grazing.

4.3.24.13 Special Designations

ACECs and WSRs

There would be negligible cumulative impacts to those areas managed in the Proposed Plan as Special Designations for ACECs or WSRs. Cumulative impacts to areas proposed for Special Designation in Alternative B can result from decisions on BLM lands and State lands. Adverse impacts would occur mainly from surface-disturbing activities such as mineral development. Impacts could include the loss of vegetation resulting in impacts to soils, wildlife habitat, and visual resources. These cumulative impacts could lead to the loss of relevant and important values for ACECs and outstanding remarkable values for Wild and Scenic Rivers not designated in the Proposed Plan.

Those rivers not found suitable for Wild and Scenic River designation in the Proposed Plan could be subject to the alteration of their free-flowing character resulting from potential future water developments.

Therefore, the incremental contribution to the cumulative impacts on Special Designations is greatest for Alternatives A and D, least for Alternative B, and in between Alternative B and Alternatives A and D for the Proposed Plan.

Wilderness and WSAs

The Proposed Plan and the alternatives would contribute no adverse cumulative impacts to Wilderness or Wilderness Study Areas because they are protected by law, regulation and policy.

4.3.24.14 Special Status Species, Vegetation, and Wildlife

Surface disturbance associated with consumptive uses such as oil, gas and other minerals development, and forage use by livestock and wildlife species would result in cumulative effects over a larger landscape scale than the planning area for the Moab RMP.

Oil and gas development has occurred across this region on both BLM and non-BLM lands in the past and will continue into the future. The combined amount of surface disturbance of these past, present, and future actions could be detrimental to sensitive plants and animals. The spatial layout of oil and gas facilities disturbs a large proportion of vegetation and wildlife habitat when considered across the region. Each disturbed area for a well pad increases the opportunity for weed invasions and disrupts the spatial continuity of vegetation communities, and hence, habitat for sensitive plant and animal species. Other activities such as road building and increased OHV use could increase human access to sensitive areas that SS species, vegetation, and wildlife are dependent upon for survival. For example, increased human access into prairie dog sites could increase mortality by shooters and indirectly impact all the species associated with them.

The overall cumulative impact of activities proposed on these resources could be detrimental at localized areas within the short term, with long-term improvements for (non-special-status) vegetation and wildlife habitat. Major contributors on both BLM and non-BLM lands include OHV activities; habitat destruction from mineral development related activities; some vegetation treatments such as sagebrush removal; and possible livestock water developments resulting in redistribution of livestock into previously unused areas that are sensitive to disturbance. Direct impacts would be due to loss of individual sensitive plants or animals from mineral, oil, and gas related development. Indirect impacts on both BLM and non-BLM lands would also occur with habitat fragmentation due to development, changes in OHV use due to increased roads, and rock/fossil collection. These activities would concentrate grazing pressures and recreation use on habitat sites for some plant and wildlife species. The conversion of land use from agricultural lands to residential and commercial uses would increase the habitat values of undeveloped land. The change in land use could result in the loss of habitat for some wildlife species.

The cumulative impacts of all the uses discussed above on both BLM and non-BLM lands could lead to lower populations of sensitive (and non-sensitive) plants and animals in the future. However, protections provided by the Endangered Species Act would minimize the potential adverse cumulative impacts to listed species. Conversely, beneficial impacts would be obtained with BLM designation of proposed ACECs, Wild and Scenic Rivers, and management of non-WSA lands for wilderness characteristics, because numerous plant populations and wildlife habitats would be given special management protection within the boundaries of those areas. As a result of these proposed designations, the incremental contribution to the cumulative impacts on plant and animal habitats would be the greatest under Alternatives A and D, the least amount under Alternative B, and in between Alternative B and Alternatives A and D under the Proposed Plan.

4.3.24.15 Travel Management

Past, present, and future actions impacting travel management include the addition of routes for fire and fuels management to reduce the risks of wildland fire, vegetation treatments to control invasive species, new minerals exploration and development routes, managing for increasing recreational demand and visitation by adding new routes, and other changes in travel management; however, these actions would likely be minor.

Transportation and road networks adjacent to BLM lands include routes shared with other Federal agencies, SITLA, and private landowners. Cumulative impacts to transportation and access would occur primarily from actions that facilitate, restrict or preclude motorized access, including the designation of routes on BLM land. Management actions that restrict OHV use

would limit the degree of travel opportunities and the ability to access certain portions of the planning area. The continued maintenance of Federal and state highways would provide arterial connections to BLM roads. County maintained routes that connect Federal and state highways to BLM-system routes would maintain and improve access to the MPA's resources.

Therefore, the incremental contribution of the Proposed Plan and the alternatives to the cumulative impacts on Travel Management is expected to be minimal because the designated routes under the Proposed Plan and the alternatives provide sufficient travel opportunities throughout the MPA.

4.3.24.16 Visual Resources

4.3.24.16.1 Alternative A-No Action

Under Alternative A, only 100,273 acres on BLM-administered lands within the MPA are managed for visual resources. Past and present actions on BLM and non-BLM lands causing cumulative impacts to visual resources include fire suppression, minimal fuels treatments, and minimal prescribed fire treatments, resulting in a buildup of hazardous fuels materials. Minerals exploration, development, and extraction have been and are being conducted within the MPA, producing surface disturbances within the MPA. The demand for recreational opportunities has been and is presently intensifying resulting in impacts to backcountry and frontcountry recreation areas as visitors expand into previously undisturbed areas of the MPA.

Reasonably foreseeable future actions include vegetation treatments to reduce fuel loading and to improve vegetation community and enhance wildlife habitat. Recreational activity and use within the MPA is expected to increase, including OHV use, backcountry camping, mountain biking, rock climbing, and on-road sightseeing, with expected increased visitation to the adjacent national parks and national forests, and foreseeable increases in demand for recreational facilities and recreational opportunities. Mineral exploration, development and extraction, including oil and natural gas well drilling, are expected to increase over the next 15 to 20 years.

Therefore, the incremental contribution of Alternative A to the cumulative impacts on Visual Resources is expected to be extensive because this alternative provides minimal protection for Visual Resources.

4.3.24.16.2 Action Alternatives-Alternatives B, D, and the Proposed Plan

Under the Proposed Plan, as well as under Alternatives B and D, BLM lands are managed to protect Visual Resources. The protection provided is greatest under Alternative B, least under Alternative D and in between Alternative B and Alternative D under the Proposed Plan. Past and present management, and reasonably foreseeable future actions, combined with the proposed action alternatives (Alternative B, D, and Proposed Plan) would have cumulative impacts on visual resources that preserve scenic quality within the MPA. The risks of wildland fire would be reduced within the MPA and on adjacent national forests through increased vegetation treatments to reduce fuel loads; recreation activities and off-road travel would be managed to limit surface disturbances by greatly reducing areas open to OHV use so that areas inventoried as having high scenic quality would be preserved. Mineral exploration, development and extraction, including oil and natural gas well drilling, are expected to increase over the next 15 years to 20 years, but visual resource management and associated mitigation would likely limit the impacts in

viewsheds with high scenic quality in the MPA and in the adjacent national parks and national forests. Visual resource management would include conformance of minerals exploration and development activities with VRM Class objectives, which would preserve scenic quality in the long-term in areas that the MPA has designated for scenic quality protection.

Therefore, the incremental contribution to the cumulative impacts on Visual Resources is expected the greatest under Alternative D, the least under Alternative B, and in between Alternative B and Alternative D under the Proposed Plan.

4.3.24.17 WOODLANDS

The cumulative impacts of past, present, and reasonably foreseeable future actions would have long-term, beneficial and adverse impacts on woodland resources. Under the guidance of the Moab Fire Plan, and fire plans in adjacent BLM and USDA Forest Service Districts, fuel load reductions, vegetation treatments, and woodland salvaging would reduce the risks of wildland fire and long-term loss of woodland resources and productivity within the MPA. These activities (including stand thinning and salvage of dead, diseased, and infested trees) would also improve woodland resource productivity by indirectly improving woodland ecological conditions. Woodland productivity would be lost as woodlands were converted into rangeland for increased livestock forage. Cumulative travel management impacts would be beneficial to woodland resources because surface disturbance and soil loss would be lessened. Other resource use management actions would have adverse impacts on woodland resources by restricted resource harvesting (WSAs and Wilderness Areas, ACECs, SRMAs, and wilderness characteristics areas), and would continue to restrict resource harvesting in the future; however, the area of harvesting restrictions would be relatively small compared to the area managed as open to opportunities for resource harvesting.

5.0 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

During the planning and decision-making process for this Moab Proposed Resource Management Plan (PRMP)/Final Environmental Impact Statement (FEIS), the Bureau of Land Management (BLM) made formal and informal efforts to consult and coordinate with other Federal agencies, State and local governments, Indian tribes, and the interested public, in accordance with the requirements of the National Environmental Policy Act (NEPA), the Federal Land Policy Management Act (FLPMA), and all applicable Council on Environmental Quality (CEQ) and Department of Interior regulations, policies and procedures. NEPA, FLPMA, and applicable regulations and policy require that all federal agencies involve the interested general public in their decision making, consider reasonable alternatives to the preferred alternative/proposed plan, and prepare environmental documents that disclose the potential impacts of the preferred alternative/proposed plan the reasonable alternatives.

Such public involvement, consultation, and coordination have been at the heart of the planning process leading to the Moab PRMP/FEIS to ensure that (1) the most appropriate data have been gathered and employed for the analyses and (2) agency and public sentiment and values are considered and incorporated into decision making. This was accomplished through *Federal Register* notices, formal public and informal meetings, individual contacts, news releases, planning bulletins, the planning website, and public comments and responses thereto on the Draft RMP/EIS.

The BLM initiated the planning process on June 4, 2003 by publishing in the *Federal Register* a Notice of Intent (NOI) to conduct land-use planning for the Moab Field Office. The NOI invited the participation of the affected and interested agencies, organizations, and members of the general public in determining the scope of and the significant issues to be addressed in the planning alternatives and analyzed in the EIS. Scoping remained open until January 2004. As part of the resource inventory, members of the interdisciplinary (ID) team formally and informally contacted various relevant agencies to request data to supplement BLM's existing resource database.

On August 27, 2007, the BLM published in the Federal Register a Notice of Availability of the Draft RMP/EIS to announce and solicit public comments on the alternatives and impacts and effects of those alternatives on the human environment. The BLM distributed to relevant agencies and the interested public the Draft RMP/EIS for review and comment. The comment period ended November 30, 2007. The comments and the BLM's responses thereto are addressed in this Proposed RMP/Final EIS (PRMP/FEIS or Proposed Plan).

The following sections of this chapter describe the public involvement, consultation, and coordination process including key consultation and coordination activities undertaken to prepare a comprehensive PRMP/FEIS for the Moab Field Office (Moab FO).

5.2 Consultation and Coordination with Tribes, State and Local Governments, and Federal Agencies

In the development of this PRMP/FEIS, the BLM is required to consult and coordinate with other Federal agencies, State and local government agencies and officials, both elected and appointed, and federally recognized Indian tribes. More specifically, Federal law, including FLPMA, NEPA, the National Historic Preservation Act of 1966 (NHPA) (16 USC Sec. 470 et seq.), the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.), the Endangered Species Act of 1973 (ESA) (16 USC Sec 1531 et seq.), and other applicable laws, regulations, policies, and executive orders, direct BLM to coordinate and consult with Native Americans, the State Historic Preservation Office (SHPO), the U.S. Fish and Wildlife Service (USFWS), and the Environmental Protection Agency (EPA) during the planning/NEPA decision-making process. This section documents the specific consultation and coordination efforts undertaken by BLM throughout the entire process of developing the PRMP/FEIS.

Coordination with other agencies and consistency, to the extent possible, with other plans were accomplished through frequent communications, meetings, and cooperative efforts among the BLM planning and interdisciplinary team and involved federal, state, and local agencies and organizations. The cooperating agencies that were formally involved assisted BLM throughout the planning process in the development of the PRMP/FEIS.

Cooperating agency status has been extended to state and local agencies with regard to the Moab RMP/EIS planning effort. Both San Juan and Grand Counties signed Memorandums of Agreement in 2003 to be cooperating agencies. The State of Utah signed a cooperating agency agreement in 2003. More than 60 meetings have been held with the cooperating agencies throughout the planning process, occurring between March 2003 and March 2007. RMP/EIS-related topics discussed in these meetings include socioeconomics, Wild and Scenic River suitability, ACEC relevance and determination, travel plans, and the development of alternatives for all resources.

In addition to the cooperating agencies, the Moab FO has held meetings with and sought the input of other agencies that have land management jurisdiction within or adjacent to the planning area. Agencies include the U.S Fish and Wildlife Service, the U.S. National Park Service, the U.S. Forest Service, and adjoining BLM field offices, including Grand Junction, Durango, Montrose, Price, Monticello, and Vernal.

5.2.1 Native American Consultation

Protective measures for culturally sensitive Native American resources are established through consultation and coordination with the appropriate Native American tribes or entities. Pursuant to NEPA, the NHPA, FLPMA, the American Indian Religious Freedom Act (AIRFA), Executive Order 13007, and BLM Manuals 8160, *Native American Coordination and Consultation*, and H-8160-1, *General Procedural Guidance for Native American Consultation*, the BLM has engaged in consultation with Native American representatives throughout the planning process. The applicable laws and guidance require that the consultation record demonstrates, "that the responsible manager has made a reasonable and good faith effort to obtain and consider appropriate Native American input in decision making" (H8160-1, 2003:4). Recommended procedures for initiating the consultation process include project notification, preferably by certified mail, follow-up contact (i.e. telephone calls), and meetings when appropriate (H8160-1,

2003:15). Native American consultation is an ongoing process that will continue after the PRMP/FEIS is completed.

Native American organizations were invited to participate at all levels of the planning process for the RMP. The BLM State Director notified tribes of the BLM's intent to prepare the RMP and the Monticello and Moab Field Offices jointly invited tribes to consult regarding the entire range of cultural and natural resource issues.

As part of the RMP/EIS scoping process, by letter dated August 1, 2003, Utah State Director Sally Wisely initiated consultation for land-use planning with 34 tribal organizations (Table 5.1). In the letter, the BLM requested information regarding any concerns the organizations might have within the planning areas, specifically requested input concerning the identification and protection of culturally significant areas and resources located on lands managed by the Moab and Monticello Field Offices, and offered the opportunity for meetings. Between November 2003 and May 2004, all 34 tribal organizations were contacted by SWCA ethnographer Molly Molenaar, under contract with and on behalf of the BLM, to 1) ensure that the appropriate tribal contact had received the consultation letter and 2) determine the need for additional or future consultation for the study areas identified in the consultation letter. Meetings were arranged when requested.

In consulting with tribes or tribal entities under the NHPA, the BLM emphasized the importance of identifying historic properties having cultural significance to tribes (commonly referred to as Traditional Cultural Properties (TCPs). The BLM held meetings with 12 tribal organizations between December 2003 and May 2004, but no TCPs were identified (Table 5.2). The BLM was represented at most of these meetings by the Field Office manager and archaeologist from both the Moab and Monticello Field Offices along with the representative from SWCA. During these meetings, tribal organizations were invited to be a cooperating agency in the development of the land-use plan; however, none of the tribal organizations the BLM came into contact with requested to be a cooperating agency.

Several tribal organizations requested that an additional meeting be held after the DRMP/EIS alternatives were prepared. The Moab FO mailed a draft copy of the range of alternatives to 12 tribal organizations in December 2005. In 2006 and 2007, the Moab FO manager and archaeologist, assisted by the SWCA ethnographer, participated in a second round of meetings with 5 tribes (Table 5.3). At these meetings, the draft RMP/EIS alternatives were discussed with special emphasis on cultural resource issues. A copy of the Moab Draft RMP/EIS was mailed in August 2007 to the tribal organizations listed in Table 5.2. Consultation with interested tribes is ongoing. In April 2008, the BLM extended an invitation to meet with tribal organizations regarding the PRMP/FEIS.

Table 5.1. Tribal Organizations Contacted by the BLM, Utah State Director

Navajo Nation	Hopi Tribe
Navajo Utah Commission	Navajo Nation, Aneth Chapter
Navajo Nation, Dennehotso Chapter	Navajo Nation, Mexican Water Chapter
Navajo Nation, Navajo Mountain Chapter	Navajo Nation, Oljato Chapter
Navajo Nation, Red Mesa Chapter	Navajo Nation, Teec Nos Pos Chapter
Ute Mountain Ute Tribe	White Mesa Ute Council

Table 5.1. Tribal Organizations Contacted by the BLM, Utah State Director

Southern Ute Tribe	Paiute Indian Tribe of Utah
Uintah and Ouray Ute Indian Tribe	Eastern Shoshone Tribe
San Juan Southern Paiute Council	Kaibab Paiute Tribe
Pueblo of Cochiti	Pueblo of Acoma
Pueblo of Jemez	Pueblo of Isleta
Pueblo of Nambe	Pueblo of Laguna
Pueblo of Pojoaque	Pueblo of Picuris
Pueblo of Santa Ana	Pueblo of Sandia
Pueblo of Santo Domingo	Pueblo of Santa Clara
Pueblo of Tesuque	Pueblo of Taos
Pueblo of Zuni	Pueblo of Zia

Table 5.2. Meetings with Tribal Organizations as part of Scoping for the Land-use Plan

Navajo Nation	Hopi Tribe
Navajo Utah Commission	Paiute Indian Tribe of Utah
Navajo Nation, Dennehotso Chapter	Pueblo of Santa Clara
Pueblo of Zia	Pueblo of Zuni
Pueblo of Laguna	Southern Ute Tribe
Uintah and Ouray Ute Indian Tribe	Ute Mountain Ute Tribe

Table 5.3. Meetings with Tribal Organizations to Discuss Draft Alternatives

Navajo Nation	Hopi Tribe
Paiute Indian Tribe of Utah	Ute Mountain Ute Tribe
Southern Ute Tribe	

5.2.2 Cooperating Agency Involvement

The Moab Field Office extended cooperating agency status to state and local agencies with regard to the Moab land-use planning effort. The State of Utah signed a Memorandum of Understanding (MOU) to be a cooperating agency in January 2003. San Juan County signed a MOU in April 2003 to be a cooperating agency. Grand County signed a similar MOU in May 2003 to be a cooperating agency. Cooperating agencies that have participated in the development of the Moab land-use planning process include: State of Utah, San Juan County, and Grand County.

NEPA requires that the BLM work closely with cooperating and other responsible trustee state agencies in preparing an EIS. The cooperating agencies participated in more than 60 meetings to assist the Moab Field Office with travel plans and Off Highway Vehicle route designations, Wild and Scenic River eligibility and suitability determinations, ACEC relevance and importance determinations, mineral development, recreation, socioeconomic considerations, and

development of alternatives (Chapter 2) for the RMP. These meetings occurred between March 2003 and March 2006. A draft of the alternatives was sent to the cooperating agencies in March 2007 for review and comment before the release of the Draft RMP/EIS in August 2007.

The BLM has continued to involve the cooperating agencies in addressing comments raised during the public comment period for the Draft RMP/EIS and in developing the proposed alternative for the PRMP/FEIS.

5.2.3 STATE AGENCY COORDINATION

The NHPA and the regulations at 36 CFR Part 800 govern BLM's cultural resource management program. The regulations provide specific procedures for consultation between the BLM and the State Historic Preservation Office (SHPO). A copy of the DRMP/EIS was sent to the SHPO for review and comment. The comments submitted by SHPO have been addressed in the comment and response section of this chapter. In May 2008, formal consultation was initiated with SHPO regarding the potential affects to cultural resources regarding the Proposed Alternative in the PRMP/FEIS. The BLM will finalize SHPO consultation before the Record of Decision is signed.

The BLM consulted with the Utah Division of Wildlife Resources regarding management of wildlife habitat and in developing the alternatives for the DRMP/EIS.

The Mineral Potential Report and the Reasonably Foreseeable Development scenario for oil and gas regarding the Moab planning area were prepared in cooperation with the Utah Geological Survey.

5.2.4 CONSULTATION AND COORDINATION WITH OTHER FEDERAL AGENCIES

In developing the Proposed RMP/FEIS, the BLM coordinated with numerous other federal agencies. There are legal requirements for consultation with some federal agencies. The consultation and coordination efforts are described below.

5.2.4.1 U.S. FISH AND WILDLIFE SERVICE

The BLM consulted with the U.S. Fish and Wildlife Service (USFWS) as required prior to initiation of any project by a federal agency that may affect Federally listed special status species or its habitat in accordance with Section 7 of the Endangered Species Act and with the Fish and Wildlife Coordination Act, 16 USC Sec 661 et seq.

In July 2004, the BLM requested assistance from the USFWS in identifying threatened, endangered, proposed, and candidate plant and animal species that may be located in the Moab planning area. A letter was sent by the BLM Utah State Office to the USFWS initiating informal consultation for the Moab planning effort. The USFWS responded with lists of species that may be present in or may be affected by projects in the project area. Table 3.45 of the PRMP/FEIS presents a comprehensive list of sensitive species that may be present in the planning area and indicates whether they could be affected by any of the land-use plan alternatives.

The Moab land-use plan is considered a major Federal project and the BLM initiated informal consultation with the USFWS in February 2008 by submitting the Biological Assessment (BA) for the Proposed Action in the PRMP/FEIS. In the BA, the BLM determined that the implementation of the Proposed Action in the PRMP/FEIS "may affect" or is "not likely to adversely affect" the species on which consultation occurred. The USFWS may concur with the

BLM's determination in the BA via memorandum, or prepare a Biological Opinion which advises the BLM on the actions that must be taken to protect Federally listed special status species. The BLM will finalize Section 7 consultation before the Record of Decision is signed.

5.2.4.2 Environmental Protection Agency

The BLM provided the Environmental Protection Agency (EPA) with a copy of the DRMP/EIS and the EPA has submitted comments on this document. The EPA rated the document as Environmental Concerns-Insufficient Information, "EC-2". The EPA expressed concern about the lack of information associated with BLM's analysis of air quality impacts within the Moab planning area. Additional analysis and information regarding air quality has been included in Chapter 4 of the PRMP/FEIS based on EPA comments.

5.2.4.3 National Park Service

The Moab planning area includes Arches National Park and shares a boundary with Canyonlands National Park. Coordination with Park Service representatives was held early in the land-use planning process and during the development of alternatives to the RMP in order to identify issues of concern. The Park Service was provided copies of the DRMP/EIS and it submitted comments.

5.2.4.4 U.S. Forest Service

The Moab planning area includes the Manti La Sal National Forest. The Forest Service is also engaged in revising its land-use plan. Coordination with representatives of the Forest Service was held to identify common issues. The major common issue is Wild and Scenic River eligibility and suitability. The Manti La Sal National Forest was provided a copy of the DRMP/FEIS.

5.3 Consistency with Other Plans

The BLM's planning regulations require that resource management plans be consistent with officially approved or adopted resource-related plans of other federal agencies, state and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies, and programs of federal law and regulations applicable to public lands.

43 U.S.C. §1712(c) (9) states that the Secretary of the Interior (through the land-use plans of the federal agencies under it) shall "coordinate the land-use inventory, planning, and management activities of or for such lands with the land-use planning and management programs of other Federal departments and agencies and of the States and local governments within which the lands are located." It further states that "the Secretary shall assure that consideration is given to those State, local, and tribal plans that are germane in the development of land-use plans for public lands [and] assist in resolving, to the extent practical, inconsistencies between Federal and non-federal government plans…" This language does not require the BLM to adhere to or adopt the plans of other agencies or jurisdictional entities, but rather to give consideration to these plans and make an effort to resolve inconsistencies to the extent practical.

The BLM is aware that there are specific County and State plan decisions relevant to aspects of public land management that are discrete from, and independent of, Federal law. However, the

BLM is bound by Federal law. The FLPMA requires that the development of an RMP for public lands must be coordinated and consistent with County plans, to the maximum extent possible by law, and inconsistencies between federal and non-federal government plans be resolve to the extent practical (FLPMA, Title II Sec. 202 (c)(9)). Where State and local plans conflict with Federal law, there will be an inconsistency that cannot be resolved or reconciled.

Thus, while County and Federal planning processes, under FLPMA, are required to be as integrated and consistent as practical, the Federal agency planning process is not bound by or subject to County plans, planning processes, or planning stipulations. The BLM will identify these conflicts in the FEIS/PRMP, so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options. A consistency review of the PRMP with the State and County Master Plans is included in Chapter 5. In addition, the relevant goals, objectives or policies of a County are often equivalent to an activity or implementation level decision and not a land-use plan decision. The very specific County goals would be addressed in any subsequent BLM activity or implementation level decision.

Table 5.4 outlines the planning consistency of the Proposed Plan with the approved management plans, land-use plans, and controls of other agencies with jurisdiction in or adjacent to the planning area. With a few exceptions, the Proposed RMP/FEIS is consistent with the Grand and San Juan County Plans. The authorized officer will continue to collaborate with federal agencies, state and local governments, and Indian tribes on implementation of the RMP and on pursuing consistency with other plans and will move toward integration of such plans to the extent that they are consistent with federal laws, regulations, and policy directives.

Table 5.4. Plan Consistency Review

Moab RMP				
Category	**Grand County General Plan Update (2003)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Strong Economy	Supports multiple use of public lands including continued recreation uses and oil and gas exploration and development.	X		
Watersheds	Supports multiple use of public lands including continued recreation uses and oil and gas exploration and development.	X		
Land Tenure Adjustments	County will work to protect watersheds from activities and uses that are injurious to them and adopt policies that enhance and restore them.	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Travel Management	Recognizes that allowing open, cross-country travel by mechanized vehicles is no longer an appropriate management practice. Supports more restrictive travel designations limiting mechanized travel to designated roads and trails and a "no new tracks" policy.	X		
ACECs	Encourages identification and conservation of areas with unaltered plant communities and soils through ACEC designations.	X		
Wilderness	Supports recommendation for Beaver Creek designation adopted by the Grand County Council in 1995. The plan is partially inconsistent in the addition of the Mary Jane Canyon and Fisher Towers areas. Will follow State of Utah's recommendation concerning wilderness designation where consistent with the interests of the people of Grand County.		X	
Wild and Scenic Rivers	Will participate and promote cooperation in planning and administration of Wild & Scenic River designations.	X		
Reintroduction of Animal Species	Grand County would participate in evaluation of feasibility and advisability of reintroductions.	X		
Category	**Grand County River Road (SR-128) Corridor Plan (12/1998)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Land-use	Promotes protection of agriculture and ranching activities along with aesthetics of agricultural fields and open spaces.	X		
Canyon Character	States that preservation of the area's canyon character and spaciousness is the most important purpose of the plan.	X		
Economic Development	Supports creating economic assets and diversity for the county without creating adverse fiscal impacts.	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Recreation	Supports limitation of recreation in the river corridor to rafting, climbing, hiking, horseback riding, camping, and similar activities. Opposes use of vehicles off established roads and trails.	X		
Transportation	Supports multi-purpose pathway or trail connection from US-191 to improve safety as long as canyon character is not adversely affected.	X		
Sensitive Areas	Supports protection of sensitive areas and resources, including steep slopes, roadless areas, wildlife habitats and water quality.	X		
Category	**Crescent Junction to Thompson Springs Future Land-use Plan Amendment to the Grand County General Plan (3/2003)**	**Consistent**	**Partially Consistent**	**Not Consistent**
General Uses	This area is intended to accommodate a wide variety of commercial activities meeting the needs of local business and residents, to make Thompson Springs a more attractive and energetic place to live, work and shop and to enhance the economic development.	X		
	All development in the designated Industrial category area will protect the environment, minimize visibility and excessive site disruption, and take into consideration the health and welfare of area residents. Development in the area should be asked to demonstrate reasonable mitigation of environmental impacts; and, demonstrate best efforts with respect to the utilization of color, shape, contrast, land-sculpting and site design to avoid drawing undue attention to its presence on the landscape. BLM response: The restrictions would require a VRM II designation which is not proposed for this area.		X	

Table 5.4. Plan Consistency Review

Moab RMP				
Category	**Grand County Master Plan for Non-Motorized Trails (3/2005)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Guiding Principles	Trails are vital to the responsible use of natural resources; important to livable neighborhoods and a vibrant business community; must be viewed as part of a total, integrated trail system; must be properly designed to achieve a successful trail system and the entire system must be properly maintained to keep it viable.	X		
Recommendations	The County recommends involving local government; growing and maintaining partnerships; active coordination; seeking easements, and updating plans.	X		
Category	**Moab/Grand County North Corridor Gateway A General Plan Amendment (4/2001)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Visual Resources	The plan focuses on the areas north and south of the Colorado River Bridge with particular emphasis on the visual impression it gives to visitors.	X		
County Goals	Create a positive first impression and economic opportunity. Make the north corridor gateway a people place – welcoming and accommodating. Provide adequate and affordable public facilities and services that are compatible with city infrastructure. Achieve the goals and objectives of this Plan through communication, coordination and cooperation.	X		
Category	**The Wilderness Plan an Amendment to the Grand County General Plan (9/1999)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Recommended Wilderness 7 Designation	Beaver Creek Unit (UWC proposal) (5-2). The entire 28,200-acre UWC unit excluding the roaded top of Seven Mile Mesa and that portion traversed by the annual Jeep Safari Trail (See attached map entitled "Grand County Wilderness Proposal").	X		

Table 5.4. Plan Consistency Review

Moab RMP				
	Labyrinth Canyon Unit (UWC proposal) (4-3). Wilderness designation is recommended for the lower reaches of Ten Mile Canyon and the east side of the Green River Canyon downstream to Hey Joe Canyon. Wilderness is also recommended for the east side of the Green River Canyon downstream from Spring Canyon to the mouth of Hell Roaring Canyon (See attached map entitled "Grand County Wilderness Proposal"). This latter area could continue on the west side of the Green River all the way to the Canyonlands National Park boundary. These areas are considered contiguous with the Upper Horseshoe Canyon Unit in Emery County. BLM response: The unit was not recommended for management as non-WSA lands with wilderness characteristics due to other proposed management that protects wilderness values. These include a recommendation for Wild & Scenic River designation along the Green River, an ACEC in Ten Mile Canyon, and surface use restrictions along the entire Green River corridor.			X
Category	**The Wilderness Plan an Amendment to the Grand County General Plan (9/1999)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Areas Not Recommended	Fisher Towers Unit (UWC proposal) (consensus). It was recommended that the three State Trust Land sections in the unit be prioritized for exchange in order to protect the integrity of the area for filming and recreation. BLM response: The proposal to manage areas for non-WSA lands with wilderness characteristics protects the visual resources of concern to Grand County.		X	
	Mary Jane Canyon Unit (UWC proposal) (consensus). Again, the Trust Land Sections should be prioritized for exchange to protect		X	

Table 5.4. Plan Consistency Review

Moab RMP				
	filming and recreation in the area. BLM response: The proposal to manage areas for non-WSA lands with wilderness characteristics protects the visual resources of concern to Grand County.			
Areas Not Recommended For Wilderness, But Recommended For Alternative Protective Management	Granite Creek Unit (UWC proposal) (consensus). It is recommended that the entire unit be studied by BLM for designation as an Area of Critical Environmental Concern because of the unique riparian habitat and high wildlife values there. BLM response: Granite Creek was studied for ACEC designation but was found to not contain the relevant and important values.	X		
	Goldbar Canyon Unit (UWC proposal) (consensus). It is recommended that the unit be designated a Recreation Special Management Area to enhance opportunities for managing heavy recreational use	X		
Category	**Town of Castle Valley General Plan (9/2007)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Land-use	The County's goal is to remain a peaceful, quiet rural residential/ agricultural community characterized by a sense of open space and the ability to enjoy landscape and sky.	X		
Transportation	The County's goal is to improve and actively maintain our road and storm drainage infrastructure.	X		
Water Quality and Quantity	The County's goal is to maintain or enhance water quality and quantity in the Castle Valley watershed by improving our knowledge, developing policies, and taking action as needed.	X		
Fire Protection	The County's goal is to improve fire prevention and to take steps that will help assure that fire-fighting can be effective.	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Fire Protection	The County's goal is to protect and enhance the local environment and, where possible, respond to national and global environmental issues including, watershed, hazardous/solid wastes, weed control, dust, wildlife, energy, and the viewshed.	X		
Category	**San Juan County Master Plan (1996)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Public Access	San Juan County has strong opinions regarding public access and its impact on economic stability in the county. The county claims all roads and trails over public land constructed prior to Oct. 21, 1976. Supports working with BLM to develop off-road trails for ATV use and bikes.	X		
Recreation and Tourism	Support for increased recreational activity on public lands, however, agency needs to acknowledge and aggressively address the impact that recreation has on the county's essential services (i.e. law enforcement, emergency services, water and waste management, and search & rescue.	X		
Wilderness	County does not support designation of large wilderness areas but will accept areas that meet the criteria of wilderness in the 1964 Wilderness Act. The County plan (Appendix E) includes the County's preferred alternative for wilderness designation.	X		
Wild and Scenic Rivers	Statement that any special land-use classifications or designations should include analysis of adverse economic impact on local economy and stability of communities and commitment to adequate mitigation.	X		
Threatened and Endangered Species	Statement that any special land-use classifications or designations should include analysis of adverse economic impact on local economy and stability of communities and commitment to adequate mitigation.	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Areas of Critical Environmental Concern	Statement that any special land-use classifications or designations should include analysis of adverse economic impact on local economy and stability of communities and commitment to adequate mitigation.	X		
Socioeconomics	States that social and economic environment (of the communities most impacted by public land-use decisions) needs to be included in environmental review.	X		
Category	**San Juan County Master Plan (1996)**	**Consistent**	**Partially Consistent**	**Not Consistent**
Wildlife	States that forage allocations between livestock and wildlife should be balanced and based upon fair and equitable assumptions. San Juan County is not in favor of and will generally oppose introduction of exotics or species not native to the area.	X		
Land Tenure Adjustments	States that public land acreage currently owned and managed by Federal and State agencies is sufficient for the public interest. Supports a "no net loss of private" and no expansion of National parks position relative to federal-state property exchanges and transfers. (No net loss refers to both acreage and value.) Also, no net increase of public lands within San Juan County.	X		
Water Resources	Supports protection of limited water resources by promoting efficient use and management.	X		
Category	**San Juan County Amendment to Master Plan (8/2002)**	**Consistent**	**Partially Consistent**	**Not Consistent**
All-terrain Vehicle Plan	Establishes an all-terrain transportation plan, on developed trails within the county, as an opportunity for increased recreational use and economic benefit to the county.	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Category	**Dead Horse Point State Park Resource Management Plan April 2007**	**Consistent**	**Partially Consistent**	**Not Consistent**
	The State Park planning team included the Moab BLM Recreation Branch Chief. The MFO Proposed Plan incorporates the Park's goal to protect the Park's viewshed.	X		
Water Resources	**Utah Division of Water Resources Utah State Water Plan (May 2001)**	X		
Water Resources	**Utah Division of Water Resources Southeast Colorado River Basin (October 2000) Utah State Water Plan**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Northern River Otter Management Plan January (January 2005)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Conservation Agreement and Strategy for Colorado River cutthroat Trout (March 1997)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Range-Wide Conservation Agreement for Roundtail Chub, Bluehead Sucker and Flannelmouth Sucker (January 2004)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Statewide Management Plan for Mule Deer (November 2003)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Statewide Management Plan for Elk (March 2005)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Statewide Management Plan for Bighorn Sheep (September 1999)**	X		

Table 5.4. Plan Consistency Review

Moab RMP				
Wildlife and Fisheries	**Utah Division of Wildlife Resources Utah Black Bear Management Plan (June 2000)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Utah Cougar Management Plan (January 1999)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Utah Gunnison's Prairie Dog and White-tailed Prairie Dog Conservation Plan (November 2007)**	X		
Wildlife and Fisheries	**Utah Division of Wildlife Resources Strategic management Plan for Sage-grouse (June 2002)**	X		

Consistency with State of Utah Code 63j-4-401:		
ACECs	**State of Utah** It is the policy of the State of Utah to withhold support for ACEC designation unless or until relevant and important values or significant natural hazards are clearly identified and the area requires special management protections not afforded by normal multiple-use management. ACECs should be no larger than necessary and management should be no more restrictive than necessary to prevent irreparable damage to relevant and important values or protect human safety. To the extent allowed by federal law, management prescriptions should comport with the plans and policies of the State and of the county where the proposed designation is located. These prescriptions should not result in management equivalent to that afforded congressionally designated wilderness areas.	**BLM** The potential ACECs brought forward for designation into the Proposed Plan have gone through a rigorous and stringent process in accordance with FLPMA, the planning regulations at 43 CFR 1600, Land-use Planning Handbook (H- 1601-1), and in accordance with BLM Manual 1613 and ACEC Policy and Procedures Guidelines (45 FR 57318). Appendix I outlines the process the interdisciplinary team underwent to determine whether a nominated ACEC had relevance and/or importance values. The size of the proposed ACECs is limited only to the area(s) of geography where the relevance and importance values are manageable to protect and prevent irreparable damage. In the Proposed Plan, the potential ACECs generally do not have redundant special designations and/or other existing protections applied. The potential ACECs carried forward into the Proposed Plan necessitate an ACEC designation because special management protection is necessary (outside of normal multiple-use management) to specifically protect

Table 5.4. Plan Consistency Review

Moab RMP		
		the relevance and importance values within the areas identified. The special management prescriptions that have been proposed are narrowly tailored to protect the identified relevant and important values; none of which are recognized as wilderness resources. For these reasons, the potential ACEC decisions carried forward into the Proposed Plan are considered by BLM to be consistent with Utah Code 63j-4-401.
Wild and Scenic Rivers	**State of Utah:** It is the policy of the State of Utah that federal land managers should refrain from applying a non-impairment management standard to river segments inventoried as "eligible" for inclusions in the national Wild and Scenic Rivers and all eligible segments should promptly be evaluated for suitability. The State of Utah will work with federal land managers to identify suitable segments and work towards a recommendation to congress for designation where careful analysis: (1) identifies and evaluates regionally significant segments, (2) addresses the impact designation will have on physical, biological, and economic resources, (3) demonstrates that suitable segments have water present and flowing at all times, and (4) not interfere with water resources development. Interim management of suitable segments should not interfere with development of valid existing water rights, including development of waters apportioned to the State under all interstate compacts or agreements, including the Bear River Compact and the Upper Colorado River Compact. To the extent allowable by federal law and where not in conflict with state law or policy, interim management of suitable segments and congressional recommendations for designation should be consistent with plans and policies of the county or counties where the river segment is located.	**BLM**: The State of Utah has worked as a Cooperating Agency throughout this planning process and has been intimately involved with the BLM's wild and scenic river planning process. The State has assisted Field Office specialists to help determine eligibility findings for each of the river segments, and has provided social and economic expertise and advice as the BLM determined which eligible segments to carry forward as suitable into the Proposed Plan. BLM has committed to working cooperatively among Federal, State, and local governments and communities during the post-planning wild and scenic river study phase when statewide recommendations for inclusion of river segments into the National Wild and Scenic Rivers System would go forward to Congress. Prior to this post-planning phase, BLM would work with affected partners to help identify in-stream flows necessary to protect the outstandingly remarkable values for which the subject river segments were found suitable via this planning process. Thus, because there are no effects of this planning decision on valid existing rights, and because suitability findings in this planning process do not create new water rights for the BLM, the land-use planning wild and scenic river suitability determinations are found by BLM to be consistent with the Utah Code 63j-4-401.

Table 5.4. Plan Consistency Review

Moab RMP		
Livestock Grazing	**State of Utah:** It is the policy of the State of Utah that the citizens of the state are best served by applying multiple-use and sustained-yield principles in public land-use planning and management. Public lands should continue to produce food and fiber, and the rural character and landscape should be preserved through a healthy and active agricultural and grazing industry. Land management plans should maximize forage availability for domestic livestock and wildlife use. The State favors active management to restore and maintain rangeland health, increase forage, and improve watershed for the mutual benefit of local communities, domestic livestock, and wildlife. Adjustments in AUM levels may occur as required by range and watershed conditions, based on scientific, on-the-ground analysis. Grazing AUMs should be placed in suspension where range conditions will not sustain the current level of AUMs or where necessary to protect range and watershed health. Any suspended AUMs should be returned to active use when range conditions improve. The State generally opposes forced relinquishment or forced retirement of grazing AUMs but will continue to recognize voluntary relinquishments and retirements agreed to prior to RMP revisions.	**BLM**: Grazing decisions carried forward into the Proposed Plan are considered by BLM to be consistent with Utah Code 63j-4-401. Proposed Plan decisions on public lands would continue to promote a healthy active grazing industry. Forage allocations for livestock and wildlife are fully allocated on public lands. Numerous RMP decisions under other identified resources allow for the restoration and maintenance of rangeland and watershed health. For example, the Proposed Plan provides the umbrella to allow implementation-level actions for hazardous fuel reductions, fire rehabilitation, vegetation treatments, riparian improvements, range and wildlife habitat improvements, UPCD projects – including Healthy Lands Initiative projects, seed collection, etc. Minor, if any, adjustments to current permitted livestock AUMs are made in the Proposed Plan. Prior voluntary relinquishments and/or retirements have been recognized.
Non-WSA Lands with Wilderness Characteristics	**State of Utah**: It is the policy of the State of Utah to oppose management of public lands as wilderness except where congress designates lands as wilderness. Under State policy and FLPMA's multiple-use mandate, BLM ascribed management prescriptions for non-WSA lands inventoried as possessing wilderness characteristics should take into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife, and fish.	**BLM:** The Proposed Plan identifies certain "non-WSA lands with wilderness characteristics" in order to protect, preserve, and maintain their wilderness characteristics. BLM recognizes that it cannot, through the planning process, designate these lands as WSAs nor is it possible to manage them in accordance with IMP. For example, there is no provision to meet the "non-impairment criteria" mandated in IMP for WSA management. However, in following Section 201 of FLPMA, BLM has maintained its wilderness inventory

Table 5.4. Plan Consistency Review

Moab RMP		
	Designation as VRM Class I, closure to oil and gas leasing, withdrawal from mineral entry, and closure to motorized and mechanized use affords protections comparable to those associated with formal wilderness designation and should be avoided for non-WSA lands with wilderness characteristics. Non-WSA lands with wilderness characteristics should be managed in a manner consistent with the multiple-use, sustained yield standard that applies to BLM lands other than congressionally designated wilderness or WSAs.	and has determined that lands previously found not to possess wilderness characteristics during the FLPMA Section 603 inventory process in the late 1970's and early 1980's, now have been determined to possess them. The focus of management in the areas carried forward in the Proposed Plan is to primarily provide for an experience of solitude and primitive recreation. This is enhanced by maintaining the naturalness of the geographic areas. However, management prescriptions do not mirror those for WSAs or designated wilderness since these two management objectives are sufficiently dissimilar that imposing similar prescriptions would not allow BLM to meet the planning objectives outlined in the Draft RMP/Draft EIS. WSAs and designated wilderness are rights-of-way exclusion areas, closed to fluid mineral leasing by law, and do not allow for surface-disturbing activities. In comparison, lands with wilderness characteristics have no set management by either law, rule, regulation, or policy. The Proposed Plan would allow for surface-disturbing activities where and when they are compatible with enhancing management objectives identified in the Proposed Plan. In order to ensure that BLM's planning decisions regarding the management of wilderness characteristics are consistent with Utah law, potential adjustments may be made in the Record of Decision to nomenclature. This editorial change would not affect management or goals and objectives.

Table 5.4. Plan Consistency Review

Moab RMP		
RS-2477 Assertions	**State of Utah:** The State of Utah will defend its interest, and that of its political subdivisions, in rights-of-way accepted under the self-effectuating grant process set forth in Revised Statute 2477 (repealed by the Federal Land Policy and Management Act of 1976) and SUWA v. BLM, 425 F.3d 735 (10th Cir. 2005). The State of Utah expects and requests the BLM to fully consider all information concerning individual rights-of-way submitted to BLM. Further, the State of Utah expects and requests BLM's consideration of this information as part of the preparation and implementation of Resource Management or Management Framework Plans, and preparation or implementation of Transportation Plans as part of the ongoing inventory of resources on the public lands.	**BLM**: The Proposed Plan makes no commitments with respect to any valid existing rights, particularly those concerning RS-2477. Chapter 1 of this land-use plan states that resolution of this issue is outside the purview and scope of public lands planning efforts and must be adjudicated by a court of law or other legal means. Therefore, nothing in this plan extinguishes any valid rights-of-way or alters, in any way, the legal rights of the State of Utah to assert RS-2477 rights or to challenge any use restrictions imposed by the RMP that they believe are inconsistent with their rights.

In addition, the Moab Field Office RMP is consistent with the following agency plans: Manti-LaSal National Forest Management Plan, Arches National Park Management Plan, Canyonlands National Park Management Plan, Uintah-Ouray Indian Reservation Plan, and Management Plans being prepared for State of Utah and SITLA lands. **No comments were received to indicate inconsistency of these plans with the Proposed RMP.**

5.4 Public Outreach and Participation

Public outreach and participation in the land-use planning process began with the publication of the Notice of Intent (NOI) to plan in the Federal Register and will be ongoing up until the Record of Decision for the Moab RMP. Public outreach and participation has included public meetings, development of a mailing list, planning bulletins, newspaper articles, a RMP website, and workshops. It has also included informal meetings with individuals, groups, and organizations.

5.4.1 Notice of Intent (NOI) to Plan and Scoping

This planning process began on June 4, 2003 with the publication in the Federal Register of a Notice of Intent (NOI) to plan. The NOI announced the BLM's intent to conduct land-use planning for the public lands administered by the Moab Field Office by preparing an RMP and associated EIS. The NOI began what is known as the scoping process and invited the general public as well as Federal, State, and local government agencies and Indian tribes to identify potential issues and submit concerns regarding the intended planning effort. In addition to the NOI, the BLM provided the public with planning bulletins, and newspaper articles. Through all this outreach, the public was notified of public meetings and the BLM requested information regarding planning criteria, resources, nominations for Areas of Critical Environmental Concern,

nominations for Wild and Scenic Rivers, and proposals for route designations. Public service announcements on the radio were also utilized to inform the public about open house public meetings. The BLM distributed planning bulletins to all interested agencies, organizations, and individuals along with any other entity that requested to be included on the mailing list.

The scoping period began June 4, 2003 and ended January 31, 2004. The BLM relied on various public outreach methods for the scoping process, including 6 open houses in different communities (see Table 5.5), a mobile "comment cruiser" that visited 12 locations, a website with provision for e-mailing comments, and an invitation for the public to provide written comments via letters. In its Scoping Report, completed in July 2004, the Moab FO provided an analysis of the information received. The Scoping Report is available at the Moab FO, or online at the Moab RMP website. The BLM received 6,138 comment letters with 19,437 comments identified in these letters and emails. Comments from the 6 open houses totaled 1,250, and the "comment cruiser" gathered 200 comments, resulting in a grand total of 20,887 comments. It should be noted that the Scoping Report covers both the Moab and Monticello Field Offices. The information received during the scoping period was utilized to establish the scope of the RMP/EIS.

Table 5.5. Open House Locations and Attendance

Location	Date	Attendance
Green River, UT	October 14, 2003	15
Grand Junction, CO	October 15, 2003	14
Moab, UT	October 16, 2003	53
Monticello, UT	October 21, 2003	54
Blanding, UT	October 22, 2003	87
Salt Lake City, UT	November 13, 2003	96
Total		**321**

5.4.2. MAILING LIST

As directed by 43 CFR 1610.2(d), the BLM has established and maintained a list of "individuals and groups known to be interested in or affected by a resource management plan." This list was initially developed from the Moab Field Office mailing list and supplemented/updated throughout the planning process. Scoping meeting participants were given the option to be added to the mailing list. In addition, individuals were able to add themselves to the project mailing list by registering on the project website, as well as through requests to be placed on the mailing list by contacting the BLM.

The mailing list was used during the distribution of planning bulletins and postcards throughout the planning process. Postcards were mailed to the entire list, announcing the availability of the Draft RMP/EIS and the Proposed RMP/Final EIS. There are currently over 1500 individuals, organizations, and agencies included on the mailing list.

5.4.3 PLANNING BULLETINS

Planning bulletins were developed to keep the public informed about the Moab land-use planning process. They were provided to the public included on the mailing list for the Moab RMP. The planning bulletins were also posted on the website for the Moab RMP.

The **first planning bulletin** (6/30/03) announced the intention of the BLM Moab Field Office to prepare a Resource Management Plan. It also included preliminary planning issues, a request for nominations of Areas of Critical Environmental Concern (ACEC) and Wild and Scenic Rivers, an announcement of public scoping meeting, and information on how to participate in the land-use plan process.

The **second planning bulletin** (11/1/03) provided information regarding the preliminary review of river segments found eligible for consideration as Wild and Scenic Rivers. The public was invited to provide comments on the findings.

The **third planning bulletin** (11/17/03) requested route data from the public to be considered in the alternatives for route designation in the Travel Plan.

The **fourth planning bulletin** (5/7/04) provided the preliminary planning criteria for public comment and review.

The **fifth planning bulletin** (7/9/04) provided the results of the public scoping process and included the issues to be addressed in the plan.

The **sixth planning bulletin** (2/21/06) provided the results of the ACEC review process.

5.4.4 WEBSITE

Information regarding the Moab land-use plan was made available to the public on the Moab RMP website. This website is currently found at http://www.blm.gov/ut/st/en/fo/moab/planning.html. The website serves as a virtual repository for documents related to development of the Moab RMP including news releases and bulletins, background documents, schedule, the land-use planning process, preliminary issues, maps, photos, and the draft and final RMP/EIS. The documents are available in pdf format to ensure that they are available to the widest range of users. During the scoping period, the website allowed members of the public to add themselves to the project mailing list or to submit comments/concerns to be considered in the scoping process. In addition, during the public comment period on the DRMP/EIS, the website served as one of the ways in which the public could submit comments.

5.4.5 NOTICE OF AVAILABILITY (NOA) OF THE DRAFT RMP/EIS

On August 24, 2007, the BLM and EPA published a Notice of Availability in the *Federal Register* which marked the beginning of the formal 90-day public comment period. The DRMP/EIS states that BLM is revising its current land-use plan and proposes several alternative ways of managing public lands within the Moab planning area. The DRMP/EIS was designed to provide a comprehensive look at the impacts to natural and cultural resources from various planning alternatives. The formal 90-day public comment period ended on November 30, 2007. The BLM provided hard copies of the DRMP/EIS directly to cooperating agencies, other federal, state, and local agencies, tribal representatives, the Utah BLM Resource Advisory Committee

members, public libraries, and elected officials. Also, hard copies and CDs were made available to the public upon request, and the DRMP/EIS was placed on the Moab RMP website and in its public room at the BLM Utah State Office. Additionally, the BLM widely distributed newspaper and radio press releases regarding the availability of the DRMP/EIS.

5.4.6 PUBLIC MEETINGS

Five open houses were held during the 90-day comment period for the Draft RMP/EIS. The open house locations, dates, and attendance are provided in Table 5.6. The locations, dates, and times of the open houses were announced to over 1,500 people included on the mailing list via a postcard. Press releases in local and regional newspapers and radio spots supplemented the mailing. In addition, the locations, dates, and times of the open houses were posted on the Moab RMP website.

Table 5.6 Open House Locations, Dates, and Attendance

Location	Date	Attendance
Moab, Utah	September 25,2007	10
Monticello, Utah	September 26, 2007	88
Grand Junction, Colorado	September 27, 2007	109
Salt Lake City, Utah	October 3, 2007	158
Total		**365**

The open houses were geared to provide information to the public on the content of the Draft RMP/EIS as well as to provide guidance on commenting on the document and answer questions. Each open house included a PowerPoint presentation which provided an overview of the planning process and a comparison of major elements contained in the alternatives. Attendees were then encouraged to visit with BLM representatives and managers regarding questions or concerns about the Draft RMP/EIS. The public was provided with the opportunity to submit written comments at the open houses.

5.5 PUBLIC COMMENTS ON THE MOAB DRMP/EIS

5.5.1 PROCESS AND METHODOLOGY

According to National Environmental Policy Act (NEPA), the BLM is required to identify and formally respond to all substantive public comments received during the comment period for the DRMP/EIS. The BLM developed a systematic process for responding to comments to ensure all substantive comments were tracked and the content seriously considered. A description of this process follows.

First, the BLM developed a **coding structure** to help sort comments into logical groups by topics and issues. Codes were derived from resources covered in the DEIS or by common issues. Submissions (letters, emails, faxes, etc) were given a unique identifier for tracking purposes and then each submission was carefully reviewed to capture all comments, if substantive (more description of this process is set forth below). All comments received can be tracked to the original submission.

Second, the BLM created a **Comment Database**. For each comment in a unique submission, the BLM captured the name and address of the Commenter, assigned a code to the comment, and captured the text of all substantive comments.

The coding and comment database processes aimed at assisting the ID-team in determining if the substantive issues raised by the public warranted modification of one or more of the alternatives or further analysis of issues and impacts. With the information provided through the public review process, the BLM reconsidered the draft alternatives, made changes as appropriate, and developed the Proposed Resource Management Plan and Final EIS (PRMP/FEIS). Factual or grammatical errors which led to a change in text are not summarized but were incorporated into the PRMP/FIES.

Finally, the BLM used the comment database to prepare a narrative summary of the substantive comments. Opinions, feelings, and preferences for one element or one alternative over another, and comments of a personal and/or philosophical nature were all read, analyzed, and considered, but because such comments are not substantive in nature, the BLM did not respond to them.

5.5.2 COMMENT ANALYSIS

During the 90-day public comment period for the Moab DRMP/EIS, the Moab Field Office received written comments by mail (1,248), fax, e-mail (31,853), website (483), and submitted directly at the public meetings or to the Moab Field Office. All comments submitted by fax were also e-mailed. This amounted to over 33,000 comment submissions. Many of the submissions were form letters (letters containing identical or nearly identical text submitted by a number of individuals) in which there were 13 different types. Outside the form letters, there were 1,027 unique submissions of which 391 submissions contained substantive comments. These submissions amounted to about 2,600 comments. Additional submissions were received after the close of the comment period on November 30, 2007. However, none of the late submissions raised substantially new issues or concerns not already addressed by comments received before the deadline.

Where warranted, the BLM responded to substantive comments by making revisions to the PRMP/FEIS (text changes). If no change was warranted, the BLM responded to the substantive comment in writing. The BLM responded to all substantive comments. In many cases the BLM chose to respond to non-substantive comments in order to clarify a point or position.

The comments received from cooperating agencies and the BLM responses are provided in Tables 5.9a, 5.9b, and 5.9c. Tables 5.10a through 5.10t provide the comments and responses by resource category that resulted in a change to the PRMP/FEIS. All comments and the BLM responses are provided in the compact disc (CD) attached to the PRMP/FEIS.

The BLM considered every comment in the analysis process, whether it came repeatedly from many people with the same message(s) or from a single person raising a technical or personal point. In analyzing comments, the BLM emphasized the content of the comment rather than the number of times a comment was received.

Respondents invested considerable time and effort to submit comments on the DRMP/EIS. Comments covered a wide spectrum of thoughts, opinions, ideas, and concerns. The commonly addressed themes include: travel, recreation, special designations (ACECs, Wild and Scenic Rivers), wilderness values, wildlife, and minerals/energy development.

While each person's viewpoint was diligently considered, the comment analysis involved determining whether a comment was substantive or non-substantive in nature. According to NEPA, the BLM is required to identify and formally respond to all substantive public comments. On the basis of the Council on Environmental Quality's (CEQ) regulations, a substantive comment does one or more of the following:

- Questions, with a reasonable basis, the accuracy of the information and/or analysis in the EIS.
- Questions, with a reasonable basis, the adequacy of the information and/or analysis in the EIS.
- Presents reasonable alternatives other than those presented in the DEIS that meet the purpose and need of the proposed action and addresses significant issues.
- Questions, with a reasonable basis, the merits of an alternative or alternatives.
- Causes changes in or revisions to the proposed action.
- Questions, with a reasonable basis, the adequacy of the planning process itself.

The NEPA handbook identifies the following types of substantive comments:

- **Comments on the Adequacy of the Analysis:** Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate are substantive in nature but may or may not lead to changes in the PRMP/FEIS. Interpretations of analyses should be based on professional expertise. Where there is disagreement within a professional discipline, a careful review of the various interpretations is warranted. In some cases, public comments may necessitate a reevaluation of analytical conclusions. If, after reevaluation, the BLM does not think that a change is warranted, the response should provide the rationale for that conclusion.
- **Comments Which Identify New Impacts, Alternatives, or Mitigation Measures:** Public comments on a draft EIS that identify impacts, alternatives, or mitigation measures that were not addressed in the draft are substantive. This type of comment requires the BLM to determine if it warrants further consideration. If it does, the BLM must determine whether the new impacts, new alternatives, or new mitigation measures should be analyzed in either the FEIS; a supplement to the draft EIS; or a completely revised and recirculated draft EIS.
- **Significance Determinations:** Comments that directly or indirectly question, with a reasonable basis, determinations regarding the significance or severity of impacts are substantive. A reevaluation of these determinations may be warranted and may lead to changes in the FEIS. If, after reevaluation, the BLM does not think that a change is warranted, the response should provide the rational for that conclusion.

Non-substantive comments simply state a position in favor of, or against, an alternative or a management action proposed in an alternative; merely agree or disagree with BLM policy; provide information not directly related to issues or impact analyses, or otherwise express an unsupported personal preference or opinion. For additional clarification, types of non-substantive comments are as follows:

- **Expressions of Personal Preferences or Opinion:** Comments which express personal preferences or opinions on the proposals are non-substantive and thus do not require further agency action. This includes comments in favor of or against the proposed action or alternatives, comments that only agree or disagree with BLM policy, or comments that raise, debate, or question a point of fact or policy. However, such comments are summarized whenever possible and brought to the attention of the BLM.

The BLM has reviewed and considered all non-substantive comments, but has not provided formal responses to such comments. Although non-substantive comments, including personal preferences and opinions, may be may be considered by the decision maker as he or she chooses the final agency's preferred action, they generally will not affect the analysis.

The results of the comment analysis were important to the development of the PRMP/FEIS. From the nearly 33,000 total comment submissions that BLM received on the DRMP/EIS, it extracted about 2,600 individual substantive comments. The BLM has presented these comments and the BLM responses in the CD attached to the PRMP/FEIS. A list of the organizations and individuals that submitted substantive comments are provided below in Table 5.7. and Table 5.8.

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
B	Bill Barrett Corporation	--
B	Cabot Oil and Gas Corporation	--
B	Delta Petroleum Corporation	--
B	Delta Petroleum Corporation	Harris, C.E.
B	Dolar Energy	Dolar, Mark
B	EnCana Oil and Gas (USA) Inc.	--
B	Fidelity Exploration and Production Co.	Green, Rachel
B	Green River Ranches	Stark, Nancy
B	Holiday Expeditions	Holladay, Dee
B	International Adventure Tours	Key, Kathy
B	Intrepid Potash	York, Eric
B	Lisbon Valley Mining Co	Indergard, Lantz M.
B	PacficCorp	--
B	Questar Exploration and Production Company	--
B	Red River Canoe Company	Butler, Theresa M.

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
B	Ruby Ranch	Rozman, Curtis and Kerry
B	Samson	--
B	Slate River Resources	Johnston, Bruce E.
B	Tag a Long	--
B	Union Telephone Company	Fujimoto, Shirley
G	Arches National Park	--
G	BLM - Grand Junction Field Office	--
G	Colorado Division of Wildlife	--
G	Environmental Protection Agency	--
G	Grand County Council	Lewis, Jim
G	Green River City	Harris, Dan
G	San Juan County	--
G	State of Utah - Public Lands Policy Coordination	--
G	The Hopi Tribe	Kuwanwisiwma, Leigh Mogrart, Terry
G	Town of Castle Valley	Bollermann, Damian
G	U.S. Fish and Wildlife Service	Romin, Laura

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
G	US Geological Survey	Devine, James
G	Utah State Office of Education	Shumway, Larry
G	Ute Mountain Ute Tribe	House Sr, Ernest
I	Great Old Broads for Wilderness	Egan, Veronica
I	Van Loan Ranches	Van Loan, Jay
O	--	Boucher, Carla
O	American Motorcyclist Association	Harris, Nicholas
O	American Rivers	McKew, Quinn (Director, River Heritage)
O	Back Country Horsemen of Utah	Allen, Craig
O	Blueribbon Coalition, Inc.	--
O	Bookcliff Rattlers Motorcycle Club	--
O	Businesses/Organizations in Support of the Green River	--
O	Californians For Western Wilderness	Painter, Michael

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
O	Canyonlands Field Institute	--
O	Capital Trail Vehicle Association	--
O	Center for Native Ecosystems	Robertson, Erin (Senior Staff Biologist)
O	Center for Water Advocacy	Shepherd, Harold (Staff Attorney)
O	Coconino Trail Riders	Greenwalt, Keith Hall, James
O	Colorado 500	Riggle, Don
O	Colorado Off-Highway Vehicle Coalition (COHVCO)	--
O	Colorado Plateau Archaeological Alliance	--
O	ECOS Consulting	--
O	Environment Preservation Foundation	--
O	Florida 4x4	McRory, Andrew
O	Foundation for North American Wild Sheep	--
O	Glen Canyon Group	Binyon, Jean
O	Grand County Backcountry Council	Bodner, Dave

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
O	Howard County Bird Club	Schwarz, Kurt
O	Independent Petroleum Assoc. of Mountain States	Sgamma, Kathleen
O	International Mountain Bicycling Association	--
O	Moab Area Climbers Association	Lightner Jr, Sam
O	Moab Friends-for Wheelin'	Stevens, Jeff Jensen, Holly
O	Moab Solutions	Melnicoff, Sara
O	Moab Trails Alliance	--
O	Moab Trails Alliance	Schappert, Kimberly
O	National Parks Conservation Association	Nimkin, David
O	National Trust for Historic Preservation	Hays, Ti
O	New Mexico OHV Alliance	Spivack, Joanne
O	NOLS/ Outdoor Industry Association	Cukjati, Gary Kleiner-Roberts, Amy
O	Outward Bound Wilderness	--
O	Outward Bound Wilderness	DeHoff, Mike

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
O	Pack Creek Water Company	Sleight, Jane
O	Public Lands Advocacy	Moseley, Claire M. (Executive Director)
O	Public Lands Equal Access Alliance	--
O	Red Rock 4-Wheelers, Inc.	Bandle, Bob
O	Ride with Respect	--
O	Rising Sun 4x4 Club	Morgan, Jr, Williams H.
O	Sage Riders Motorcycle Club	--
O	San Juan Public Entry and Access Rights	Qurri, Bob
O	San Juan Trail Riders	--
O	Sierra Club Utah Chapter	Hoskisson, Wayne
O	Southern Utah Wilderness Alliance (SUWA)	--
O	Sportsmen for Fish and Wildlife	--
O	The Nature Conservancy	Tuhy, Joel

Table 5.7. List of Organizations and Individuals that Submitted Substantive Comments

Commenter Type	Organization	Individual(s)
O	Theodore Roosevelt Conservation Partnership	Webster, Joel A.
O	Utah 4 Wheel Drive Association	Edmunds, Steve
O	Utah Farm Bureau Federation	--
O	Utah Four Wheel Drive Association	Jackson, Steve
O	Utah Rivers Council	Danenhauer, Mark
O	Utah Rock Art Research Association	Scotter, Troy
O	Western Watersheds Project	Carter, John
O	Western Wildlife Conservancy	Robinson, Kirk C.

Notes: B=Business, G=Government, I-Individual, and O-Organization

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Abernathy	Leroy P.
Ahearn	John J.
Alderson	George and Frances
Allender	William
Allender	Jen
Amrase	Gwenn
Andersen	Brandon
Anderson	Lisa
Anderson	Rachel
Anderson	Justin
Apicella	Peter
Armitage	Kevin
Artley	Dick
Askew	Ed
Avalos	Marty
Bailey	Bryan
Baird	Janelle
Baker	Shawn
Bassett	Mike
Bates	Harley
Bauer	Kincade
Benson	Chris
Berger	Bruce
Berhrmann	Rick
Biaswell	Kelly
Bigelow	Kerry
Bodner	David W
Bowers	Seth
Brown	Josh
Browning	Gay
Brunner	Christian
Bruno	Pete
Brunvand	Amy
Bulkeley	Jim
Bullard and Family	Larry

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Burch	David Paul Xavier
Burns	Alton
Burns	Allen
Burton	Jan Ellen
Butter	Jane
Butts	Raymond
Cameron	Laura (with Michael Peck)
Carlson	Ginny
Chalmers	D'ahna
Christie	Richard Lance
Ciscell	Michael
Clark	Robert L.
Clark	Robert
Clinard	Gary and Sallie
Connely	Arlene
Coronella	Mike
Crandall	Dell
Creighton	Katie
Croates	Jason
Crockett	Geoff
Crockett	Roger
D	Mike
Dallolio	Nate
Davidson Jr.	John
Davis	Keith and Rachael
Davis	Dan
Davis	Steven
De Sonne	Marcia
Deschamps	Justin
Deschamps	Michael
Dinkins	Dawna
Dozier	Steven
Edwards	Scott
Edwards	Lori
Edwards	Michael

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Elson	Eric S.
Engholm	Greta
Evans	Bud and Patty
Faleck	Adam
Farley	Bill
Farnsworth	David
Farnsworth	Tracey
Feantz	Nona Kay
Fitzgerald	Kathryn
Flasro	Robby
Foisy	Roger
Foster	Scott
Foster	Tom and Jane
Freethey	Sandra
Frisbie	Steve
Fryer	Colin
Gartlan	Naill
Gartlan	Alison
Gilliam	Charles E.
Glatz	Kathy
Gouer	Will
Gough	Joan
Grange	Dale
Granquist	Cindy
Greenberg	Bob
Greenberg	Bob
Griffin	Richard
Hackley	Pam
Halterman	George
Hansen	Bruce
Harris	Tracy
Harris	Dan
Hauer	John and Sena
Hawkins	Edwin D.
Himes	Alex

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Hoff	Wendy
Hogan	Sharon
Hopkins	Larry
Huber	Zachary
Hughes	William
Iannelli	Gina
Illingworth	Garth
Israels	Monica
Jarrett	Brad
Jenkins	Nick
Jenkins	Jolene
Johnson	Steve
Johnson	Tom
Johnson	Tom
Johnstun	Burke
Judd	Michael
Judge	Glen
Karnopp	Jerry
Kauffman	Christopher
Kemp	Kevin and Nan
Kennedy	John
Kilthau	Olaf
Kis	Jon
Klaus	Marion
Knight	Ber
Kobak	Steve
Koedoot	Joel
Kokjohn	Tyler
Kokjohn	Tyler
Krefting	Adam
Kyle	Tom L.
LaRoque	Fred and Susan
Lee	David
Leman	Doug
Lindley	Laura

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Linton	Ronald
Lippman	Robert
Lish	Christopher
Lively	Sean
Lowe	Zachary
Lund	Adrea
Lynch	James P.
Mair	Amanda
Malapanes	James
Malonado	Claire
Mandera	Tom
Manley	Michael and Judith
Marshall	Greg
Martin	Dirk
Martin	Steve
Maxey	Jim
McCollum	Ferris
McCracken	Nick and Bronwyen
McElhaney	Carma
McElhaney	Doug
McGill	J
McPhail	Michael
McVey	Stan
Messenger	Thomas J
Messenger	Tom
Mock Family	Bobby
Mohler	Wayne
Moore	Chad
Morgan	Meade
Muller	Joseph P.
Murrell	Mark
Narris	Shuanee
Neff	John
Nemitz	Robert W. (with Christine M. Warren)

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Newcomb	Richard
Newman	Stacy
Newren	Josh and Tamara
Nichols	Jason T.
Niederhauser	Mark G
Noble	Ruxton
Norton	Joey
Norton	Robert L.
Nosack	Kurt and Carissa
Nuckas	V.
Obert	Paul
Okubo	Byron
Orr	Diane
Panos	Nick
Parish	Ian
Parmelee	Steve
Parsons	Randall
Peavler	Terry J
Peay	Don
Pederson	Dusty
Pendergast	Jim
Peters	Wayne
Petti	Caroline
Phillips	Sue
Phillips	Sara Ann
Phillips	Ann
Phillips	Greg
Pincock	Kara
Pistorius	Shelley
Powell	Barry
Price	Jeff
Reddy	Shilpa
Reece	Justin
Reingold	Benjamin L.
Renwick	Kiel

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Ress	Frank
Reynolds	Marc
Riches	Randy
Robertson	Cris
Robinson	W.W.
Rodgers	David
Rogers	David
Rohde	David
Rose	Meredith
Rossiter	Paul
Royse	Cindy
Rue	Judy
Ruffin	Larry and Kris
Rust	Terry
Rzeczycki	John
Salbaum	J. Michael
Salmana	Stacy
Sanchez	Carlo
Schiller	Penny
Schmidt	Jason
Schoen	Erika
Schwartz	Alex
Sennett	Michael
Sevenhoff	Mark
Sharp	Marlin and Julia
Sheets	Lee
Silliman	Rodney
Silver	Duncan Wanda
Smith	Cynthia
Sorensen	LaDawn and Darwin
Speidel	Steve
Spengler	Diane
Stembridge	Charles
Stoy	Daniel
Stroud	David

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Stroud	David
Sudar	Jonathon
Swank	Gary
Swanke	Denice
Swanson	Fred and Bessann
Sweeten	Shannon
Tangren	Shane
Taylor	Molly
Taylor	Alan
Taylor	Tammy
Taylor	Gary C.
Taylor	Zane
Teisl	Philip
Telepak	Robert J
Tennyson	Raven
Thurston	Mike
Tipps	B
Tisovec	Phil
Tocher	Ross
Tolman	Roland
Tomka	Peter
Triolo	Phil
Trow Jr.	Richard
Turner	Jeff
Underwood	Teri
VanDuyn	David
Veranth	John M.
Vetere Jr.	John and John Cory Jr.
Vidiella	Patricia
Wade	R. Lance
Wade	Doug
Wakeman	TeriAnn
Washburn	Mary
Weaver	Mark
Weilmuenster	Mike, Becky, and Mason

Table 5.8. List of Individuals that Submitted Substantive Comments

Last Name	First Name
Werkmeister	Mark R.
West	Jaclyn
Westwood	Ryan
Whitaker	John M
Whiteman	David
Widdison	James
Williams	Candace
Williams	Gabriel
Wilson	Maggie

5.5.3 SUMMARY OF PUBLIC COMMENTS

During the public comment period for the DRMP/EIS, comments were received from government agencies, organizations, businesses, and individuals. The greatest number of comments concerned travel management, recreation, non-WSA lands with wilderness characteristics, and minerals, in this order. Commenters focused on their own definitions of "multiple use" and "balance among resource uses and natural resource values". Comments ranged from those urging the BLM to impose maximum restrictions on resource uses to those expressing dissatisfaction with the restrictions imposed in the Preferred Alternative of the DRMP/EIS.

Travel management comments ranged from those expressing a desire for more open to cross country travel areas and for the maximum number of routes being designated, to those expressing a desire for no open to cross country travel areas and to a minimum number of routes being designated. Recreation comments ranged from those favoring larger Special Recreation Management Areas with an emphasis on motorized recreation to those who wanted a de-emphasis on motorized recreation throughout the planning area. Comments involving non-WSA lands with wilderness characteristics showed both support for and opposition to this resource value. Minerals comments included those favoring fewer restrictions to those who wanted stricter stipulations on the recovery of mineral resources.

Many Commenters addressed the impact analyses on various resources. Those Commenters who alleged deficiencies in the impact analysis often were comparing the preferred alternative not to the No Action alternative (as required by the Council on Environmental Quality), but rather to the Commenter's version of an ideal environment. For example, those who favored fewer designated routes and more lands to be managed to protect their wilderness characteristics often compared the Preferred Alternative with a landscape devoid of all existing routes; those who favored more routes compared the Preferred Alternative to their entire "wish list" of future motorized recreation opportunities.

The interest of the public in the management of BLM lands in the Moab planning area was manifest in the number and complexity of the submissions received.

5.5.4 PUBLIC COMMENTS AND RESPONSES

The following tables present a subset of the comments received by the Moab BLM during the comment period. The first set of tables (Tables 5.9a, 5.9b, and 5.9c) provides all the comments submitted by the three Cooperating Agencies – the State of Utah, Grand County, and San Juan County. These tables are organized by the commenter, comment number, whether the comment resulted in a change to the document, the resource category being addressed, the comment, and the BLM's response. The second set of tables (Tables 5.10a through 5.10t) provides the comments that resulted in a change to the document. These tables include similar information to that provided in the first set of tables except they are grouped by resource category.

All comments received during the public comment period are available on a CD accompanying this document. This CD contains two tables in Adobe Portable Document Format (PDF). Both tables have the following columns: **Commenter Name or Organization, Resource, Comment, Response**. The first table is sorted and grouped by Commenter Name or Organization and the second table is sorted and grouped by resource.

Table 5.9.a. Public Comments and Responses: State of Utah

Record ID	Commenter	Comment Number	Requires Change / Resource	Comment Text	Response to Comment
120	State of Utah	1	No / Minerals: Oil and Gas	The BLM should consider the potentially large economic effects the oil and gas industry might have on Grand and San Juan Counties as shown in the Economic and Business Research Study (Phase I) for oil and gas in the Uintah Basin.	The BLM acknowledges the oil and gas study referenced for the Uintah Basin. However, the applicability to Moab is limited. The Moab Field Office prepared a Reasonably Foreseeable Development (RFD) scenario for oil and gas development over the next 15 years. The development predicted in the RFD was utilized to generate the economic impacts in the Draft RMP/EIS as detailed on pg. 4-259 through 4-264.
120	State of Utah	2	No / Wild and Scenic Rivers	Utah State law indicates that river segments proposed for Wild and Scenic designation should contain water at all times.	According to the "Wild and Scenic River Review in the State of Utah Process and Criteria for Interagency Use" (July 1996), "there are no specific requirements concerning minimum flow for an eligible segment". The BLM is aware that there are specific State laws relevant to aspects of public land management that are discrete from, and independent of, Federal law. However, BLM is bound by Federal law. As a consequence, there may be inconsistencies that cannot be reconciled. The FLPMA requires that BLM's land-use plans be consistent with State and local plans "to the extent practical" where State and local plans conflict with Federal law there will be an inconsistency that cannot be resolved. The BLM will identify these conflicts in the FEIS/PRMP so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	3	No Wild and Scenic Rivers	The state is concerned about suitability findings for those streams where there are significant water diversions upstream.	According the "Wild and Scenic River Review in the State of Utah Process and Criteria for Interagency Use" (July 1996), Congress has allowed for the existence of some human modification of a riverway, the presence of impoundments or major dams above or below a segment under review (including those that may regulate the flow regime through the segment). The existence of minor dams, diversion structures, and riprap within the segment shall not by themselves render a reach ineligible.
120	State of Utah	4	No Wild and Scenic Rivers	The state contends that while federal reserve water rights are not asserted prior to designation, those stream reaches found suitable are managed as if they were designated .	Barring congressional action, there is no effect on water rights or instream flows related to suitability findings made in a land-use plan decision. Even if Congress were to designate rivers into the National Wild and Scenic Rivers System, any such designation would have no effect on existing water rights. Section 13(b) of the Wild and Scenic River Act states that jurisdiction over waters is determined by established principles of law. In Utah, the State has jurisdiction over water. Although the Wild and Scenic Rivers Act implies a federal reserved water right for designated rivers, it does not require or specify any amount, and as noted above, confirms that Utah has jurisdiction over water rights. The BLM would be required to adjudicate the water right, in the same manner as any other entity, by application through state processes. Thus, for congressionally designated rivers, BLM may assert a federal reserved water right for appurtenant and unappropriated water with a priority date as of the date of designation (junior to all existing rights), but only in the minimum amount necessary to fulfill the primary purpose of the reservation. The Draft RMP/EIS states (pg. 2-39) that the BLM would not seek water rights as part of a suitability determination made in the Record of Decision for the RMP.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	5	No Livestock Grazing	State policy discourages permanent closure of grazing allotments for improving watershed health, wildlife habitat, and the economic benefits of livestock production. The state strongly suggests that BLM support flexibility within the management provisions for livestock grazing time (duration) and timing (season of use) in the final plan.	Allotments proposed for closure on page 2-12 are not permanent and the decision to close these allotments or areas may be revisited in the development of subsequent RMPs or the revision of this one. However, certain allotments may not be available for grazing over the life of the plan. The allotments considered, as not available are spread by alternative. Subsequent revisions of the land-use plan may consider opening these areas to livestock grazing. The vast majority (over 95%) of the Moab Planning Area is available for livestock grazing. For those limited number of allotments shown on page 2-12 of the DRMP/EIS, the BLM is proposing that other uses of the BLM land are the highest and best use of these areas. Both FLPMA and BLM's Land-use Planning Handbook authorizes BLM to close specific areas to livestock grazing to place an emphasis on these areas for other purposes or values, such as wildlife use, watershed protection, and recreation. As indicated by the variable uses of the BLM lands, as shown in the proposed action, it is BLM's intention to emphasize "multiple use" of the public lands within the planning area. s stated in the DRMP/EIS (pg. 2-12), for those areas open to livestock grazing, grazing would be managed on an allotment basis according to the Guidelines for Livestock Grazing Management to meet the Standards for Rangeland Health (see Appendix Q), including duration and adjustment in season of use. This will provide the manager flexibility to adjust the permitted numbers of livestock, and the season and duration of use on specific allotments after the careful evaluation of monitoring and inventory data in full compliance with appropriate rules and regulations and BLM policy.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	6	Yes Livestock Grazing	The State supports the conversion of livestock AUMs to wildlife AUMs for the Diamond, Cottonwood, Bogart, and Pear Park allotments.	The BLM has recognized (Alts A, B, & C) the wildlife value of the Cottonwood, Diamond, and Bogart allotments as acknowledged in the 1994 Memorandum of Agreement among the BLM, UDWR, and the Nature Conservancy. The Pear Park allotment, which is unavailable in Alts A & B, has been made part of the PRMP/FEIS.
120	State of Utah	7	Yes Wildlife	The State believes the BLM should only employ the term "critical habitat" when referring to the legal habitat designations for endangered and threatened species under the Endangered Species Act. The State requests that the BLM use the "crucial habitat" designations mapped by the UDWR.	The term critical has been reserved to Threatened and Endangered (T &E) species. Corrections in the text have been made in the PRMP/FEIS. For non-T&E species the BLM relied on the UDWR crucial habitat designations.
120	State of Utah	8	No Wilderness Characteristics	The State asks BLM to provide a detailed explanation of the rationale and authority for management of lands solely because of wilderness characteristics, and why such management does not circumvent the provisions of the statutorily required wilderness review process.	The BLM's authority for managing lands to protect or enhance wilderness characteristics comes directly from FLPMA Section 202 (43 U.S.C. §1712). This section of BLM's organic statute gives the Secretary of the Interior authority to manage public lands for multiple use and sustained yield. Nothing in this section constrains the Secretary's authority to manage lands as necessary to "achieve integrated consideration of physical, biological, economic, and other sciences." (FLPMA, Section 202(c)(2) (43 U.S.C. §1712(c)(2)).) Further, FLPMA makes it clear that the term "multiple use" means that not every use is appropriate for every acre of public land and that the Secretary can "make the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use. . . ." (FLPMA, section 103(c) (43 U.S.C. §1702(c).)

Table 5.9.a. Public Comments and Responses: State of Utah

					The FLPMA intended for the Secretary of the Interior to use land-use planning as a mechanism for allocating resource use, including wilderness character management, amongst the various resources in a way that provides uses for current and future generations. In addition, the BLM's Land-use Planning Handbook (H-1601-1) directs BLM to "identify decisions to protect or preserve wilderness characteristics (naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation). Include goals and objectives to protect the resource and management actions necessary to achieve these goals and objectives. For authorized activities, include conditions of use that would avoid or minimize impacts to wilderness characteristics."
120	State of Utah	9	No Wilderness Characteristics	The BLM should give strong consideration to recommendations submitted by local government and not manage lands to protect wilderness character where such management would, in the opinion of local governments, be contrary to the interests of local residents.	Sections 103, 201, and 202 of FLPMA direct the BLM to take into account the national interest, as well as the local interest. In accordance with FLPMA and BLM rules, regulations, and policies, the BLM must provide for the balanced management of all resources and resource uses on public lands. The BLM gave strong consideration to the concerns of local governments throughout the planning process. In particular, Grand and San Juan Counties are cooperating agencies and have been active cooperators, including during the development of alternatives where Non-WSA areas with wilderness characteristics were considered. See also response to comment 121-70.

Table 5.9.a. Public Comments and Responses: State of Utah

120		10	Yes Adequacy of Analysis	The State strongly disagrees with the BLM's analytical assumption at page 4-3 of the Draft RMP/EIS that non-BLM lands would suffer minimally direct impacts from RMP decisions. SITLA lands may have reduced revenue potential or management objectives that differ from the BLM. The BLM planning decisions on rights-of-way, withdrawals from mineral leasing, special designations, and other determinations impact state trust lands.	Non-BLM lands could be indirectly impacted by RMP decisions both positively and negatively. The analysis in Chapter 4 of the PRMP/FEIS has been modified accordingly. For specifics regarding the impacts on mineral revenue see comment 120-101. The BLM does provide for reasonable access to all SITLA lands under all alternatives (pg. 4-3). A sentence will be added to Chapter 2, Lands and Realty. Non-BLM lands could be indirectly impacted by RMP decisions both positively and negatively. The analysis in Chapter 4 of the PRMP/FEIS has been modified accordingly. For specifics regarding the impacts on mineral revenue see comment 120-101. The BLM does provide for reasonable access to all SITLA lands under all alternatives (pg. 4-3). Information will be added to Chapter 2, Lands and Realty, Management Common to all action alternatives, that states that reasonable access to State land would be provided including across BLM lands within avoidance and exclusion areas for rights-of-way as specified by the Cotter decision (Utah v. Andrus, 10/1/79). In addition, the Moab DRMP/DEIS travel management plan recognizes the requirement to provide access to SITLA lands per the Cotter decision. Also, please see the revised analysis under Socioeconomics in Chapter 4 of the PRMP/FEIS.
120	State of Utah	11	No Lands and Realty	The need for BLM to give priority to state-federal land exchanges has been recognized. The disposal land list is inadequate and lands should be added to this list including the following:	The Federal Land Policy and Management Act (FLPMA) Section 203 requires the BLM to use the land-use planning process to identify lands for disposal through sales. Indentifying lands for Section 203 sale requires the BLM to meet certain criteria set out specifically in the Statute.

Table 5.9.a. Public Comments and Responses: State of Utah

				1) all lands proposed for BLM disposal in the pending Utah Recreation Land Exchange Act; 2) the block of BLM lands west of the Canyonlands airport that are currently subject to Potash preference right leases, and 3) all lands in Lisbon Valley.	FLPMA allows the BLM to identify lands that would be available for exchange (both disposal and acquisition) more generally. The DRMP/EIS has identified lands generally available for exchange, including identifying State lands that are currently available for acquisition. The DRMP/EIS does not contain a schedule or prioritize these lands, but the BLM understands that State in-lieu and other exchanges are a high priority for the State and for the BLM.
120	State of Utah	12	No Process and Procedures	The BLM should commit to utilizing the State's expedited energy permitting process.	Federal laws, rules, regulations, and policies govern the procedures for processing all Federal projects.
120	State of Utah	13	No Air Quality	The State encourages the BLM to impose air emission standards as lease conditions and conditions of approval for Applications for Permit to Drill.	The BLM does not have the responsibility to set air emission standards. That responsibility lies with EPA and the State of Utah. The BLM can only approve actions that meet the National Ambient Air Quality Standards as set by EPA or the State. Site specific mitigation or conditions of approval may be applied at the APD or implementation phase but not during land-use planning and leasing.
120	State of Utah	14	No Air Quality	Future air quality analysis should include modeling with the following factors: 1) oil and gas proponents should assume that leasing and exploration will result in full field development, 2) air quality analyses should be cumulative and include not only planned development but existing omission sources, 3) air quality analyses should be based on	The BLM may consider the Commenter's recommendation for future air quality modeling and analyses.

Table 5.9.a. Public Comments and Responses: State of Utah

				anticipated worst-case meteorological conditions for each dispersion scenario, 4) air quality analyses should address compliance/attainment with all applicable air quality-related requirements and standards, and 5) air quality analysis should specifically address impacts to sensitive visual resources and other air quality-related values.	
120	State of Utah	15	No Travel Management	Under the preferred alternative (Alt C), certain existing routes that provide the only physical access to trust lands would be terminated. The Draft RMP does not address the impact of these closures on the economic value of the affected trust lands in either this section or its section on socioeconomic impacts.	The travel plan provides restrictions to the public for recreational purposes, but does not restrict uses permitted or authorized by the BLM. State inholdings may or may not currently have access, depending upon whether or not existing vehicle routes lead to them. Under different alternative scenarios, existing routes may be proposed to closure. BLM policy, as required by the Cotter decision (State of Utah v. Andrus, 10/1/79), is that "the state must be allowed access to the state school trust lands so that those lands can be developed in a manner that will provide funds for the common school…" This decision confined the issue of access to situations directly involving economic revenues generated for the school trust. The recreation restrictions do not prohibit the State from reasonable access to its lands for economic purposes through separate permit authorization as specified by the Cotter decision. Routes to State sections may not have been identified for recreation purposes due to resource conflicts or actual route conditions.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	16	No Travel Management	The State asks the BLM to explain its intention to designate D roads, and explain why different D roads may be designated across alternatives. Please clarify the authority under which BLM would designate county roads, and what happens to a D road if BLM chooses not to designate it… pursuant to RS 2477.	A "D" route does not equate to a County road assertion. The routes identified as "D" routes in the land-use plan are routes located on public lands and managed by the BLM until properly adjudicated. The DRMP/EIS proposes four different alternatives for which to manage these routes As specified in the Draft RMP/EIS (pg. 1–12), addressing RS 2477 assertions is beyond the scope of this planning effort. However, nothing extinguishes any right-of-way or alters in any way the legal rights the State and counties have to assert and protect RS 2477 rights. The Proposed RMP/Final EIS will not address RS 2477 assertions. Such assertions will be settled administratively on a case-by-case basis or as confirmed through other legal means.
120	State of Utah	17	No Travel Management	The use of vehicles along the course of the Green River impacts natural resources and other recreational users of the corridor far beyond the traveled path due to noise.	The BLM assessed the impacts on natural resources and recreation conflict between motorized access and river based recreation. The BLM determined that the purpose and need associated with the route outweighed the specified conflict.
120	State of Utah	18	Yes Water Resources	No mention is made of water rights. The State Engineer recommends that the BLM consider the impact its actions may have on water rights in general and non-BLM water rights in particular.	On pg. 1–13 of the Moab DRMP/EIS under Planning Criteria, it is noted 1) the planning process recognizes the existence of valid existing rights, and 2) the BLM would adhere to all applicable laws (including State water laws). The text was clarified to ensure that valid water rights are recognized as valid existing rights. On page 1–13 of the DRMP/EIS under Planning Criteria, the BLM states 1) the planning process would recognize the existence of valid existing rights, and 2) the BLM would adhere to all applicable laws (including state and local laws). The text has been edited to ensure that water rights are recognized as valid existing rights. See also response to comment 120-4.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	19	Yes Wildlife	The proper description of deer and elk crucial winter habitats and Rocky Mountain bighorn habitat should occur regardless of the alternative.	As required by NEPA, the BLM considered a range of alternatives. For non-special status species the alternatives varied by the size of the habitat and the timing restrictions. The management of habitat is consistent with the goals and objectives of each alternative. In the Draft RMP/EIS, Alt B has a timing limitation for what is referred to as "winter habitat." This habitat actually includes both crucial and high value winter habitats (635,774 acres). These habitats, although not separated in the draft, have been properly described in the PRMP/FEIS. Alts C and D provide timing limitations for crucial winter habitat only (349,955 acres), not for both crucial and high value habitats. The text has been changed to correct the error of confusing crucial and high value winter habitats.
120	State of Utah	20	No Wildlife	None of the alternatives address the fact that desert bighorn sheep wander between Crystal Geyser, Duma Point, and the Blue Hills. This migration corridor should be recognized in the final RMP.	Duma Point and Blue Hills habitat and migration corridors are recognized in the Draft RMP/EIS. Crystal Geyser is a small satellite population of recognized habitat located more than 10 miles across flat terrain from Duma Point. Defining a migration corridor across this flat terrain is unknown at this time. No known habitat exists between Duma Point and Crystal Geyser. Current studies are underway that may identify a migration corridor.

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120	State of Utah	21	Yes Special Status Species	The estimate of disturbed acreage to white-tailed prairie dogs as identified on page 4-315 is under estimated. Increased volume and speed of traffic, frequent road upgrades, and construction of utility poles and storage tanks, noise from wells and compressors, and increased recreational use will negatively impact prairie dogs.	Table 4.91 (pg. 4-315) has been changed to clarify that the acreage of disturbance from oil and gas development includes ancillary facilities such as roads, pipelines, and power lines. The BLM acknowledges in the impact analysis that there may be additional loss of individuals due to increased volume and speed of traffic.
120	State of Utah	22	No Lands and Realty	It is unclear how State comments will be sought for new rights-of-way for pipelines or service-access roads.	Where applicable, coordination with other Federal, State, and local entities will be sought as mandated under FLPMA, NEPA, and individual program requirements. All current NEPA documents prepared by the Utah BLM are posted on the Environmental Notification Bulletin Board via the BLM internet site. Access to this database is available to the State and the public.
120	State of Utah	23	Yes Wildlife	Surveys for wildlife are not considered to be a valid form of compensatory mitigation.	The language on pg. 4-315 has been clarified to state: "The results of these surveys will be used for avoidance and other mitigating measures."
120	State of Utah	24	Yes Special Status Species	The BLM should recognize that prairie dogs create important habitat for many other wildlife species. There is room to enhance the discussion in the Proposed RMP/Final EIS.	The Proposed RMP/Final EIS (pg. 4-314) includes discussion about the benefits provided by prairie dog habitat to other important habitat.
120	State of Utah	25	No Wildlife	The BLM should only allow the use of utility poles in areas where underground conduits are not practical. Raptor excluders should be placed on utility poles where needed.	Upon receipt for proposed development, the BLM will analyze the impacts to prairie dogs and other wildlife as part of the NEPA process and would apply the appropriate mitigation measures as necessary. This may include underground conduits and raptor excluders.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	26	No Wildlife	The BLM should work with the U.S. Department of Agriculture Wildlife Services to reduce nesting by ravens on storage tanks and other oil and gas infrastructure (i.e. design structures to be less suitable for nests).	Refer to comment 120-25.
120	State of Utah	27	No Wildlife	Enforce a 45 mile-per-hour speed limit on secondary roads in oil and gas development areas from July through September to prevent deaths of young hawks and owls due to vehicle impact.	The speed limit on secondary roads is 25 mph unless otherwise posted.
120	State of Utah	28	No Wildlife	When existing roads in raptor areas where they are likely to experience greatly increased traffic due to oil and gas well development, roads should be relocated as far as practical from the raptor nests regardless of whether or not the wells themselves are within a nest buffer.	Refer to comment 120-25.
120	State of Utah	29	Yes Special Status Species	On pg. 3-143, the RMP states "the planning area is not considered a suitable reintroduction area for black-footed ferrets due to dramatic declines in prairie dog populations". DWR considers the Cisco Desert the number 2 priority for black-footed ferret reintroduction in Utah and request that this language be removed from the RMP/EIS	The language in the text (pg. 3-143) of the Proposed RMP/Final EIS that states "the planning area is not considered a suitable reintroduction area for black footed ferrets" has been deleted .

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	30	No Special Status Species	The BLM should consider including the parcel surrounding the Gunnison's prairie dog habitat northwest of Bridger Jack Mesa as part of the Behind the Rocks ACEC.	When the BLM developed alternatives, the Commenter did not identify this area as Gunnison's prairie dog habitat. Furthermore, most of the area referred to is State land.
120	State of Utah	31	Yes Special Status Species	Parcel R-11 which is identified for disposal under all alternatives contains Gunnison's prairie dog habitat. The State urges caution regarding the disposal of this land because the Gunnison's prairie dog may become petitioned for listing under ESA.	Parcel R-11 has been dropped from the disposal list (Appendix D, pg. D-3).
120	State of Utah	32	No Wildlife	Map 2-25 does not delineate pronghorn fawning habitat south of I-70 in the Cisco Desert.	Although pronghorn habitat is identified south of I-70, the BLM and UDWR agreed that the majority of fawning occurs north of I-70 due high population densities. UDWR habitat data from 2003 does not identify any pronghorn habitat south of I-70. Pronghorn habitat south of I-70 was added by BLM due to known and potential occupancy.
120	State of Utah	33	No Wildlife	Fragmentation of crucial big game winter habitat due to oil and gas development should be mitigated through restoration at 4 acres for every 1 acre disturbed.	According to Washington Office Instruction Memorandum 2005-069, the BLM may identify off-site mitigation opportunities to address impacts of the project proposal, but is not to carry them forward for detailed analysis unless volunteered by the applicant.
120	State of Utah	34	Yes Wildlife	Reference the Utah Comprehensive Wildlife Strategy as the Utah Wildlife Action Plan.	This reference has been changed on pg. 2-44.

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120	State of Utah	35	No Special Status Species	The State recommends listing the following nine species of concern: Allen's big-eared bat, American three-toed woodpecker, big free-tailed bat, cornsnake, ferruginous hawk, spotted bat, and Townsend's big-eared bat.	These species are listed on pg. 3-146 to 3-148.
120	State of Utah	36	Yes Special Status Species	The State recommends a 2 mile buffer within active sage-grouse leks. The habitat reclamation ratio should be 4:1. There are currently no alternatives or reparations known to suitably replace a sage-grouse lek.	There are currently no active Gunnison or greater sage-grouse leks in the Moab Field Office. In 2005, the BLM and UDWR signed the Gunnison Sage-grouse Rangewide Conversation Plan. One of the conservation measures identified in the plan to minimize impacts from mineral development was "apply a lease stipulation of No Surface Occupancy within 0.5 miles of occupied lek sites year round". Since the Moab Field Office currently has no active leks a Controlled Surface Use/Timing Limitation stipulation of 2.0 miles was applied so that any leks discovered in the future could be protected. This stipulation also precludes permanent surface occupancy within 2.0 mile of an active lek and no surface-disturbing activities allowed within 0.5 miles year round. To be consistent with the Utah State Sage-grouse strategy, the controlled surface use/timing limitation lek buffer for greater sage-grouse has been changed from 0.5 mile to 2.0 mile in the Preferred Alternative (Alt C). The BLM agrees that sage-grouse leks are irreplaceable, and Alts B and C offer the greatest degree of protection for them (2 mile lek buffer). Alt B, if selected in the final decision document, would provide the greatest level of protection for any leks identified, while Alt D would provide the least amount of protection. See the response to comment 120-33.

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120	State of Utah	37	Yes Wildlife	It is stated on pg. 4-453 that interim and final reclamation will use native seeds. The State believes there are situations and circumstances where non-native plants may be the only tool to mange non-native weeds.	On pg. 2-50 it is stated that "Restoration and rehabilitation would use native seed mixes wherever possible. Non-native species may be used as necessary for stabilization or to prevent invasion of noxious or invasive weed species." The reference on pg. 4-453 has been changed to reflect this.
120	State of Utah	38	No Wildlife	Seasonal restrictions and spatial buffers should be required of energy development. Use the U.S. Fish and Wildlife Service's Raptor Protection Guidelines.	On pg. 2-53 it is specified that raptors are to be managed in accordance with the Best Management Practices (BMPs) included in Appendix O. These BM's implement the Utah Field Office Guidelines For Raptor Protection From Human and Land-use Disturbances (F&WS, 2002) and provide for modifications of spatial or temporal raptor nest buffers, if an established set of criteria can be met. The document specifies that the BMPs, or specific elements of the BMPs, which pertain to the proposal, should be attached as Conditions of Approval to all BLM use authorizations that have the potential to adversely affect nesting raptors, or would cause occupied nest sites to become unsuitable for nesting in subsequent years. Therefore, the raptor BMPs can be applied to any surface-disturbing action, including energy development activities, where raptor nesting may be affected. As specified in the U.S. Fish and Wildlife Service "Guidelines" document, modifications of spatial and seasonal buffers for BLM-authorized actions would be permitted, so long as protection of nesting raptors is ensured. State and/or federally listed, proposed, and candidate raptor species, as well as BLM State-sensitive raptor species, should be afforded the highest level of protection through this BMP process; however, all raptor species would continue to receive protection under the Migratory Bird Treaty Act. Modification of the buffers for threatened or endangered species would be considered pending results of Section 7 Consultation with USFWS.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	39	Yes Socioeconomics	The economic impacts summary Table 2.2 (pg. 2-78) for minerals is incomplete. It only mentions lease rental royalty payments for oil and gas. Severance tax and property tax should be addressed as economic benefits. The same table discusses the economic impacts of recreation through sales tax and employment (2,000 jobs), but fails to indicate whether or not those are low or high paying, seasonal or permanent jobs.	The economic benefits of severance taxes to the State of Utah as a whole are referenced on pg. 4-262. Information on the economic benefits of severance tax has been added to Table 2.2. Property taxes levied on natural resources can be broken by commodity and county and this has been added to Table 2.2 (pg. 2-79). The economic benefits of property taxes (ad valorem) are also discussed on pg. 4-262. Information on wage distribution for recreation jobs has been added to Chapter 3 (pg. 3-104).
120	State of Utah	40	No Minerals: Oil and Gas	The summary of impacts section should be expanded to discuss constraints upon mineral development when all requirements proposed under each alternative are considered concurrently. This should include the acreage available under each alternative, but the viability of development in light of restrictive but not prohibitive requirements such as Class II Visual Quality.	The summary of impacts section is a summary and does not provide a detailed discussion. The acreage provided under each alternative is provided in the summary. A discussion of the impacts to minerals from visual resource restrictions is provided on pg. 4-107.
120	State of Utah	41	No Locatable Minerals	The discussion of locatable minerals notes that the anticipated effect of uranium development would be the same under all alternatives because the acres open to extraction would be the same across all alternatives (see pg. 4-259).	On pg. 4-106 to 4-108, it is acknowledged that special stipulations (timing and visual restrictions) impose additional constraints and costs to locatable mineral operations. The actual costs depend on many factors and cannot be quantified on a landscape level document.

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120	State of Utah	42	No Socioeconomics	None of the alternatives adequately analyze the loss of revenue from formally or effectively from eliminating mineral development in many of the lands subject to Special Designations and restrictive viewshed.	On pg. 4-264 the royalty revenues generated under each alternative are provided for oil and gas. The Moab Field Office has only one producing locatable mineral mine (Lisbon copper mine) and revenues (severance and property taxes) from this do not vary across alternatives.
120	State of Utah	43	No Air Quality	The air quality analysis assumed all new compressors would operate at a NOx emission rate of 0.7 g/hp-hr (pg. 4–17). How will the BLM ensure this projection for newly permitted compressors.	This figure (0.7 g/hp-hr) was used as an analysis assumption and is based on the best available control technology. Air quality impacts will be analyzed for specific proposed oil and gas development on a case by case basis during the NEPA process. Air quality emission restrictions can be imposed at that time.
120	State of Utah	44	No Air Quality	The air quality analysis assumed well spacing of 40 acres and 40 kilometers. Please confirm this analysis spacing.	The analysis assumption was based on 40 acre well spacing as stated on pg. 4–20. This spacing was utilized because it represents a conservative estimate for the oil and gas operations conducted within the Moab Field Office. The spacing varies by area.
120	State of Utah	45	Yes Air Quality	Assumptions regarding the number of compressors and dehydrators listed on page 4–20 are inconsistent with those shown in Table 4.7. If the numbers in Table 4.7 are correct and the analysis was based on the numbers discussed in the text, the analysis could significantly understate air quality impacts.	The BLM recognizes this discrepancy and has made appropriate changes to both the table and the text (pg. 4–20) in the Proposed RMP/Final EIS.

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120	State of Utah	46	No Cultural Resources	The State recommends the BLM undertake a final check to ensure that other potential areas of high cultural resource densities or values are examined for potential conflicts. The MFO should use techniques such as GIS, existing site databases.	In accordance with the BLM Land-use Planning Handbook (1601.1), a Class I cultural survey was conducted. For site specific actions the BLM conducts a Class III cultural survey as appropriate. On pg. 4-30 a model of cultural resource site density is described that was used to predict potential impacts to cultural resources. This model identified high, medium, and low site densities and this information was used to quantify the impacts. The model was tested by intersecting 4,259 known cultural sites with the probability coverage in GIS.
120	State of Utah	47	No Cultural Resources	The State suggests that the BLM develop a specific ongoing program to identify and target identification efforts under Section 110 of the National Historic Preservation Act.	These type of actions are administrative and do not require land-use planning decisions to accomplish. However, on pg. 2-8, cultural resource inventory areas under Section 110 are prioritized.
120	State of Utah	48	Yes Cultural Resources	The State suggests enhancing and strengthening the density analyses utilized in the Draft RMP/EIS. These techniques could be significantly enhanced and strengthened in implementation of the Final Plan for high cultural resource value areas which include Sego Rock Art, Wall Street/Colorado River Rock Art, Behind the Rocks, Ten mile Wash, Mill Creek Canyon/South and North Forks of Mill Creek, the Wall Street portion of the Highway 279/Shafer Basin/Long Canyon proposed ACEC, Westwater Canyon, Kane Springs Canyon, Seven mile Canyon, Bartlett/Hidden Canyon, Hell Roaring Uplands, and the Dolores River Canyon.	The BLM will continue to enhance the inventory and density techniques for high cultural value areas identified in the final plan. Each of the cultural high value areas mentioned by the Commenter has been included in the Proposed Plan for inventory in the Final EIS including Seven mile Canyon (refer to pg. 2-8).

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120	State of Utah	49	Yes Cultural Resources	The State requests that a cultural resource management plan be developed for Special Recreation Management Areas.	In Management Common to All Action Alternatives for Cultural Resources (pg. 2-7), several specific areas are mentioned for cultural resource management priority; Ten Mile Wash, Mill Creek Canyon, Behind the Rocks, and Wall Street. These 4 areas coincide with high visitation areas managed as SRMAs. The text has been changed to state that Cultural Resource Management Plans will be a component of the implementation plans for the SRMAs that include the 4 cultural areas.
120	State of Utah	50	Yes Cultural Resources	The State suggests that BLM specify in the RMP the subsequent development of specific cultural resource management plans, especially in areas with potential resource conflicts between cultural and recreation/travel. These plans could provide for potential heritage tourism development where warranted.	See response to comment 120-49. In addition, potential heritage tourism development would be a component of the aforementioned Cultural Resource Management Plans (pg. 2-7).
120	State of Utah	51	No Wilderness Characteristics	The BLM should clarify the criteria utilized to determine which areas with wilderness characteristics (WC) were included in the preferred alternative.	Four alternatives for managing public lands, including lands with wilderness characteristics, are present in the Draft RMP/EIS. The range of alternatives considered issues and concerns raised during the scoping period, planning criteria, and the guidance applicable to resource uses. The alternatives constitute a range of management actions that set forth different priorities and measures to emphasize certain uses or resource values over other uses or resource values under the multiple use and sustained yield mandate of FLPMA to achieve certain goals and objectives. The preferred alternative, Alternative C was crafted by an interdisciplinary team and cooperating agencies to provide a balance between commodity production and resource uses while providing protection to a wide spectrum of resource values.

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					These resource values include those associated with wilderness characteristics, ACECs, Wild and Scenic Rivers, sensitive soils, watersheds, visual resources, wildlife values, and floodplain/riparian areas.
120	State of Utah	52	No Wilderness Characteristics	The BLM needs to consider the new information on roads (2007) to reevaluate the findings of the 1999/2003 wilderness inventory.	The 2003 Revision Document for the Moab Field Office made adjustments to Wilderness Inventory Areas based on county road data, none of which differs from the current county inventory. BLM stands by its 1999/2003 data.
120	State of Utah	53	No Wilderness Characteristics	The BLM inconsistently applied road data between the 1999 inventory and the 2007 WC review.	The BLM did not inconsistently apply the road data, but used the policies and procedures applicable at the time of review. The Wilderness Study Area Interim Management Policy (IMP, H-8550-1; BLM 1995). The "IMP" or "WSA Handbook" was used during the inventory process conducted prior to 2004. The WSA IMP emphasized the difference between "roads" and "ways". Under that policy, the presence of a "road" was considered to negatively affect the wilderness characteristics of an inventory unit, therefore, the road and affected area needed to be excluded. The presence of a "way" however, was not considered, in and of itself, to have a sufficient negative affect on naturalness of an area to disqualify all or part of an inventory unit. In 2004, the BLM settled the ongoing litigation with the State of Utah (Utah v. Norton Settlement Agreement). It was acknowledged that the BLM may continue to inventory public lands for resources or other values, including wilderness characteristics, as a part of managing the public lands and land-use planning. Inventories conducted post-2004 applied current policy, which is based on Washington Office Instruction Memorandum 2003-275, Change 1, which emphasizes naturalness and does not distinguish "roads" from "ways".

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					The BLM has evaluated wilderness characteristics since 2004 on the basis of affects to the naturalness of an area, which could either be from roads or ways.
120	State of Utah	54	No Wilderness Characteristics	On page 4-157, the DEIS states that under Alt B, all 266,485 acres of non-WSA lands with wilderness characteristics would be managed as VRM class II. Table 4.55 indicates some WC lands that would be managed as VRM class I; please clarify.	The VRM I acreage within WC areas in Alt B results from other decisions made under Alt B. For example, Beaver Creek, Fisher Towers, Mary Jane Canyon, and Mill Creek Canyon contain rivers found suitable as "wild" for Wild and Scenic River status. Wild Rivers are managed as VRM I. Portions of the other areas are managed as scenic ACECs under Alt B resulting in VRM I management in that alternative. WC management alone does not result in VRM I management under any alternative.
120	State of Utah	55	No Wilderness Characteristics	On pages 4-158 and 159, the DEIS states that under Alternative B, new water development facilities for wildlife would likely be precluded within non-WSA lands with wilderness characteristics. Please discuss the extent to which Alt C would preclude development of water facilities.	New water developments would be precluded under Alt B since non-WSA lands with wilderness characteristics (WC) are closed to surface-disturbing activities. However, in Alt C WC lands are managed as No Surface Occupancy which provides an exception if the use is consistent and compatible with protection or enhancement of the resource values (see Appendix C). Under Alt C, a new wildlife water development could potentially be considered an enhancement of the natural values based on future NEPA analysis for such a proposal.
120	State of Utah	56	No Wilderness Characteristics	Many of the WC areas were divided into sub-units based on "substantially noticeable routes". Is this division appropriate?	In Appendix P (pg. P-2), the BLM discusses the size criteria for areas with WC. The size criterion of 5,000 acres was applied only to stand alone units. Units contiguous with other federal lands with WC were evaluated for naturalness alone.

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120	State of Utah	57	Yes Wilderness Characteristics	Portions of Arches Adjacent WC subunits 4-6 are not identified on the map. The text discussing unit five identifies wilderness characteristics for 625 acres, but the map does not show contiguity with the Park.	Placement of the labels on the WC supplemental maps have been refined for clarity.
120	State of Utah	58	Yes Wilderness Characteristics	The text for the Diamond Canyon WC indicates that unit six does not meet wilderness characteristic requirements but the map appears to indicate otherwise.	The WC supplemental map for the Diamond Canyon WC shows a small portion of unit 6 as possessing WC. This is a mapping error which has been corrected; the text is correct.
120	State of Utah	59	Yes Wilderness Characteristics	The map for the Goldbar WC show two exclusions from the analysis area (blue circles) that are not discussed in the text. What are these areas? Area six is discussed in the text but not identified on the map.	These exclusions are "doughnuts" in the data provided by the proponent and are meant to be exclusions due to impacts on naturalness. Unit six is shown on the map but the label has been improved.
120	State of Utah	60	No Wilderness Characteristics	Portions of the Labyrinth Canyon and Lost Spring WC area determined to possess wilderness characteristics in the 1999–2003 review appear to have high route density. Please explain why these routes do not compromise either naturalness or the outstanding opportunities for solitude or a primitive and unconfined type of recreation.	Refer to response to comments for 120-52 & 53 for an explanation of roads vs. ways and the withdrawal of the Wilderness Handbook. The 2003 Revision Document removed from the original Wilderness Inventory Area those portions with "way" density so high as to preclude such opportunities. The routes in the remaining Wilderness Inventory Area are sufficiently unnoticeable and unused that their inclusion does not substantially detract from the wilderness characteristics.
120	State of Utah	61	Yes Wilderness Characteristics	Area four of the Labyrinth Canyon WC is mapped as having WC but the text is contradictory.	The label for Area 4 has been repositioned to be more clear.

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120	State of Utah	62	No Wilderness Characteristics	The Mary Jane Canyon WC area appears to have high route density. Please explain why these routes do not compromise either naturalness of the outstanding opportunities for solitude or a primitive and unconfined type of recreation.	See response to comments G-120-52,53, & 60 on route density. Most of the routes depicted in the Mary Jane Canyon area are substantially unnoticeable oil and gas seismic lines which are not being designated for travel under any of the Action Alternatives (B, C, & D). Alt C removes from WC management virtually all of the lands in the Mary Jane Canyon WC area in which these routes are located.
120	State of Utah	63	No Wilderness Characteristics	The text and map for the Mill Creek WC area conclude that the analysis area lacks wilderness characteristics, but the wilderness characteristics review form shows that "some or all of the area has wilderness characteristics as shown on the attached map".	The 1999/2003 review found 3,388 acres of the Mill Creek WC area to possess wilderness characteristics. Subsequent review in 2007 found no additional areas to possess WC. The supplemental WC files on the BLM website state this in the text and on the map.
120	State of Utah	64	No Areas of Critical Environmental Concern	The State is opposed to the establishment of ACECs overlapping Wilderness Study Areas (WSAs). The State also does not favor creation of ACECs that exceed the scope of the resources they are designed to protect.	The BLM has separate policies and guidelines, as well as criteria, for establishing ACECs and WSAs. These differing criteria make it possible that the same lands will qualify as both an ACEC and a WSA but for different reasons. The BLM is required to consider these different policies. The values protected by WSA management prescriptions do not necessarily protect those values found relevant and important in ACEC evaluation, and vice versa. The relevant and important values of ACECs within or adjacent to WSAs were noted in the ACEC Evaluation (Appendix I). The ACECs are evaluated and ranked based on the presence or absence of the stated relevant and important values. None of these values includes wilderness characteristics.

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					Additionally, the management prescriptions for the ACECs is limited in scope to protect the relevant and important values, and the BLM maintains that the size of the ACEC areas is appropriate for protection of the relevant and important values identified.
120	State of Utah	65	No Lands and Realty	State Parks currently has an R&PP lease for land along the east side of Dead Horse Point State Park that is within both the Colorado River SRMA and the Highway 279 Corridor/Shafer Basin/Long Canyon ACEC. The State would like to request an exception for the land currently under R&PP lease that would eventually allow this land to be patented to the Division.	The R&PP lease is a valid existing right and therefore the State of Utah has the right to go to patent upon completion of its plan of development.
120	State of Utah	66	No Recreation	The State seeks information on developing and approving Recreation Area Management Plans (RAMP) and River Management Plans.	After completion of the RMP, those SRMAs that do not currently have RAMPs will be subject to the development of a site specific RAMP, subject to NEPA. The process is identical for River Management Plans.
120	State of Utah	67	Yes Recreation	The Draft RMP/EIS states that where a specific focus area is not identified with a Special Recreation Management Area, the focus of that area is motorized, backcountry touring on designated roads. This statement appears to indicate that those portions of SRMAs that are not subject to a more specific focus area will be managed to emphasize motorized recreation.	The BLM acknowledges that there are entire SRMAs that are focused on a particular type of recreation. The decision on pg. 2-18 has been changed to reflect this; "where a specific type of SRMA or focus area is not identified, the focus of that area is motorized backcountry touring on designated routes". Focus areas particularly for backcountry motorized touring would be managed more intensively than the default management. For example, focus areas for motorized backcountry touring could be considered for new route creation.

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				This appears inconsistent with designating SRMAs to emphasize non-motorized recreation and mountain bike backcountry touring. Please also explain haw management of focus areas specifically designated for "motorized backcountry touring" would differ from the default management of SRMA for motorized backcountry touring.	
120	State of Utah	68	Yes Recreation	The Draft RMP/EIS makes repeated reference to "destination SRMAs" (pg. 2-19). Please explain what a "destination SRMA" is and how such areas would be managed.	Destination SRMAs are those where the majority of visitation is from without the local area. A destination SRMA definition has been added to pg. 2-18.
120	State of Utah	69	Yes Areas of Critical Environmental Concern	The Cottonwood-Diamond Watershed Potential ACEC notes that the proposed designation would remain in force, "until the watershed is restored to a healthy and functioning condition". Please clarify what management conditions would apply once the desired future condition is attained and the mechanism used to change prescriptions.	The Draft RMP/EIS states on pg. 4-320 that the ACEC would be designated until "the watershed is restored to a healthy functioning condition". The text has been changed to state that the ACEC would be designated until a determination is made by an interdisciplinary team that the Cottonwood and Diamond Watersheds are in properly functioning condition (PFC).
120	State of Utah	70	Yes Recreation	Clarify launch limits in Westwater Canyon.	Table 4.69 (on pg. 4-207) states that the daily launch limit for Westwater Canyon is 75 people. This has been changed to state "75 people for the commercial sector and 75 people for the private sector". This equals the 150 person launch limit shown on the BLM website.

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120	State of Utah	71	No Wild and Scenic Rivers	The State is concerned that Wild and Scenic River designations may limit water development by communities for future growth, limit industrial and agricultural growth, and reduce funding for the Colorado River Salinity Control program.	The Wild and Scenic Rivers Act implies a federal reserved water right; however, it must be the minimal amount necessary for purposes of the Act, it must be adjudicated through State processes, and it would be junior to existing water rights. The amount of federal water right will vary from river to river, depending on the river's flows, the un-appropriated quantities in the river, and the values for which the river is being protected. There is no effect whatsoever on water rights on in-stream flows related to suitability findings made in a land-use plan decision, barring Congressional action. Even if Congress were to designate rivers in the National Wild and Scenic Rivers System, any such designation would have no affect on existing, valid water rights. Section 13 (b) of the Wild and Scenic Rivers Act states that jurisdiction over waters is determined by established principles of law. In Utah, the State has jurisdiction over water. Although the Wild and Scenic Rivers Act implies a federal reserved water right for designated rivers, it does not require or specify any amount, and instead establishes that only the minimum amount for purpose of the Act can be acquired. Because the State of Utah has jurisdiction over water, BLM would be required to adjudicate the right as would any other entity, by application through State processes. Thus, for Congressionally designated rivers, BLM may assert a federal reserved water right to appurtenant and unappropriated water with a priority date as of the date of designation (junior to all existing rights), but only in the minimum amount necessary to fulfill the primary purpose of the reservation. During the suitability phase of the Wild and Scenic River process, both Grand and San Juan Counties, as well as the State of Utah and SITLA, were asked to supply information on uses, "including reasonably foreseeable potential uses of the area and related

Table 5.9.a. Public Comments and Responses: State of Utah

					waters, which would be enhanced, foreclosed, or curtailed if the area were included in the national system of rivers, and the values which could be foreclosed or diminished if the area is not protected as part of the national system." (Appendix J-12). Attachment 4 of Appendix J summarizes suitability input by the public as well as local communities. Suitability decisions were made considering the results of this input. For example, the agricultural, residential, commercial and municipal development in and around the town of Green River was cited as a reason that segments 3 and 4 of the Green River were not suitable for consideration. In 1994, Public Law 98-569 amended the Colorado River Basin Salinity Control Act and directed the Secretary to develop a comprehensive program for minimizing salt contributions from lands administered by BLM and to provide a report on this program to the Congress and the Advisory Council. The BLM's Colorado River Basin Salinity Control program is designed to provide the best management practices (BMP) of the basic resource base. Successes with the resource base will translate to improved vegetation cover, better use of onsite precipitation, and stronger plant root systems. In turn, a more stable runoff regime and reduced soil loss should result, thus benefiting water quality of the streams in the Colorado River Basin including the Green River and San Rafael River. In Section 1(b) of the Wild and Scenic Rivers Act, Congress states that one of the objectives of the Act is to protect the water quality of designated rivers. Congress further specified that the river-administering agencies cooperate with the EPA and State water pollution control agencies to eliminate or diminish water pollution (Section 2(c)).

Table 5.9.a. Public Comments and Responses: State of Utah

					Comparing the two, it is clear that the Wild and Scenic Rivers Act and the Colorado River Basin Salinity Control Act are not only complementary of one another, but share the same objective with regard to water quality. The Wild and Scenic Rivers Act directs the Secretary of the Interior or any government agency to prohibit any loan, grant, license, or otherwise construction of any water resources project that would have a direct effect on the values for which such river designation was established. The law also states that it cannot preclude licensing of, or assistance to, developments below or above a wild, scenic, or recreational river area or on any stream tributary thereto that will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System. However, projects intended to comply with the Colorado River Salinity Control Act are those that would generally benefit stream segments instead of affecting or unreasonably diminishing its values including water quality.
120	State of Utah	72	No	The State believes that the BLM should disclose the reasons and rationale for determinations of eligibility and suitability for proposed additions to the National Wild and Scenic River System, and to fully meet the requirements of state and federal law in doing so.	Appendix J of the DRMP/DEIS details the steps undertaken in the eligibility review process including the identification of outstandingly remarkable values as well as the Suitability Considerations by eligible river segments. The BLM complied with all applicable Federal laws, regulations, and policies in the Wild and Scenic Rivers Study Process. The BLM is aware that there are specific State laws relevant to aspects of public land management that

Table 5.9.a. Public Comments and Responses: State of Utah

			Wild and Scenic Rivers		are discrete from, and independent of, Federal law. However, BLM is bound by Federal law. As a consequence, there may be inconsistencies that cannot be reconciled. The FLPMA requires that BLM's land-use plans be consistent with State and local plans "to the extent practical" where State and local plans conflict with Federal law there will be an inconsistency that cannot be resolved. The BLM will identify these conflicts in the FEIS/PRMP so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options.
120	State of Utah	73	No Wild and Scenic Rivers	The State is concerned that the Draft RMP/EIS does not state the authority for protection of river segments while studies are underway.	Section 5(d) of the Wild and Scenic Rivers Act requires that federal land management agencies make wild and scenic river considerations during land-use planning. Two stages of review are involved. Eligibility is an inventory, solely involving river values. Suitability involves consideration of manageability and resource conflicts. As per BLM Manual 8351-Wild and Scenic Rivers-Policy and Program, Section .32C, all eligible rivers are considered in the EIS for the planning effort as to their suitability for congressional designation into the National Wild and Scenic Rivers System. With any suitability determination made in the ROD for the PRMP/FEIS, the free-flowing, outstandingly remarkable values, and tentative classification of rivers would continue to be protected until Congress makes a decision on designation. Appendix J describes the process and authority for the Wild and Scenic Rivers Study. The FLPMA gives the BLM broad authority to manage the public lands, including management of eligible and suitable river segments.

Table 5.9.a. Public Comments and Responses: State of Utah

					For eligible rivers, it is BLM's policy to protect certain values identified in the eligibility determination process to ensure that a decision on suitability can be made. To accomplish this objective, the BLM's management prescriptions must protect the free-flowing character, tentative classifications, and identify outstandingly remarkable values of eligible rivers according to the prescriptions and directions of the current, applicable land-use plan per BLM Manual Section 8351.32C. The BLM Manual further states that should a determination on suitability not be made during the planning process, "the RMP must prescribe protective management measures to ensure protection shall be afforded the river and adjacent public land area pending the suitability determination" (Section 8351.33A). The NEPA specifies that while work on the EIS is in progress, BLM cannot undertake or authorize any actions in the interim that would prejudice the RMP decision or, in this case, the suitability determination (40 CFR 1505.1 (c)(3)). A case-by-case evaluation of potential impacts resulting from a proposed action must be made to ensure that all eligible rivers are not limited from being considered for suitability among the range of RMP alternatives, thus eliminating the opportunity to prejudice the decision. Implementation of the interim management to protect eligible rivers, therefore, is applied through site-specific NEPA analysis of environmental impacts on a case-by-case basis. The NEPA compliance, required for all federal actions that could significantly affect the environment, ensures that BLM consider alternatives to the proposed action and provides BLM an opportunity to apply mitigation measures that will reduce impacts on a given resource such as an eligible stream.

Table 5.9.a. Public Comments and Responses: State of Utah

					This mechanism of applying management must be in conformance with the current land-use plan. Protective prescriptions would be applied to rivers determined suitable in the ROD for the Field Office RMP. Resource allocations (such as those for visual resources, OHV use, and mineral leasing) compatible with protecting river values would be prescribed for suitable river corridors as part of the decision. In addition, no special management objectives would be applied to eligible rivers determined not to be suitable in the ROD. Instead, they would be managed without additional consideration according to the provisions of the plan.
120	State of Utah	74	Yes Wild and Scenic Rivers	The BLM has not sufficiently divulged the proposed management prescriptions for river segments identified in the Draft RMP/EIS.	Table 4.102, Management Proposed for River Segments Considered for WSR Designation by Alternative, details these management prescriptions. The Oil and Gas Leasing Stipulations detailed in Table 4.102 by river segment are applicable to all surface-disturbing activities authorized in the plan as explained in Appendix C. These prescriptions have been moved to the Wild and Scenic River section of Chapter 2.
120	State of Utah	75	Yes Wild and Scenic Rivers	Reference is made to 29 eligible segments that will be further reviewed for suitability; however, at several places, including pages 2-4, ES-5 and ES-6, 28 eligible segments are indicated. The Draft RMP/EIS identifies the number of eligible rivers as 13 at several places and 12 at many other locations.	There are 29 eligible river segments. On Salt Wash, which adjoins Arches National Park, the suitability determination has been delayed pending Park Service action. Therefore, 28 river segments were found suitable in one or more of the alternatives. This has resulted in some inconsistencies in the text which have been corrected. The same reasoning applies to the number of rivers which has also been corrected.

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120	State of Utah	76	Yes Wild and Scenic Rivers	The term "designation" in place of "classification" on pgs 2-4 and 2-91, is inappropriate.	The term "designation" has been changed to "determine" in accordance with the BLM Land-use Planning Handbook (H 1601-1).
120	State of Utah	77	Yes Adequacy and Analysis	The cumulative effects analysis would be enhanced by developing a map depicting the cumulative effect of all use restrictions imposed under each alternative. Such a map could resemble maps 4-1 through 44 in the Kanab Field Office Draft RMP/EIS.	The maps referred to for the Kanab Draft RMP/EIS depict oil and gas restrictions by alternative. The same maps are contained in the Moab Draft RMP/EIS and are referred as Maps 2-5A-D. The oil and gas restrictions shown on these maps apply to all surface-disturbing activities (see Appendix C). These maps have been referred to in the cumulative impact section for minerals (pg. 4-504) and other applicable resources.
120	State of Utah	78	Yes Adequacy and Analysis	The BLM should clearly identify all reasonably foreseeable non-BLM actions within the planning area. As written, it is unclear what -- if any -- non-BLM actions were considered.	The BLM has added the following reasonably foreseeable non-BLM actions to the cumulative impact analysis: minerals extraction on private and SITLA lands; on-going residential growth and business development throughout the planning area; and expansion of U.S. Highway 191.
120	State of Utah	79	No Adequacy and Analysis	Please clarify the identification of alternatives. For example, pgs 2-2 through 2-5 identify Alternative A as the No Action Alternative, Alternative B as the Preferred Alternative, Alternative C as the Alternative emphasizing Resource Protection and Alternative D as the Alternative emphasizing Development. Page 4-1 identifies Alternative B as the Alternative emphasizing Resource Protection, Alternative C as the Preferred Alternative, and Alternative D as the Alternative emphasizing Development.	Our review of these sections shows that the terminology for the alternatives is consistent and is summarized as follows: Alternative A is No Action. Alternative B emphasizes protection/preservation of natural resources. Alternative C is the Preferred Alternative, as it provides for a balanced approach of protection/preservation of natural resources while providing for commodity production. Alternative D emphasizes commodity production.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	80	No Adequacy and Analysis	Pages 2-2 through 2-5 indicates that under Alternative C, 31 percent of the MPA would be closed to oil and gas development and only five percent of the MPA would be open under standard lease terms and conditions. In comparison, Alternative B would close only 14 percent of the MPA and leave 48 percent of the planning area open under standard terms and conditions. However, Table 4.3 indicates that despite the less stringent stipulations applied under Alternative B, 2,652 fewer oil and gas wells are anticipated compared to the more restrictive Alternative C. Please clarify this discrepancy.	The only reference to oil and gas restrictions is Summary Table C which shows 370,250 acres closed to oil and gas development in Alt C. This amounts to 20 percent of the BLM lands within the planning area. It should be noted that 19% of the BLM lands within the planning area are closed to oil and gas leasing by BLM policy. Also, as shown on this table, 427,273 acres are open with standard lease terms and conditions for Alt C. This amounts to 23% of the BLM lands within the planning area. On the same table, Alt B closes 36% of the BLM lands and leaves 14% of the BLM lands open with standard terms and conditions. Table 4.3 shows the total predicted surface disturbance for mineral development in acres by alternative. The more restrictive Alt B results in 3,321 fewer acres (not wells) of surface disturbance than Alt C for oil and gas development.
120	State of Utah	81	No Travel Management	The BLM should designate OHV "training trails" near dispersed camp sites to reduce OHV damage in those areas.	As stated in the Draft RMP/EIS (pg. 2-48) routes may be modified through subsequent implementation planning on a case by case basis. No specific trails or suggestions for "training trails" were submitted during the scoping period. After the RMP is completed and on a site specific basis, the BLM could consider training trails near dispersed camp sites in areas designated in the limited or open to OHV category.
120	State of Utah	82	No Travel Management	To avoid having routes closed in the future which cross properties owned by SITLA, rights-of-ways should be placed in public ownership for OHV access.	The BLM recognizes that under Utah v. Andrus the State is entitled to reasonable access across public lands to school trust lands, including those located within WSAs and other areas where management prescriptions would restrict general public access. Any restrictions such as route closures within these management areas pertain to general public access. Public access to OHV routes on public lands is accomplished through travel management planning.

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					We make a distinction between closures to the public, and State access entitlements and access needs of others that can be addressed as specific needs arise. Land tenure adjustment efforts including pending and anticipated land exchanges between the BLM and the State should properly focus on SITLA lands located within WSAs and other special management areas identified in RMPs. Therefore, the BLM does not believe it is necessary or prudent to globally grant rights-of-way or designated routes to school trust lands for public use. The BLM is happy to work with the State to process any FLPMA Title V ROW application the State feels is necessary to protect ingress and egress to State property. The concern about DRMP/EIS access restrictions other than those for general public access, such as the designation of right-of-way avoidance or exclusion areas, can be clarified with specific mention in the PRMP/FEIS that these designations are subject to State access entitlements under Utah v. Andrus, as described above.
120	State of Utah	83	Yes Travel Management	The White Wash sand dunes OHV open area should be larger than proposed under Alternative C. There should be a larger mix of sand and slick rock with a logical boundary.	A larger OHV open area for the White Wash area is proposed in Alt D. A portion of this larger open area has been added to the PRMP/Final EIS which consists of the popular camping area to the west of the sand dunes and just east of the Ruby Ranch Road.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	84	No Travel Management	The State asks the BLM to explain its intention to designate D roads, and explain why different D roads may be designated across alternatives. Please clarify the authority under which BLM would designate county roads, and what happens to a D road if BLM chooses not to designate it pursuant to RS 2477.	See response to comment 120-16.
120	State of Utah	85	Yes Travel Management	Table 4.54 on page 4-147 indicates that, under Alternative C and D, no portion of Lost Canyon would be either "open" or subject to "limited" OHV use.	The limited acreage is identical in Alternatives B, C, & D. Table 4.54 has been corrected.
120	State of Utah	86	No Travel Management	Driving off designated routes to access dispersed camp sites would be in violation of the proposed travel plan. This plan should address this issue so that legitimate camp spots can be accessed from a legal route.	Driving off designated routes to access dispersed campsites would be a violation. Access to dispersed campsites is addressed on pg. 2-48 of the Moab DRMP/DEIS; "designated routes and spurs were identified specifically for dispersed camping" under all action alternatives. Many of the designated routes lead to or access dispersed campsites. Dispersed camping was considered in designating routes in all of the action alternatives. So that the public is aware of these sites, the dispersed campsites would be signed. Additional routes to dispersed campsites can be considered after the RMP process is completed on a case-by-case basis in areas designated as limited or open to OHV use.

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120	State of Utah	87	No Travel Management	Duplicate routes may provide beneficial recreation experiences to OHV users of varying skills and interests.	No information was provided during the scoping phase identifying specific duplicate routes for consideration in this planning effort. During the development of the travel plan with Grand and San Juan Counties, consideration of these types of needs was discussed. However, most duplicate routes not designated were routes receiving little or no use and thus presumably not providing the experience suggested in the comment. After the RMP process is completed, additional routes can be considered on a case-by-case basis in areas designated as limited or open to OHV use.
120	State of Utah	88	No Travel Management	The BLM is encouraged to coordinate route alignments with other jurisdictions including the border with Colorado in the Rabbit Valley/Bitter Creek area.	During development of the travel plan, the Moab BLM coordinated with Grand and San Juan Counties, the National Park Service, the Forest Service, SITLA, and all adjoining BLM offices, including the Grand Junction Office concerning the Rabbit Valley area.
120	State of Utah	89	No Travel Management	There are a few additional connecting routes needed in the travel plan for Alt C to create loops for ATVs and full-sized vehicles	All route data received during scoping was considered in the alternatives for the travel plan. No specific information is provided about these "additional connecting routes". Any new routes can be considered for addition to the travel plan after the RMP is completed on a case by case basis in areas designated as limited to OHV use.
120	State of Utah	90	Yes Travel Management	There are no ATV/motorcycle only routes proposed in the preferred alternative. This is a useful designation to complete the array of OHV alternatives. The initial inventory and subsequent designation of motorcycle routes was incomplete.	During the scoping period, the BLM received data on routes proposed for motorcycle use. The majority of these routes are included in the Travel Plan for Alt C or Alt D. During the comment period for the DRMP/EIS, some of the motorcycle route proposals were modified by their proponents to indicate that a few of these motorcycle routes were also suitable for ATVs.

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					The map has been corrected in the PRMP/FEIS to delineate these ATV/motorcycle routes where they are identified in the Travel Plan for Alt C and Alt D. The BLM incorporated all route data received during scoping into formulation of travel plan alternatives.
120	State of Utah	91	No Travel Management	There are no designated routes in the Duma Point area under any of the alternatives and there is no explanation as to why these routes were omitted.	The BLM received several route submissions in the Duma Point area during the scoping period. Several of these routes were not identified in any of the action alternatives due to resource conflicts, particularly with big horn sheep and sensitive soils. The BLM received a comment from UDWR regarding the bighorn sheep herd in this area with respect to human disturbance. The BLM Manual 8342.1 requires that OHV designations must "minimize harassment of wildlife and/or significant disruption of wildlife habitat".
120	State of Utah	92	No Travel Management	The State requests that the OHV riding area just north of the Airport on the Blue Hills Road remain open. The area is well-suited to the existing use (shale soils with no vegetation) and provides an authorized area for hill climbing.	The area described is actually west of the airport. This area was limited to existing roads and trails in the 1985 RMP due to concerns with sensitive soils. There are no identified routes within any of the alternatives for the travel plan. However, in Alt C, provisions are made for the Airport Hills Motocross Focus Area (285 acres) to be established upon application by local government under the Recreation and Public Purposes Act.
120	State of Utah	93	No Travel Management	Please clarify whether page G-11's reference to wildlife habitat includes habitat for all species or is it intended to apply to habitat for more significant species or groups of species.	Page G-11 refers to the guidance found in BLM Manual 8342.1 which states that OHV designations "must minimize harassment of wildlife and/or significant disruption of wildlife habitat". On pg. G-25 BLM lists the relevant species considered in formulation of the alternatives for the travel plan.

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120	State of Utah	94	No Travel Management	Page G-11, uses the term "extreme". Explain what constitutes an "extreme" hazard which can be considered an element of subjectivity.	This language is verbatim from BLM Manual 8342.1 which states "designations must minimize or eliminate OHV use in areas of extreme natural or man-made hazards".
120	State of Utah	95	No Travel Management	Page G-15, Emergency Limitation or Closure: Perhaps "immediately closed" should read, "immediately mitigated or closed" or some similar wording.	The federal regulations at 8341.2(a) state "the authorized officer shall immediately close the areas affected to the types of vehicle causing the adverse affect". The wording on page G-15 is derived directly from the referenced regulations.
120	State of Utah	96	No Travel Management	The implementation process section on page G-29 should stress the need for maps and signing as both are needed.	On pg. G-30, the Draft RMP/EIS states "in the final RMP decisions, designated OHV routes will be portrayed by a map. This map will be the basis for signing and enforcement. The implementation goals include completing signage, maps, public information, kiosks, and working with partners".
120	State of Utah	97	No Lands and Realty	SITLA requests a detailed reference under Issue 8 of the Issues Identified for Consideration in the Moab RMP concerning inheld state lands within special areas such as WSAs, ACECs, and lands managed for wilderness characteristics.	See response to comments 120-101, 103, and 106. It is not necessary to have this specific language stated in the description of the issue.
120	State of Utah	98	No Minerals Oil and Gas	Section 1.3.3-Development of Planning Criteria (pg. 1-13). The BLM states that the RMP will "apply only to public lands and, where appropriate, split estate lands where the subsurface mineral estate is managed by the BLM".	Information regarding leasing and development on split estate lands is found at the following Washington Office website: www.blm.gov/bmp/Split_Estate.htm. Instruction Memorandum No. 2003-202 outlines the policy, procedures and conditions for approving oil and gas operations on split-estate lands.

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				The BLM should reconsider whether it can impose its standard on split estate lands where it does not own the surface as mentioned in the Planning Criteria on pg. 1-13.	In particular, the BLM will not consider and Application for Permit to Drill or a Sundry Notice administratively or technically complete until the federal lessee or its operator certifies that an agreement with the surface owner exists, or until the lessee or its operator complies with Onshore Oil and Gas Order No. 1. Compliance with Onshore Oil and Gas Order No. 1 requires the federal mineral lessee or its operator to enter into good-faith negotiations with the private surface owner to reach an agreement for the protection of surface resources and reclamation of the disturbed areas, or payment in lieu thereof, to compensate the surface owner for loss of crops and damages to tangible improvements, if any. In addition, the BLM will invite the surface owner to participate in the onsite inspection and will take into consideration the needs of the surface owner when reviewing the Application for Permit to Drill. The BLM will offer the surface owner the same level of surface protection BLM provides on federal surface (Instruction Memorandum No. 89-201).
120	State of Utah	99	No Lands and Realty	Paragraph 3.6.2.1 - Land Tenure Adjustments (Pg. 3-28). This paragraph should specifically reference the need for federal acquisition of State school trust lands that are captured by federal reservations and withdrawals such as wilderness study areas will be a priority, in accordance with applicable BLM policy guidance. In addition State selection should be mentioned as an equally preferred method of land disposition as land exchanges.	See response to comments 120-106 and 120-11. The FLPMA Section 203 requires the BLM to use the land-use planning process to identify lands for disposal through sales. Identifying lands for Section 203 sale requires BLM to meet certain criteria set out specifically in the statute. The FLPMA authorizes BLM to identify lands that would be available for exchange (both disposal and acquisition) more generally. The Moab DRMP/DEIS has identified lands generally available for exchange, including identifying State lands that are currently available for acquisition.

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					The DRMP/DEIS does not contain a schedule or prioritize these lands, but BLM understands that State in-lieu and other exchanges are a high priority for the State and for BLM.
120	State of Utah	100	Yes Lands and Realty	Section 3.6.2.1.2-Exchanges and Acquisitions (pg. 3-29). The State encourages the BLM to add a new paragraph after the first paragraph, as follows: Facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority.	See response to comments 120-106 and 120-11.
120	State of Utah	101	Yes Minerals Oil and Gas	Paragraph 4.1.2 - Analytical Assumptions (pg. 4-2/3). The BLM's second to last analytical assumption, that non-BLM lands would be minimally directly impacted by RMP decisions, since BLM does not make land decisions on non-BLM lands, is incorrect with respect to state trust lands. The largest source of revenue for the Utah school trust is from oil and gas bonuses and royalties. In much of Utah, in order to establish an economic oil and gas resource play, the exploration company needs a large areal footprint. It is likely that multiple sections would have to be leased and developed in order to develop the necessary reserves to make the play economic.	The BLM acknowledges that the closure of adjoining public lands to oil and gas leasing may have a potentially negative impact on SITLA's mineral revenue. The assumption on pg. 4-3 has been changed to reflect this fact. In Alternative C, the closure of the 354,015 acres managed as WSA or Wilderness Areas is nondiscretionary and beyond the scope of this plan. In Alternatives A, C, and D there are no SITLA lands affected by discretionary closure. Chapter 4 of the PRMP/FEIS has been revised to reflect the impacts in Alternative B on SITLA inholdings of the discretionary closures of 266,485 acres of public land. It should be noted that under any Alternative, the proposed ACECs are not managed as closed to mineral leasing. Areas with wilderness characteristics are recommended as closed under Alternative B and No Surface Occupancy in Alternative C.

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				BLM decisions from mineral lands from leasing in WSAs, areas with wilderness characteristics, ACECs, and other areas directly affect the economic viability of state trust lands inholdings.	
120	State of Utah	102	No Lands and Realty	BLM's last analytical assumption, that reasonable access to state lands , across BLM lands, would be provided under all alternatives, needs to be specifically repeated in Table 2.1 under the heading "Management Common to All Alternatives" with a notation that access to state trust lands will be granted even if an area is otherwise an avoidance or exclusion area for ROWs.	See response to comment 120-10.
120	State of Utah	103	Yes Minerals Oil and Gas	Section 4.1.3.1/Table 4.2-Oil and Gas. The BLM withdrawals and special designations directly affect development of oil and gas on SITLA lands. The BLM should assume that, in addition to the loss of oil and gas wells on BLM lands, there would be an additional loss of wells on SITLA lands in proportion to the amount of SITLA land within the proposed special designations under each alternative.	As explained in comment 120-101, the only discretionary oil and gas closures imposed by this plan that negatively impact SITLA inholdings are in Alt B where 266,485 acres are closed to protect wilderness characteristics. An estimate of oil and gas wells foregone on SITLA lands as a result of the BLM closure has been added to the text on pg. 4-94.

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120	State of Utah	104	Yes Lands and Realty	Section 4.3.5-Lands and Realty (pgs. 4-63/69). The second paragraph of section 4.3.5.1 (Impacts Common to All Alternatives) incorrectly states that 354,015 acres within WSAs and the Black Ridge Wilderness Area are closed to surface-disturbing activities and thus excluded to new ROWs.	Narrative has been added to the text on these pages to clarify that the BLM has an obligation to grant reasonable access to inheld State lands in WSAs subject to Utah v. Andrus and the Interim Management Policy. There are no State lands within the Black Ridge Wilderness Area.
120	State of Utah	105	No Socioeconomics	Section 4.3.12-Socioeconomic Resource (pgs 4-252/277). BLM decisions to withdraw mineral lands from leasing (WSAs, etc.) directly affect the economic viability of state trust lands inholdings. This should be acknowledged appropriately in the discussion of socioeconomic impacts. In particular, the BLM should assume that in addition to the decline in the number of wells drilled on BLM lands, there will be a proportionate decrease in the number of wells drilled on trust lands if Alternative B is adopted.	See comments 120-101 & 120-103 for an explanation of closed acreage by alternative. In Alt B, the loss of revenue from SITLA wells foregone has been calculated and added to the analysis on page 4-264.
120	State of Utah	106	Yes Lands and Realty	Appendix A.1.1. Land Tenure Adjustment Criteria. Add a new numbered paragraph stating that facilitating acquisition of state trust lands inholdings in wilderness study areas and other sensitive areas through land exchange is considered an important public objective, and will be given priority in accordance with existing BLM policy direction.	Current BLM Utah State Policy is to give priority to State of Utah exchanges and such exchanges do not require a land-use planning decision.

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120	State of Utah	107	No Lands and Realty	Delete numbered paragraph 9 in A.1.1. It is inconsistent with county plans and may hinder necessary exchanges to acquire state inholdings.	This paragraph refers to retaining 1,806,413 acres in public ownership including all lands in WSAs, ACECs, SRMAs, and other designated areas. This paragraph has been restated as follows: "Retain all public lands within WSAs, ACECs, SRMAs, and other designated areas".
120	State of Utah	108	No Lands and Realty	Please consider adding a new section, A.1.5, State Selections, which should read as follows: "State selections under the Utah Enabling Act and other applicable law will also be given priority pursuant to BLM Manual 2621.06A-C. All lands not encumbered by a withdrawal or other special designation will be available for state selection."	See the response to comment 120-106.
120	State of Utah	109	No Water Resources	Under the Mill Creek Canyon Potential ACEC, Alternatives B and C propose to "maintain 3 cfs in the South Fork of Mill Creek below the Shelly diversion" (pg. 2-37). Please explain whether BLM possess a water right applicable to this area, how BLM would maintain this level of flow at the Shelly diversion, how it would prevent appropriation of instream flows below this point, and who would hold instream flow rights.	The BLM does not have instream flow rights on Mill Creek. The BLM would maintain 3 cfs through a stipulation in the right-of-way grant to the Grand County Water Conservancy District. The BLM does not control appropriation of water rights. Water rights are appropriated by the State of Utah. In Utah, the only agencies that can hold instream flow rights are the UDWR and the Utah State Parks.
120	State of Utah	110	No Water Resources	The enhancement of riparian and wetland areas will increase the depletion of water within the Moab FO.	Restoration of riparian vegetation will not result in water depletion. In fact, this activity should increase the amount of available water. Enhancing riparian vegetation results in a decrease in stream temperature, a decrease in evaporation, and the storage of water in the bank for low flow seasons (summer).

Table 5.9.a. Public Comments and Responses: State of Utah

				The State requests the BLM modify its goal to require mitigation of any increased water depletion that may result from its activities. Such mitigation may require the acquisition and change of a valid existing water right. As part of a mitigation effort, it is suggested the BLM consider the institution of a program to eradicate tamarisk and other highly water consumptive, non-native species and their replacement with native species. Water required for any enhancement effort will need to be obtained in accordance with State law.	In addition, the replacement of tamarisk and Russian olive by native vegetation results in reduced water use and higher stream flow. If any additional water should become necessary, the BLM will obtain this water in accordance with Utah State law. On pg. 2-50 under Management Common to All for Vegetation, it states "Reduce tamarisk and Russian olive where appropriate using allowable vegetation treatments. Restore riparian habitat to native willow and cottonwood communities".
120	State of Utah	111	No Water Resources	The UDWQ suggests the following practices identified in the TMDL that would reduce Mill Creek water temperatures to bring conditions into compliance with standard for Class 3A waters. These practices include: 1) provide higher stream flows during summer by maintaining 3 cfs flow below the Ken's Lake diversion, 2) increase water depth by narrowing the stream channel with restoration techniques involving use of heavy equipment, and 3) plant and protect riparian vegetation to increase shading a minimum of 11 percent to attain water quality standard.	The Draft RMP/EIS on pg. 2-31 states under Management Common to All Alternatives for Soil and Water "Coordinate with Grand Water and Sewer Service Agency to ensure required minimum instream flow of 3.0 cfs in Mill Creek below the Sheley diversion". Through ongoing restoration and management actions stream channel dimensions are improving without the use of heavy equipment. The use of heavy equipment is not appropriate due inaccessibility, the size of the stream system, and other sensitive resources. On pg. 2-50 under Management Common to All for Vegetation, the Draft RMP/EIS states "Reduce tamarisk and Russian olive where appropriate using allowable vegetation treatments. Restore riparian habitat to native willow and cottonwood communities". Mill Creek has been and will continue to be a high priority for such restoration efforts due to its TMDL status.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	112	No Water Resources	Onion Creek is impaired for temperature. To attain a temperature reduction in Onion Creek, the TMDL recommends restricted access to the stream channel by off road vehicles and riparian restoration to facilitate canopy cover. To restore the beneficial use in the creek, a more protective alternative than those described by the BLM/Moab RMP may be required.	Under all alternatives, travel within the Onion Creek stream corridor is restricted to the "B" road. Riparian restoration in this area has been ongoing; as a TMDL, Onion Creek is a priority for restoration efforts. In addition, the BLM has worked with the Grand County Road Department to improve the stability of the "B" road, thus improving riparian and water quality conditions in Onion Creek.
120	State of Utah	113	No Water Resources	Ken's Lake should be protected for cold water species of game fish and other cold water aquatic life. It is impaired for temperature. The protection of riparian vegetation may improve conditions around the lake.	The Ken's Lake TMDL concludes that stream temperatures are appropriate for the beneficial uses. The impairments are due to natural conditions and not management actions. Ongoing recreation management efforts for Ken's Lake have involved promoting native vegetation.
120	State of Utah	114	No Water Resources	Best Management Practices should be included in the plan for impaired water bodies.	The BLM is adopting the State's TMDL recommendations for impaired waterbodies. These constitute the best management practices for those streams.
120	State of Utah	115	Yes Water Resources	Monitoring should be defined for the plan, including water quality and biological parameters. Monitoring of recreation events should also be conducted to help provide data of the impacts.	The federal regulations at 43 CFR 1610.4-9 require that land-use plans establish intervals and standards and evaluations based on the sensitivity of the resource decisions involved. The Record of Decision (ROD) for the RMP will commit to a monitoring plan the specifics of which will be developed subsequent to the signing of the ROD.

Table 5.9.a. Public Comments and Responses: State of Utah

120	State of Utah	116	Yes Socioeconomics	A statewide social survey was conducted by Utah State University in 2007. The State provides the key survey results for Grand County (146 responses) and for San Juan County (124 responses).	The Commenter provides an additional source of data not considered in the Draft RMP/EIS, due to the unavailability at the date of publication. The Commenter has identified this data as preliminary and no conclusions are provided. This is a study done by Utah State University for the State of Utah (USU). The USU study surveyed residents of all Utah counties on an equal (equal sample size per county) basis. The Commenter has not provided BLM with the raw data, but has compiled summary statistics by county. The survey is described as a social survey, and it "attempts to assess the ways in which Utah residents use and value public land resources, and their views about public land management". Because it is a survey of a sample of the population, the results are not directly comparable to most of the state government agency-generated data used in the Draft RMP/EIS. Portions of the study do not distinguish among types of public lands; in the study, this label includes all state and federal lands, and not just BLM lands. This makes some of the results more difficult to use in BLM planning and analysis since both counties in the MPA contain significant amounts of state, NPS and USFS lands. Nonetheless, the study provides interesting results not available elsewhere, and the summaries for Grand and San Juan counties incorporated in Attachment B may be useful in future implementation actions. None of the results provided affect either the formulation of alternatives in Chapter 2, nor the analysis of impacts in Chapter 4. Where appropriate, pertinent results are incorporated in Chapter 3 of the PRMP/FEIS.

Table 5.9.b. Public Comments and Responses: Grand County

Record ID	Commenter	Comment Number	Requires Change / Resource	Comment Text	Response To Comment
982	Grand County	1	No	We would like to thank you for including the Grand County Council in the RMP process. It has been a pleasure working with you over the years. Although many challenges were presented, the final product came out extremely well. Thank you for your cooperation and time devoted to this project. We look forward to working closely with you on the future phases of the RMP process.	Thank you.

Table 5.9.c. Public Comments and Responses: San Juan County

Record ID	Commenter	Comment Number	Requires Change / Resource	Comment Text	Response to Comment
121	San Juan County	1	No Process and Procedures	The BLM's interpretation of the Multiple Use mandate where all uses occur someplace but not together is flawed. Landscapes can be managed so that a broad spectrum of resource uses can create social, economic and ecological wealth simultaneously. Multiple use management results in benefits to various resources. For example, grazing can be a tool to benefit wildlife and their habitats.	In developing land-use plans, the BLM is mandated by FLPMA to observe the principles of multiple use and sustained yield. FLPMA defines multiple use as "the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people…the use of some land for less than all of the resources, a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources….with consideration given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output". The final land-use plan for the Moab Field Office will define multiple use for this area.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	2	No Process and Procedures	More emphasis should be placed on monitoring the plan decisions both to measure the results of the plan and to insure that actions are taken to incorporate any changes needed. Watershed function, livestock use, recreation, OHV use and wildlife populations are uses that should be monitored more closely. The plan should have greater flexibility to adapt to changing conditions.	The federal regulations at 43 CFR 1610.4-9 require that land-use plans establish intervals and standards and evaluations based on the sensitivity of the resource decisions involved. The Record of Decision (ROD) for the RMP will commit to a monitoring plan the specifics of which will be developed subsequent to the signing of the ROD.
121	San Juan County	3	No Process and Procedures	San Juan County asks for more cooperation and collaboration with local, state, and federal agencies (as well as interest groups) in actions and decisions within the Field Office. Misunderstandings could then be worked out in advance -- in the field rather than the courtroom. Within the framework of this RMP, the BLM should provide more opportunities to facilitate cooperative relationships and foster better collaboration efforts.	The State of Utah, Grand County, and San Juan County are cooperating agencies involved in the preparation of the RMP. The BLM has involved the cooperating agencies in all aspects of the land-use planning process including participation in the interdisciplinary team meetings. Cooperation and collaboration will continue on site specific projects after the RMP is completed and this does not require a plan decision to accomplish.
121	San Juan County	4	No Water Resources	San Juan County feels more emphasis should be placed on sustaining and developing healthy watersheds. The functionality of watersheds underlies all resources values. The best way to improve the functionality of watersheds is by Increasing the ground cover. Well managed grazing is one of the best, most economical, large scale tools for increasing ground cover.	The BLM actively supports efforts to improve watersheds and is a partner in the Healthy Lands Initiative for Utah. The RMP, under all action alternatives, specifies that restoration efforts be undertaken in cooperation with the Utah Partners for Conservation and Development (pg. 2-50). The RMP, under all alternatives, also specifies that grazing would be managed according to the Guidelines for Livestock Grazing Management to meet the Standards for Rangeland Health. Implementation of these standards would improve watershed health and functioning.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	5	No Livestock Grazing	San Juan County supports livestock grazing in a prescriptive manner to accelerate progress toward improved rangeland health and reduction of catastrophic fire. The BLM should reassess timing and season of use for grazing.	The BLM Land-use Planning Handbook (H-1601-1) requires the BLM to identify lands available or not available for livestock grazing. This is the only planning decision within the RMP. Decisions concerning timing and season of use are made on an allotment basis using the Standards for Rangeland Health and Guidelines for Grazing Management.
121	San Juan County	6	No Livestock Grazing	San Juan County feels that social/economic analysis for livestock grazing is inadequate, as many allotments have been reduced or closed. The county urges BLM to look at grazing on a watershed basis vs. an allotment basis so that livestock operations would have opportunities to be more profitable but also to benefit wildlife and other resources.	Only one livestock allotment is proposed under any alternative for non-availability in San Juan County (Mill Creek: 3,921 acres). Of those proposed for non-availability (including those in Grand County) under Alt C, only Mill Creek is available for grazing now. Most of the other allotments have been unavailable for grazing since 1994, and some since the 1985 Grand RMP. The socioeconomic impacts of lost grazing opportunities is analyzed on pg. 4-258. Decisions concerning numbers of livestock and seasons of use are made on a allotment basis using Standards for Rangeland Health and Guidelines for Grazing Management during the permit renewal process.
121	San Juan County	7	No Travel Management	San Juan County supports Alt C for travel management. The county wants the BLM to highlight specific prescriptions to promote responsible use, such as areas that would be highlighted for OHV use, maps, signing, kiosks etc. In addition, BLM does not mention impacts from hikers or mountain bikers.	The RMP proposes many areas to be focus areas or SRMAs emphasizing responsible motorized use. These include Cameo Cliffs SRMA, Gemini Bridges/Poison Spider Mesa Motorized Touring Area, Utah Rims SRMA, Dee Pass Motorized Trail Area, and the Airport Hills Moto Cross Area. These areas are proposed for specialized management emphasizing that activity.

Table 5.9.c. Public Comments and Responses: San Juan County

					The RMP would designate these areas but a Recreation Area Management Plan will follow the RMP, where specific prescriptions suggested by the county would be detailed. The Travel Plan (Appendix G, pg. 30) details mapping, signing, and construction of kiosks as actions that would be part of implementation of this Plan. Mountain bikes are restricted to the designated route system under all action alternatives. Impacts of mountain bikes vs. motorized travel were not separated out in the discussion. All impacts of off-route travel were combined for all types of wheeled vehicles. The impacts of hikers were not considered because no decision in this plan requires hikers to stay on trail.
121	San Juan County	8	Yes Wildlife	BLM erroneously uses the term critical habitat (defined as applicable only to threatened and endangered species). This error occurs on Maps 2-27 B and C/D, on pages 3-169 and 3-171 and on page N-6. The term crucial habitat is used too loosely; UDWR uses crucial habitat as descriptive designations. They are not intended to mislabel resource concerns and result in a limitation of compatible uses. San Juan County disputes the acreage identified for crucial elk and deer winter range in San Juan County and submits information from Dr. Charles Kay in that regard.	Maps 2-27B and C/D refer to the term crucial winter range and the term critical is not used. The term critical is used erroneously on pgs. 3-32, 3-38, 3-39, 3-40, 3-125, 3-127, 3-169, 3-171, 3-174, 3-177, and N-6. This term will be changed to crucial in the final RMP/EIS. The UDWR is the jurisdictional agency for wildlife management within the State. The BLM relied on the expertise of this agency for delineating wildlife habitats, estimating population numbers, and recommending wildlife restrictions. Also, refer to comment response 121-39.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	9	No	San Juan County is opposed to "layering" or the establishment of ACECs or SRMAs over WSAs or Wild and Scenic Rivers.	"Layering" is planning. Under FLPMA's multiple use mandate, BLM manages many different resource values and uses on public lands. Through land-use planning BLM sets goals and objectives for each of those values and uses, and prescribes actions to accomplish those objectives. Under the multiple use concept, the BLM doesn't necessarily manage every value and use on every acre, but routinely manages many different values and uses on the same areas of public lands. The process of applying many individual program goals, objectives, and actions to the same area of public lands may be perceived as "layering". The BLM strives to ensure that the goals and objectives of each program (representing resource values and uses) are consistent and compatible for a particular land area. Inconsistent goals and objectives can lead to resource conflicts, failure to achieve the desired outcomes of a land-use plan, and litigation. Whether or not a particular form of management is restrictive depends upon a personal interest or desire to see that public lands are managed in a particular manner. All uses and values cannot be provided for on every acre. That is why land-use plans are developed through a public and interdisciplinary process. The interdisciplinary process helps ensure that all resource values and uses can be considered together to determine what mix of values and uses is responsive to the issues identified for resolution in the land-use plan.
			Process and Procedures		

Table 5.9.c. Public Comments and Responses: San Juan County

					Layering of program decisions is not optional for BLM, but is required by the FLPMA and National BLM planning and program specific regulations. FLPMA directs BLM to manage public lands for multiple use and sustained yield (Section 102(a)(7)). As a multiple-use agency, the BLM is required to implement laws, regulations, and policies for many different and often competing land-uses and to resolve conflicts and prescribe land-uses through its land-use plans. BLM's Land-use Planning Handbook requires that specific decisions be made for each resource and use (See, Appendix C, Planning Handbook "H-1601-1"). Specific decisions must be included in each of the alternatives analyzed during development of the land-use plan. As each alternative is formulated, each program decision is overlaid with other program decisions and inconsistent decisions are identified and modified so that ultimately a compatible mix of uses and management prescriptions result. For example, the BLM has separate policies and guidelines as well as criteria for establishing Areas of Critcal Environmental Concern (ACECs) as when the Wilderness Study Areas (WSAs) were established. These differing criteria make it possible that the same lands will qualify for both an ACEC and a WSA but for different reasons. The BLM is required to consider these different policies. The values protected by WSA management prescription do not necessarily protect those values found relevant and important in ACEC evaluation, and vice versa.

Table 5.9.c. Public Comments and Responses: San Juan County

					The relevant and important values of ACECs within or adjacent to WSAs were noted in the ACEC evaluation (Appendix I). The ACECs are evaluated and ranked based on the presence or absence of the stated relevant and important values. None of these values include wilderness characteristics. Additionally, the management prescriptions for the ACEC are limited in scope to protect the relevant and important values and the BLM maintains that the size of the ACEC areas is appropriate to the relevant and important values identified. SRMAs are not restrictive of resource uses but rather are utilized to control recreation use. The South Moab SRMA does overlay the Mill Creek and the Behind the Rocks ACECs, but the management proposed in each is for differing purposes. Please see Response 120-64
121	San Juan County	10	No	Managing Non-WSA Lands for so-called wilderness characteristics violates FLPMA, Utah Code 63-38d-401(6)(b), the San Juan County master plan, the Norton-Leavitt Agreement and other agreements.	The BLM's authority for managing lands to protect or enhance wilderness characteristics is derived directly from FLPMA Section 202 (43 U.S.C. §1712). This section of BLM's organic statute gives the Secretary of the Interior authority to manage public lands for multiple use and sustained yield. Nothing in this section constrains the Secretary's authority to manage lands as necessary to "achieve integrated consideration of physical, biological, economic, and other sciences." (FLPMA, Section 202(c)(2) (43 U.S.C. §1712(c)(2))) Further, FLPMA makes it clear that the term

Table 5.9.c. Public Comments and Responses: San Juan County

			Non-WSA lands and Wilderness Characteristics		"multiple use" means that not every use is appropriate for every acre of public land, and that the Secretary can "make the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use. . . ." (FLPMA, Section 103(c) (43 U.S.C. §1702(c))) The FLPMA intended for the Secretary of the Interior to use land-use planning as a mechanism for allocating resource use, including wilderness character management, amongst the various resources in a way that provides uses for current and future generations. The BLM has long acknowledged that FLPMA Section 603 (43 U.S.C. §1782) requiring a one-time wilderness review has expired. All current inventory of public lands is authorized by FLPMA Section 201 (43 U.S.C. §1711). In September 2006, the Utah District Court affirmed that the BLM retained authority to protect lands it determined to have wilderness characteristics in a manner substantially similar to the manner in which such lands are protected as WSAs. The BLM is aware that there are specific State laws relevant to aspects of public land management that are discrete from, and independent of, Federal law. However, BLM is bound by Federal law. As a consequence, there may be inconsistencies that cannot be reconciled. The FLPMA requires that BLM's land-use plans be consistent with State and local plans "to the extent practical" where State and local plans conflict with Federal law there will be an inconsistency that cannot be resolved. The

Table 5.9.c. Public Comments and Responses: San Juan County

					BLM will identify these conflicts in the FEIS/PRMP so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options. Finally, the Utah v. Norton Settlement Agreement does not affect BLM's authority to manage public lands. This Agreement merely remedied confusion by distinguishing between wilderness study areas established under FLPMA §603 and those lands required to be managed under §603's non-impairment standard, and other lands that fall within the discretionary FLMPA §202 land management process.
121	San Juan County	11	No Adequacy and Analysis	In the analysis of the impacts for the Draft RMP/EIS, almost all the impacts are attributable to OHV use, oil and gas use, and, to some extent, grazing. The underlying theme is that these 3 things are the cause of all negative impacts and if they are eliminated or controlled then everything else is take care of. The BLM should consider cheat grass and juniper encroachment, invasive weed problems, and catastrophic fires. The BLM should utilize livestock to control invasive plants.	In the Draft RMP/EIS surface-disturbing activities are considered potential negative impacts to natural and cultural resources. On page C-1, surface-disturbing activities are defined. Surface-disturbing activities include, among many other things, oil and gas development and cross country OHV use. Neither grazing nor vehicle travel on vehicular routes are defined as surface-disturbing activities. On pg. 2-50 in decisions common to all action alternatives, the BLM specifies controlling and reducing invasive and noxious weed species. Vegetation treatments areas for piñon-juniper area are identified on pg. 2-14. On an allotment basis, Standards for Rangeland Health and Guidelines for Grazing Management could be utilized to control invasive species.
121	San Juan	12	Yes	San Juan County commends the BLM for the	The BLM has reviewed the Utah State

Table 5.9.c. Public Comments and Responses: San Juan County

	County		Socioeconomics	effort that has been expended to better understand and portray socioeconomic impacts in this DRMP. This has been a weakness in previous plans. San Juan County encourages BLM to use studies done by Utah's universities to enhance this information such as the social survey undertaken by USU and the economic studies done by the U of U. Every NEPA action in the RMP should include a discussion on socioeconomic conditions and fully disclose all impacts.	University survey of rural counties conducted by the State of Utah. The BLM has received preliminary data from this study received after completion of the Draft RMPM/EIS. The BLM has incorporated findings in the PRMP/FEIS as appropriate. The BLM has incorporated findings from recent research completed by the University of Utah's Bureau of Economic and Business Research into the PRMP/FEIS. On a broad land-use planning level, the BLM has disclosed the socioeconomic impacts from various resource actions as discussed in Chapter 4 of the DRMP/EIS. It is not practical to separate out the socioeconomic impacts of the many resource decisions specified in the plan.
121	San Juan County	13	No Livestock Grazing	San Juan County is opposed to relinquishment of preference or retirement of grazing rights in favor of conservation (p. 2-12). BLM should clarify goals in encouraging relinquishment and what would happen to voluntarily relinquished AUMs if BLM proposes to retire AUMs. What mechanism would be used to retire grazing rights?	The BLM does not encourage or discourage relinquishment of grazing preference. The BLM policy concerning the voluntary relinquishment of grazing preference is included on pg. 2-12 of the DRMP/EIS. As stated in this policy, relinquished permits and the associated preference would remain available for application by qualified applicants after the BLM considers if such action would meet rangeland health standards and is compatible with achieving land-use plan goals and objectives. Upon voluntary relinquishment, the BLM may determine through site specific evaluation and associated NEPA analysis that the public lands involved are better used for other purposes… any decision issued concerning discontinuous of

Table 5.9.c. Public Comments and Responses: San Juan County

					livestock grazing is not permanent and may be reconsidered and changed through future land-use plan amendments.
121	San Juan County	14	No Livestock Grazing	Alternatives B and C should not favor a single use regarding vegetation treatments, but should benefit multiple use objectives (p. 2-14).	In the Draft RMP/EIS (pg. 2-14), Alt D specifically favors livestock grazing in conducting vegetation treatments. Alt C specifies vegetation treatments that would benefit multiple use objectives including livestock grazing and wildlife as well as watershed health. Alt B specifies vegetation treatments to benefit wildlife, watershed, soils, and riparian health. Multiple use is defined by FLPMA as 1) the use of some land for less than all of the resources, and 2) a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources.
121	San Juan County	15	No Minerals Oil and Gas	BLM should give due consideration to the most efficient program for the development of oil and gas resources in favor of exclusionary management for other uses. BLM is using exclusionary management for non-WSA lands with wilderness characteristics, ACECs and wildlife areas.	Alt B of the Draft RMP/EIS favors the protection of resources over the extraction of mineral development. Alt D favors mineral development over protection of resources. Alt C is designed to be a balance between mineral development and protection of resources. There are no "exclusionary areas" proposed in the Draft RMP/EIS for Alt C within San Juan County for oil and gas. There are no ACECs or non-WSA lands with wilderness characteristics proposed for Alt C within San Juan County. Only timing restrictions for wildlife are proposed in Alt C within San Juan County.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	16	Yes Socioeconomics	The socioeconomic analysis for oil and gas is inadequate. A study in Uintah County found that oil and gas account for 60% of total wages, with the average wage of an oil worker at $84,795.	On pg. 4-264 of the Draft RMP/EIS it is stated that employment related to oil and gas development would be less under Alt B. The effects on employment and wages have been added to Chapter 4 of the PRMP/EIS.
121	San Juan County	17	Yes Socioeconomics	Please explain how the extremely restrictive Alt. B would have only slightly lower economic benefits. Many of the new restrictions on oil and gas proposed in this RMP are not warranted. BLM should make reasonable adjustments in the preferred alternative.	The fiscal impacts have been described in Table 2.2 on pg. 2-78 (DRMP/EIS) in terms of royalty revenue. This table shows that royalty revenues will be reduced by 50% in Alt B. In addition property tax revenue, and severance tax data have been added to the table for the PRMP/FEIS and likewise show a 50% reduction in revenues in Alt B as compared to Alt C.
121	San Juan County	18	No Wilderness Characteristics	BLM should not manage lands for wilderness characteristics, taking into account the Utah v. Norton settlement, the opinions of local governments and residents, the existence of inholdings and valid existing rights, and the existence of SITLA lands. BLM has ignored county travel route and intrusion information in the 1999 wilderness inventory. BLM should clarify the difference between "natural", "largely natural", and "generally natural", and define "allotment files" and "master title plat data".	Refer to response to comment 121-10. No non-WSA lands with wilderness characteristics are proposed for management in Alt C for San Juan County. County travel route information was utilized in the Travel Plan and in the selection of non-WSA lands for the preferred alternative. For impacts to SITLA lands refer to response to comments 120-101 and 120-103. The terms specified for clarification are taken from the 1999 Wilderness Inventory and cannot be changed at this time.
121	San Juan County	19	No Recreation	Will future "recreation area management plans" and "river management plans" be subject to NEPA. What is the process for developing and approving these plans?	After completion of the RMP process, those SRMAs that do not currently have RAMPs will need to develop a site specific RAMP, subject to full compliance with the NEPA. The process is identical for River Management Plans.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	20	Yes Recreation	The Draft RMP/EIS states that where a specific focus area is not identified with a Special Recreation Management Area, the focus of that area is motorized, backcountry touring on designated roads. This statement appears to indicate that those portions of SRMAs that are not subject to a more specific focus area will be managed to emphasize motorize recreation. This appears inconsistent with designating SRMAs to emphasize non-motorized recreation and mountain bike backcountry touring. Please also explain haw management of focus areas specifically designated for "motorized backcountry touring" would differ from the default management of SRMA for motorized backcountry touring.	See response to the State of Utah's comment 120-67.
121	San Juan County	21	Yes Recreation	The Draft RMP/EIS makes repeated reference to "destination SRMAs" (pg. 2-19). Please explain what a "destination SRMA" is and how such areas would be managed.	See response to the State of Utah's comment 120-68.
121	San Juan County	22	No Areas of Critical Environmental Concern	The Mill Creek Canyon Potential ACEC. San Juan County is opposed to protecting wilderness characteristics and layering. Alt. D best describes this unit.	Alt C proposes no management to protect wilderness or wilderness characteristics within the Mill Creek Potential ACEC. Of the 3,721 acres in this ACEC in Alt C, 1,474 acres are within San Juan County. Alt. B contains 295 acres of non-WSA lands with wilderness characteristics within San Juan County. Of these acres, all are within the Mill Creek Potential ACEC as outlined in Alt. B.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	23	No Water Resources	Alternatives B and C propose to "maintain 3cfs in the South Fork of Mill Creek below the Shelly diversion" (pg. 2-37). Please explain whether BLM possess a water right applicable to this area, how BLM would maintain this level of flow at the Shelly diversion, how it would prevent appropriation of instream flows below this point, and who would hold instream flow rights.	See response to comment 120-109.
121	San Juan County	24	No Areas of Critical Environmental Concern	Wilson Arch Potential ACEC. This should be dropped in all alternatives because of surrounding private land. The area should be VRM Class III in all alternatives. The arch should be protected with a hiking trail up to it.	The Wilson Arch Potential ACEC is proposed only in Alt. B. The potential ACEC meets the relevance criteria and must be included in 1 alternative. The area is managed as VRM II in Alt C, providing protection to the arch, and managed as VRM III in Alt. D, providing virtually no protection to the arch.
121	San Juan County	25	No Special Status Species	Southwestern Willow Flycatcher. What is their habitat? There is no map provided.	The Southwestern Willow Flycatcher is an endangered species; the U. S. Fish and Wildlife Service has not mapped their critical habitat within the Moab Field Office boundaries. The USFWS defines their breeding habitat as dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands (USFWS Recovery Plan, Southwestern Willow Flycatcher).
121	San Juan County	26	No Special Status Species	Are there any Gunnison sage-grouse leks within the MPA? Will the restrictions be imposed whether or not the grouse are present?	There are currently no Gunnison sage-grouse leks or occupancy within the MPA. On page 2-47, the Draft RMP/EIS states: "If sage-grouse occupancy is identified, the stipulations would be imposed as follows:" Thus, stipulations would only be imposed if the grouse are present.

Table 5.9.c. Public Comments and Responses: San Juan County

121	San Juan County	27	No Visual Resource Management	VRM Management appears to be the same for Alts C and D within San Juan County. San Juan County would like Shafer Basin managed as VRM I, Mill Creek managed as VRM II and the rest of San Juan County managed the same as Alt. A. BLM should adjust Alt. C.	Alts C and D are not identical within San Juan County, with 15,326 acres managed as VRM I, 65,273 acres of VRM II, 116,101 acres of VRM III, and 96,471 acres of VRM IV within the county in Alt C and 6,316 acres of VRM I, 42,887 acres of VRM II, 147,496 acres of VRM III and 96,471 acres of VRM IV within the county in Alt D. In Alt C, Shafer Basin is managed as VRM I, and the areas around Mill Creek are managed as VRM II. The 1985 Grand RMP did not manage for VRM. However, in 2002, a plan amendment was completed for the Canyon Rim Recreation Area, which is managed as VRM II and III. All WSAs, including Behind the Rocks WSA within San Juan County, are managed as VRM I. However, in Alt A, the remainder of San Juan County has no VRM management. This is not an option for the revised RMP.
121	San Juan County	28	No Wildlife	San Juan County disputes the acreage identified for crucial elk and deer winter range in San Juan County. San Juan County asks that Alt. A coverage be used for deer and elk winter range. Prescriptions should be added to the alternatives to allow for collaborative monitoring and studies conducted that will allow for habitat designations to be biologically and scientifically based.	The BLM relied on UDWR, the agency with jurisdictional expertise regarding deer and elk. In the 1985 Grand RMP, the BLM did not impose restrictions on the entire deer and/or elk habitat (approximately 110,000 acres) delineated by UDWR within San Juan County. Restrictions were only imposed on about 4,000 acres of this habitat. A prescription in the alternatives is not necessary in order to allow for collaborative monitoring and studies.
121	San Juan County	29	Yes Wildlife	The term "critical" is used inappropriately for wildlife habitats on the following pages: p. 3-38, 3-39, 3-169 (in Table 3.52), 3-171. Critical is used only for 'sensitive species' habitat.	These terms have been corrected in Chapter 3 of the PRMP/FEIS.

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121	San Juan County	30	No Wildlife	"Competition between deer and livestock" (pg. 3-38) is used inappropriately because both livestock and deer should be managed under an allocation system for both.	This statement is only intended to clarify the uses occurring on the Between the Creeks allotment.
121	San Juan County	31	No Livestock Grazing	With over 300,000 vehicles per year, are there conflicts between people and habitat for desert bighorn, bald eagle, SWWF, T and E fish, peregrine falcon and other sensitive raptors; since the RMP states that there are conflicts between people and livestock on the Professor Valley, River and Ida Gulch allotments (pg-3-39).	The conflicts between the vehicles and the livestock are in the form of vehicle collisions with cattle. Utah State Highway 128 does not cross desert bighorn habitat, and there have been no collisions between vehicles and the other species listed.
121	San Juan County	32	Yes Wildlife	There is a discrepancy between Tables 3.56 and 3.57 on DWR population objectives for elk. BLM should clarify or correct this. San Juan County questions the accuracy of DWR's elk counts.	Tables 3.56 and 3.57 have been changed to correct the discrepancies.
121	San Juan County	33	Yes Wildlife	BLM should remove the crucial winter range for elk in San Juan County, including all prescriptions, impacts, environmental consequences, etc. from the DRMP (pg. 3-173).	Throughout the DRMP/EIS, the reference to "deer and elk habitat" has been replaced with "deer and/or elk" habitat. Since the prescriptions and environmental consequences for the two animals are very similar, the habitats were considered together.
121	San Juan County	34	Yes Wildlife	Pronghorn do not use piñon-juniper habitat. Correct this inconsistency in Table 4.138 on page 4-442.	Pronghorn do utilize piñon juniper habitat occasionally but their primary habitat is sagebrush/perennial grass. This has been corrected in Table 4.138.

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121	San Juan County	35	No Wildlife	BLM has presented no data that would justify range extensions for mule deer, elk, bighorn sheep or antelope. BLM assumes that habitat is the most important factor limiting ungulate populations, but data from studies indicate that numbers are limited by predation.	UDWR is the agency with jurisdictional authority for mule deer, bighorn sheep, elk, and antelope. The BLM relies on the UDWR for their expertise regarding habitats. The BLM does not have any authority to regulate predation.
121	San Juan County	36	No Wildlife	Much of the area listed as antelope/kidding habitat on Map 2-25 is seldom actually used by antelope. The failure of antelope to increase in numbers are due to factors other than habitat, such as low fences in the southern end of the area and predation. Unless BLM can produce data showing that the area is heavily used by antelope, multiple use activities should not be restricted.	The BLM has not restricted multiple use activities due to the existence of antelope habitat in San Juan County. A minor timing restriction (45 days) for surface-disturbing activities is imposed on antelope habitat during kidding periods. This timing restriction is within the standard operating procedures for oil and gas activities. UDWR is the agency with jurisdictional authority for predator control. The DRMP/EIS states on pg. 2-53 "Construct fences that allow for pronghorn passage and dismantle unneeded fences" in pronghorn habitat.
121	San Juan County	37	No Wildlife	BLM proposes an increase in bighorn sheep habitat over that proposed in the 1985 RMP. Much of the area proposed is seldom visited by bighorns, as they are never far from escape terrain. Studies have shown that hikers have a greater negative impact on desert bighorns than do motorized users. Predation is the key limiting factor on bighorn, an issue not addressed in the DEIS.	Only the Shafer Basin (within San Juan County) was proposed as bighorn habitat in 1985. The addition of bighorn habitat delineated by UDWR within San Juan County is along the rims of Canyon Rims, and in the Hatch Wash area. The majority of the bighorn habitat is within 0.5 to 1 mile from escape terrain. The BLM is aware of the studies that document the impact of hikers on bighorn sheep. Permitted hiking is restricted on a case by case basis within bighorn habitat under the issuance of Special Recreation Permits as stated on pg. 2-30 of the DRMP/EIS. UDWR is the agency with jurisdictional authority for predator control.

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121	San Juan County	38	Yes Wildlife	BLM has combined deer and elk habitat throughout the analysis. This should be corrected for the following reasons: habitat manipulations that favor elk do not benefit mule deer; elk are above herd objective and need to be reduced; combining habitats is a way to increase elk numbers; BLM ignores the fact that elk will displace mule deer; elk and deer respond differently to development and human use, with elk being more easily displaced than deer; Monticello BLM maps deer and elk habitat separately; there is no elk use on BLM land that BLM wants to classify as "crucial habitat" in San Juan County	The BLM combined deer and elk habitat for the purposes of analysis. On pg. 4-442, the DRMP/EIS states "Mule deer and elk habitat have been combined in an attempt to simplify the management of their closely overlapping ranges…Further discussions and analyses will consider the two species together". The BLM chose to map deer and/or elk habitat on the same map to simplify readability. In the PRMP/FEIS the habitats will be delineated separately on a map. However, throughout the PRMP/EIS the wording has been changed from "deer and elk" to "deer and/or elk". The BLM acknowledges that elk are not found on every acre of deer habitat. The land-use plan provides for broad landscape level planning prescriptions. These habitats will be separated for analyses on a site specific project level. UDWR has the jurisdictional authority for population objectives of big game species.
121	San Juan County	39	No Wildlife	The 1985 Grand RMP designated only a small area near the LaSal Mountains as habitat for mule deer. The BLM wants to propose an increase with no justification. San Juan County's study (undertaken in the Spring of 2006) found little mule deer use south of East Coyote Wash. BLM ignored these data. Additionally, there is virtually no elk use, except at Lackey Fan and on Three Step Hill. Calling the area deer and elk winter range is without merit. BLM should produce data south of East Coyote Wash to show that this is crucial deer or elk winter range.	UDWR has the jurisdictional authority for the identification of deer and elk habitat. The BLM relied on this expertise. As stated in response to comment 121-38, the BLM has corrected the wording of the habitats to read "deer and/or elk habitats".

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121	San Juan County	40	No Wildlife	BLM should not use the phrase "a thriving natural ecological balance" because it does not know what "natural" is (p. 2-5). On Map 2-20, "historic habitat" for sage-grouse is identified as "pre-settlement" habitat. San Juan county has been settled for 10,000 years.	The statement on pg. 2-5 is a simple statement directed to the general public that the BLM attempts to develop management prescriptions on a landscape level which will support and protect wildlife habitats while allowing for multiple use. Pre-settlement habitat of sage-grouse is defined on pg. 34 of the Gunnison Sage-grouse Range Wide Conservation Plan. The term pre-settlement in this document refers to the early 19th century.
121	San Juan County	41	No Wildlife	Page 2-50: BLM says it will "work in coordination with UDWR to reduce wildlife numbers as necessary to restore sagebrush habitat." BLM does not do this. The factor most responsible for the decline of sagebrush is browsing by mule deer, not drought.	UDWR is the agency with jurisdictional authority for wildlife population numbers. The DRMP/EIS states that BLM will work with UDWR to achieve the UDWR goals.
121	San Juan County	42	No Wildlife	Page 3-168. The species name for elk is *Cervus elaphus*, not *Cervus canadensis*.	UDWR lists elk as C*ervus canadensis* and this nomenclature was adopted by the BLM in the DRMP/EIS.
121	San Juan County	43	Yes Wildlife	Page 3-169 - 171. Mule deer do not eat dry and dead grass during the winter. Predation, not drought, is the reason for reduced mule deer numbers. ATV's, oil and gas development, mining, livestock grazing do not have the impact that predators have had on mule deer populations. Predation must be discussed in the Draft RMP/EIS.	The BLM stands by the statement on pg. 3-169 that mule deer will eat dead grass during the winter. Predation, although not within the BLM's jurisdiction, can also contribute to mule deer population declines. This has been added to Chapter 3 of the PRMP/FEIS.

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121	San Juan County	44	No Wildlife	Page 3-171. BLM states that 90% of the local deer and elk population is located on BLM during an average of five winters out of ten. These data must be produced. On p. 3-172, DWR herd objectives and population estimates for elk are listed. These are imaginary numbers. DWR's elk population estimates are consistently 30-40% low because the agency ignores scientific studies. BLM should acknowledge the error of DWR's estimates.	The BLM has relied on information provided by the UDWR for elk and deer populations and habitat in the DRMP/EIS. UDWR is the agency with jurisdictional authority on these matters.
121	San Juan County	45	Yes Wildlife	Page 3-173. BLM states that "livestock competition for forage is increasing as the elk herd numbers continue to grow." Forage was allocated to livestock when the allotments were adjudicated; thus, the problem is the increasing elk herd.	The BLM has reworded the sentence on pg. 3-173 to state that forage competition between livestock, other wildlife, and elk is increasing in the Cisco desert.
121	San Juan County	46	Yes Wildlife	Page 3-173. Elk use in Hatch Point is zero, in Lisbon Valley and on most of Black Ridge it is near zero. The agency has no data to support its assertions.	Deer and elk habitats were combined for mapping purposes. As stated in response to comment 121-38, these habitats have been delineated separately on a map.
121	San Juan County	47	No Wildlife	Table 3.58. BLM's age objectives for antelope make no sense. Antelope do not normally live to 14, and an age objective of 2 means the herd is under extreme harvest pressure, which is not the case.	This information was provided by the UDWR which is the agency with jurisdictional authority.
121	San Juan County	48	No Wildlife	What evidence is there that desert bighorns actually use the Redd Sheep Trail?	Pellets from bighorn have been gathered from the Redd Sheep Trail; tracks have also been seen on it, as well as extensively along the rims accessed by this trail.

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121	San Juan County	49	No Wildlife	Mule deer, elk and pronghorn do not utilize piñon-juniper habitat, as is asserted in the DEIS. There is no need to protect piñon or juniper; there is the need to clear them to restore natural conditions. Maintenance of chainings must specifically be addressed in the RMP.	See response to comment 121-34. Pronghorn use has been noted in areas where piñon-juniper interfaces with shrub-steppe/grasslands. These piñon-juniper areas are utilized for thermal protection. The DRMP/EIS (pg. 2-14) recognizes the need for maintaining vegetation treatments to increase the availability of forage. Many of these treatments involved the removal of piñon-juniper.
121	San Juan County	50	No Wildlife	Page 4-449. Cattle do not eat sagebrush; cattle grazing at the proper time of year can improve sagebrush habitat for mule deer. Livestock do not compete for escape terrain or thermal cover with deer and elk.	Although cattle prefer grass, they will eat sagebrush when necessary. For example, during severe winters cattle may not be able to access grass and as a result they are forced to eat sage brush. During summer months cattle will seek the shade along the edge of piñon-juniper interfaces with sagebrush/grassland. These are areas that deer typically occupy for thermal protection and escape terrain.

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121	San Juan County	51	No Wildlife	Page 4-452. BLM mentions that elk are intolerant of cattle, which is true, but the BLM fails to mention that mule deer are intolerant of elk. The DEIS needs to discuss elk-deer competition. BLM needs to discuss the negative impact deer browsing has on sagebrush.	UDWR is the agency with jurisdictional authority for big game populations. Elk and deer competition must be addressed by UDWR population objectives. Sagebrush communities across the west have been in decline from a myriad of reasons. The BLM Sagebrush Conservation Guidance is prescribed as management common to all action alternatives on pg. 2-50 of the DRMP/EIS. UDWR has not identified overpopulation issues among local deer herds utilizing sagebrush communities.
121	San Juan County	52	No Wildlife	Pages 4-483 and 4-484. Sections 4.3.19.18.2.1 and 4.3.19.18.2.2 erroneously assess the impact of habitat fragmentation on mule deer and elk. BLM's analyses are flawed and should be corrected or removed. Sawyer's 2006 study is not applicable to San Juan County. DWR's study plots are near roads and DWR would not locate its plots close to roads if mule deer and elk use was reduced near roads as claimed by BLM.	The fragmentation analyses in the referenced sections are not an attempt to quantify specific impacts from site specific projects but are presented to analyze the degree of habitat fragmentation under each alternative. GIS models were based on the BLM's best available data. These models address fragmentation differences between alternatives on a landscape level. Habitat fragmentation is one of many factors that play an important role in land management decisions.
121	San Juan County	53	No Wildlife	Pages 4-484 to 4-485. BLM's analysis of bighorn sheep fragmentation is flawed (p. 4-484- 4-485). BLM fails to mention that hikers disturb sheep more than do vehicles. Predation should also be mentioned, as should the dense growth of non-native woody riparian vegetation found along the Colorado River.	As stated in response to comment 121-52, the analysis of habitat fragmentation for bighorn sheep is a tool to understand the differences in fragmentation among alternatives. See response to comment 121-37 for a discussion of hikers on bighorn sheep. Predation is under the jurisdiction of UDWR. Tamarisk encroachment along the Colorado River was not raised as an issue in the Draft RMP/EIS.

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					However, the BLM recognizes the need for bighorn watering catchments, and has an active program of wildlife watering projects.
121	San Juan County	54	No Wildlife	Page G-25 (last paragraph). What reduces the survival rate of fawns and calves is predation.	BLM does not manage predation efforts; UDWR is the agency with jurisdictional authority over predation.
121	San Juan County	55	No Wildlife	Page N-5. BLM's 1989 RMP amendment gave 1,440 as the "prior stable number" of desert bighorn sheep. On p. 3-176, it states that the DWR's population objective for the Moab area is 450 desert bighorn sheep. Why are these numbers different?	The number of 1,440 was used in the 1989 RMP amendment. The number 450 is an updated number utilized in the DRMP/EIS (2007). The difference is a reflection of the number of years between the two documents (18 years).
121	San Juan County	56	Yes Special Status Species	Bald Eagles are not on the Federal Endangered Species List. The animal was removed last June.	The delisting of the Bald Eagle had not occurred prior to the printing of the DRMP/EIS. This change has been made to the PRMP/FEIS.
121	San Juan County	57	No Process and Procedures	BLM has not coordinated with local Native American governments regarding wilderness planning, as is required in Section 202 of FLPMA. Anything less than the opportunity for full participation will be considered a violation of law subject to legal action.	During the development of the DRMP, the BLM invited the affected tribal governments to fully participate in the RMP process, to consult on any aspect of the RMP's management prescriptions or actions, and to provide comments or issues of tribal concern. As outlined in Chapter 5 of the Moab DRMP/EIS, the BLM held several meetings with tribal governments concerning the development of the RMP, including holding additional meeting after the DRMP/EIS alternatives were prepared, as requested by the tribal governments. All consulted tribes were provided copies of the alternatives and draft documents.

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					For example, the BLM held several meetings with the Navajo Nation. The BLM met with the Navajo Utah Commission on February 11, 2004, and with the Navajo Nation Historic Preservation Office on December 9, 2003, and on November 13, 2006. The BLM also met with the Southern Ute Tribe on March 30, 2004, and on October 11, 2006; meetings with the Ute Mountain Ute Tribe were held on August 26, 2004, and on February 9, 2007. A summary of tribal consultation, including all meetings with tribal governments and issues raised is contained in Chapter 5 of the DRMP/EIS. A complete record of the consultations is available in the Administrative Record for the DRMP/EIS.
121	San Juan County	58	No Wilderness Characteristics	For lands in question in the wilderness re-inventory, BLM has not adequately considered historical uses of the land, present and potential future uses of the land. Several court cases show that the wilderness planning process fails to adequately address several issues. Wilderness is a land classification and not a management modality. Wilderness is not within the scope of multiple use management. BLM is a rogue agency because it has a single-minded, headlong thrust to declare additional wilderness study areas within San Juan County. BLM has openly and brazenly defied the will of congress and the will of the people. BLM must coordinate with local plans, such as that of San Juan County	No lands are proposed to be managed as Wilderness or WSA in any alternative of the DRMP/EIS. However, the impacts of protecting Non-WSA lands with wilderness characteristics is fully disclosed in Chapter 4 of the DRMP/EIS. The FLPMA makes it clear that the term "multiple use" means that not every use is appropriate for every acre of public land and that the Secretary can "make the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use. . . ." (FLPMA, Section 103© (43 U.S.C. §1702©).) The FLPMA intended for the Secretary of the Interior to use land-use planning as a mechanism for allocating resource use, including wilderness character management, amongst the various resources in a way that provides uses for current and future generations.

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121	San Juan County	59	No Wilderness Characteristics	BLM has refused to issue oil and gas leases because of the introduction of H.R. 1500, "America' Red Rock Wilderness"	Certain oil and gas parcels were deferred from leasing pending completion of the Moab RMP because of dated NEPA analysis. The BLM does not manage public land based on pending draft or proposed legislation.
121	San Juan County	60	No Process and Procedures	BLM must have public hearings, adequate notice and opportunity to comment upon, and participate in the formulation of plans and programs. There have only been two meetings to give the public an opportunity for clarification, and it was unclear whether the meetings held were "open houses" or "public hearings".	Public participation opportunities are detailed in Chapter 5 of the DRMP/EIS. To satisfy the public participation requirements of FLPMA, the BLM initiated the public scoping process on June 4, 2003 and the scoping period extended until January 31, 2004. Six open houses and a comment cruiser were utilized to gather public input as well as a website with provisions for emailing comments and an invitation to provide written comments via letters. A mailing list has been established of interested parties and a planning website has been maintained throughout the process. The public was invited to review and comment on the DRMP/EIS from August 27, 2007 to November 30, 2007. Four open houses were held to solicit comments from the public on the DRMP/EIS. The public was notified about the open houses through newspaper advertisements and articles, radio announcements, the RMP website, and postcards mailed to everyone on the mailing list. The open house format was utilized because it is more conducive to full public participation.
121	San Juan County	61	No Wilderness Characteristics	BLM must make a clear statement of whether it intends to designate WSAs for those areas that have wilderness character.	The BLM is not authorized to designate "Non-WSA Lands with Wilderness Characteristics" as WSAs or manage these lands under the WSA Interim Management Policy (IMP, H-8550-1; BLM 1995).

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					The BLM authority to establish new WSAs pursuant to Section 603 of FLPMA expired no later than October 21, 1993, therefore as stated on pg. 1-12 of the Moab DRMP/EIS designation of new wilderness areas or WSA proposals are decisions outside of the scope of the DRMP/EIS.
121	San Juan County	62	No Wilderness Characteristics	BLM should have a more generous road set-back. The BLM "standard" is indefensible. It provides no reasonable or rational opportunity for maintenance of roads. The BLM's boundaries are at man made barriers, which has resulted in capturing large chunks of State Trust land as well as some parcels of private land. This violates the County Comprehensive Plan which calls for no net loss of private land within the county.	The road set-back described by San Juan County only applies to roads within or adjacent to WSAs. The WSA setback is established by National BLM policy and is beyond the scope of the plan. Routes adjacent to or within Non-WSA lands with wilderness characteristics have been accorded setbacks varying according to the classification of the road. These setbacks range from 3 to 91 meters. The acreage of Non-WSA areas with wilderness characteristics has been reduced to realize these setbacks. Information has been added to Chapter 3 of the PRMP/FEIS to clarify these setbacks. The BLM is aware that there are specific County and State plan decisions relevant to aspects of public land management that are discrete from, and independent of, Federal law. However, the BLM is bound by Federal law. As a consequence, where State and local plans conflict with Federal law there will be an inconsistency that cannot be resolved or reconciled. The FLPMA requires that BLM's land-use plans be consistent with State and local plans "to the extent practical" where State and local plans conflict with Federal law there

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					will be an inconsistency that cannot be resolved. The BLM will identify these conflicts in the FEIS/PRMP so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options.
121	San Juan County	63	No Wilderness Characteristics	San Juan County objects to the 1996-99 Wilderness Character Re-inventory process. FLPMA does not provide for wilderness as a multiple use.	The BLM is required by FLPMA to maintain inventories of all resources and to use the inventory information during land-use planning (FLPMA Section 201 and 202 (43 U.S.C. §1711-1712)). The FLPMA makes it clear that the term "multiple use" means that not every use is appropriate for every acre of public land and that the Secretary can "make the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use. . . ."(FLPMA, Section 103(c) (43 U.S.C. §1702(c))) The FLPMA intended for the Secretary of the Interior to use land-use planning as a mechanism for allocating resource use, including wilderness character management, amongst the various resources in a way that provides uses for current and future generations. See also responses to comments 120-8 and 121-10.
121	San Juan County	64	No Wilderness Characteristics	BLM did not make information public regarding the impact of additional WSA designations.	The DRMP/EIS proposes no lands for additional WSA designation. The document identifies non-WSA lands that are proposed to be managed to maintain their wilderness characteristics.

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					There are 26,162 acres of such lands within San Juan County in Alt B, and none in the Preferred Alternative, Alt C. All of the information that was utilized in making these determinations is publicly available, and any information which is not on the Moab RMP website will be provided to any interested party.
121	San Juan County	65	No Wilderness Characteristics	BLM must consider all grazing files, mineral files, lands cases, recreation use permits etc. in terms of the suitability of the land to be managed for wilderness designation.	Considering lands for WSA or wilderness designation is beyond the scope of BLM's land-use planning effort, as identified on pg. 1-2 of the DRMP/DEIS. Chapter 4 of the DRMP/DEIS analyzes the impacts from management prescriptions which protect Non-WSA lands with wilderness characteristics, and the impacts on other resources and uses because of that protection. In addition, during the inventory process, the majority of the existing land-uses were identified and taken into consideration when determining areas with wilderness characteristics. The source of the information was documented unit-by-unit during the wilderness review. An Interdisciplinary team of resource specialist, with on-the-ground knowledge of the units, was part of the review process. This inventory is available on the Moab RMP website, and is part of the Administrative Record. The information is also available upon request. Those non-WSA lands that are considered for management of wilderness characteristics in Alternative B were analyzed for their suitability for other uses.

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					These uses were the reasons why there are no non-WSA lands within the county that are managed for wilderness characteristics in the Preferred Alternative. Those Non-WSA lands that are considered to be managed to maintain the wilderness characteristics in Alternative B were also analyzed for their suitability for other uses. See also response to comment 121-63.
121	San Juan County	66	No Wilderness Characteristics	BLM must consider access, economic analyses, Native American issues and alternatives for management in terms of manageability for wilderness.	No lands are considered for wilderness designation. Those non-WSA lands that are considered for management for wilderness characteristics in Alternative B were analyzed for access, economic uses, alternatives for management, and Native American concerns. These were among the reasons why there are no non-WSA lands within the San Juan County that are managed for wilderness characteristics in the Preferred Alternative (Alt C).
121	San Juan County	67	No Wilderness Characteristics	The mineral evaluations associated with the wilderness re-inventory are inadequate. The values of the foregone minerals must be calculated in areas under study for possible WSA designation. BLM violates its national minerals policy. BLM has failed to issue oil and gas leases because of planning. USGS is not involved in the wilderness process.	Considering lands for WSA or wilderness designation is beyond the scope of BLM's land-use planning effort, as identified on pg. 1-2 of the DRMP/EIS. A comprehensive Mineral Report was prepared for the entire Moab planning area. This report was prepared by the Utah Geological Survey, in cooperation with the BLM. The report includes a comprehensive evaluation of the mineral potential of all mineral resources in the area. It also included an assessment of the development potential of all mineral resources in the area.

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					In addition, a Reasonably Foreseeable Development scenario for oil and gas resources was prepared in cooperation with the Utah Geological Survey. The scenario provides projections of the potential oil and gas development in the entire area over the next 15 years. The mineral evaluations included all the Non-WSA lands found to have wilderness characteristics and were conducted in conformance with the BLM national minerals policy. The EPCA inventory of oil and gas resources prepared by the USGS was used in drafting the Mineral Report. Impacts to the affected mineral resources were analyzed and disclosed in Chapter 4 of the DRMP/EIS.
121	San Juan County	68	No Wilderness Characteristics	The BLM should examine and discuss the potential economic losses to those areas associated with potential wilderness or WSA designation. It should also put forth alternatives where these adverse economic affects can be mitigated, such as larger PILT payments.	Considering lands for WSA or wilderness designation is beyond the scope of BLM's land-use planning effort, as identified on pg. 1-12 of the DRMP/DEIS. Those Non-WSA lands that are considered for management of wilderness characteristics were analyzed for the economic effects of that action. For example, on pg. 4-94 of the DRMP/DEIS, the number of oil and gas wells foregone in Alternative B is discussed. The PILT payments are outside the scope of the land-use planning process.
121	San Juan County	69	No Wilderness Characteristics	San Juan County objects to using "cherry stemming" to create wilderness where none exists under the law. If BLM recognizes a road as a boundary, what is the setback?	Considering lands for WSA or wilderness designation is beyond the scope of BLM's land-use planning effort, as identified on pg. 1-2 of the DRMP/DEIS.

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					"Cherry stemming" is a land management technique that facilitates better land management by allowing ingress and egress without compromising a special designation. This technique is often applied to WSAs. However, the BLM is not proposing any WSAs under any alternative in the Moab DRMP/DEIS. Furthermore, no lands are proposed for management of wilderness characteristics in San Juan County for Alternative C of the DRMP/DEIS. Road setbacks are addressed in response to comment 121-62.
121	San Juan County	70	No Wilderness Characteristics	FLPMA requires a consistency review with local plans. The San Juan County Comprehensive Plan must be considered. Any diversions from the objectives of this plan by BLM must be accompanied by an explanation of why the BLM could not lawfully conform to the county plan.	The BLM is aware that there are specific County and State plan decisions relevant to aspects of public land management that are discrete from, and independent of, Federal law. However, the BLM is bound by Federal law. The FLPMA requires that the development of an RMP for public lands must be coordinated and consistent with County plans, to the maximum extent possible by law, and inconsistencies between federal and non-federal government plans be resolve to the extent practical (FLPMA, Title II Sec. 202 (c)(9)). As a consequence, where State and local plans conflict with Federal law there will be an inconsistency that cannot be resolved or reconciled. Thus, while County and Federal planning processes, under FLPMA, are required to be as integrated and consistent as practical, the Federal agency planning process is not bound by or subject to County plans, planning processes, or planning stipulations.

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					The BLM will identify these conflicts in the PRMP/FEIS, so that the State and local governments have a complete understanding of the impacts of the PRMP on State and local management options. A consistency review of the PRMP with the State and County Master Plans is included in Chapter 5. No lands are considered for wilderness designation in the DRMP/EIS. Also, no non-WSA areas with wilderness characteristics are proposed for management in Alt C.
121	San Juan County	71	No Wilderness Characteristics	Solitude is a subjective concept. Area ranchers would express the view that recreationists have a negative influence on solitude. What do "outstanding" opportunities for solitude mean? What constitutes primitive or unconfined recreation. What is more important -- the economic viability of a county or solitude for an elite few?	Congress crafted the terms "outstanding opportunities for solitude" and "primitive or unconfined recreation" when it enacted the Wilderness Act of 1964. The BLM Washington Office Instruction Memorandum 2003-275 Change 1 defines these terms for the purposes of land-use planning. In general, when the sights, sounds, and evidence of other people are rare or infrequent, where visitors can be isolated, alone or secluded from others, where the use of the area is through non-motorized, non-mechanical means, and where no or minimal developed recreation facilities are encountered can provide visitors with the opportunity for solitude or primitive or unconfined recreation. The economic impacts of managing non-WSA lands with wilderness characteristics were analyzed in Chapter 4 of the DRMP/EIS.
121	San Juan County	72	No	Comment Analysis on the 1999 Wilderness Inventory found that those supporting wilderness were from out of state.	Considering lands for WSA or wilderness designation is beyond the scope of BLM's land-use planning effort, as identified on pg. 1-2 of the DRMP/DEIS.

Table 5.9.c. Public Comments and Responses: San Juan County

			Wilderness Characteristics	Those supporting wilderness that were from Utah were from Salt Lake, Ogden and Logan. San Juan County residents were clearly opposed to any action by BLM to designate more land for WSAs. Native American comment letters were opposed to wilderness designation. Local comments are more impassioned, knowledgeable and we believe warrant more weight being placed on them. Unit specific comments follow. The 1999 inventory was not really field-truthed and there is a lack of consistency between field personnel. In this (1999) inventory, the BLM has developed their own set of rules and definitions as to what constitutes wilderness. BLM has not followed the direction of Congress in defining wilderness.	Under FLMPA, multiple use is defined as the management of public lands and their various resource values so they are used the combination that will best meet the present and future needs of all the American people. As part of BLM's wilderness characteristics inventory maintenance, BLM performed a combination of data and on-site reviews. This included specific field inspections, ID team review of data such as range files, County and BLM GIS data, and high-resolution 2006 aerial photographs. The BLM's findings are described in the 1999-2003 wilderness re-inventory documentation, as well as the 2007 wilderness characteristics review process (findings from this review are available on the Moab Field Office website, and in the Administrative Record). The BLM is confident of high-standard approach used to inventory the public lands and stands by its findings, particularly the findings which involved wilderness characteristics inventory maintenance.
121	San Juan County	73	No Wilderness Characteristics	Comment from 1999 Wilderness Inventory: Behind the Rocks: this area should not be considered for further wilderness activities. It is within the Paradox Fold and Fault Belt and has high potential for oil and gas. It has the potential for uranium and vanadium, as well as potash and copper. It does not qualify for wilderness because of past impacts. There are 13 roads within the unit, each of which is discussed specifically, with photos provided.	No lands are considered for wilderness designation in the DRMP/EIS. No non-WSA lands with wilderness characteristics are proposed for management in Alternative C (Preferred) of the DRMP/EIS in the Behind the Rocks area.
121	San Juan County	74	No Wilderness	Comment from 1999 Wilderness Inventory: Gooseneck: San Juan County has no information that would refute BLM's finding	No lands are considered for wilderness designation in the DRMP/EIS.

Table 5.9.c. Public Comments and Responses: San Juan County

			Characteristics	in this area. It contains about 5,000 acres of public land, and to our knowledge has few intrusions. It should be pointed out, however, that this area does have the potential for minerals including potash, uranium and oil and gas. The economic potential of these minerals should be done if the area is designated wilderness. The minerals values outweigh the wilderness values. The BLM did miss four roads within or adjacent to the unit (photos and write-ups provided).	No non-WSA lands with wilderness characteristics are proposed for management in Alternative C (Preferred) of the DRMP/EIS in the Gooseneck area.
121	San Juan County	75	No Wilderness Characteristics	Comment from 1999 Wilderness Inventory: Hatch Wash: this unit is particularly disturbing to San Jan County. BLM is creating wilderness where wilderness does not exist. There are roads, seismograph lines, fences and other intrusions covering the landscape. The Hatch Wash area has high potential for oil and gas, uranium, vanadium, copper and potash. San Juan County requests that the area be dropped from further wilderness consideration. Specific roads in the area are identified by San Juan County.	No lands are considered for wilderness designation in the DRMP/EIS. No non-WSA lands with wilderness characteristics are proposed for management in Alternative C (Preferred) of the DRMP/EIS in the Hatch Wash area.
121	San Juan County	76	No Wilderness Characteristics	Comment from 1999 Wilderness Inventory: Hunter Canyon: Mineral values will be foregone if wilderness is designated for this area. It has oil and gas, uranium, vanadium, copper, barite and potash. Specific roads are discussed within the comment.	No lands are considered for wilderness designation in the DRMP/EIS. No non-WSA lands with wilderness characteristics are proposed for management in Alternative C (Preferred) of the DRMP/EIS in the Hunter Canyon area.
121	San Juan County	77	No Wilderness Characteristics	Comment from 1999 Wilderness Inventory: Shafer Canyon: This unit is not suitable or manageable as wilderness, and it violates the 5,000 acre requirement. It has oil and	No lands are considered for wilderness designation in the DRMP/EIS. No non-WSA lands with wilderness characteristics are proposed for management

Table 5.9.c. Public Comments and Responses: San Juan County

				gas, uranium, vanadium, copper and potash resources. Individual roads are also discussed. San Juan County suggests that it could easily be managed as an area of critical environmental concern to protect the scenic qualities and vistas from Dead Horse Point.	in Alternative C (Preferred) of the DRMP/EIS in the Shafer Canyon area. The area does constitute a portion of the Highway 279/Long Canyon/Shafer Basin ACEC that is proposed in Alt C (Preferred) to protect scenic resources, particularly the vista from Dead Horse Point State Park.

Table 5.10.a. Comments Requiring a Change in the Document: Air Quality

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
8	Arches National Park	1	Yes	In Section 3.2, Table 3.2 of the draft RMP/EIS, there are only ozone concentrations for La Plata County and Mesa Verde National Park in Colorado included, though ozone has been monitored at Canyonlands National Park for a number of years and is considerably nearer the area of interest. Those data should be included in the EIS, as well. NPS data shows a deteriorating trend for ozone, which may reflect more current data than that used for the RMP. Data for 2005 are available at www2.nature.nps.gov/air/monitoring/ads/ADSReport.cfm.	This data has been added to applicable table in Chapter 3 of the PRMP/FEIS.
124	SUWA	115	Yes	The Draft RMP fails to analyze the impacts of climate change to MFO resources. Soil disturbing activities such as recreation, grazing, and energy exploitation reduce or remove the natural components that stabilize desert soil, increasing soil loss through wind and water erosion. The BLM should design alternatives that minimize soil disturbance. BLM should designate an alternative with far fewer than the 2600 miles of back country ORV routes that Alternative C contains. The cumulative effects of various uses like ORV recreation and grazing should be considered in the context of climate change. The BLM is urged to develop and adopt an alternative that minimizes the extent of soil disturbance and reduces the Field Office's vulnerability to the effects of climate change.	The assessment of so-called "greenhouse gas" emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impact to climate. However, the intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic (man-made) greenhouse gas concentrations." The last of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to air quality due to

Table 5.10.a. Comments Requiring a Change in the Document: Air Quality

					climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased wind blown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Less snow at lower elevations would be likely to impact the timing and quantity of snowmelt, which, in turn, could impact aquatic species. Information regarding global climate change has been added to Chapters 3 and 4 of the PRMP/FEIS. The BLM will not, in the foreseeable future, have tools to predict the effects of oil and gas development on climate change. This type of analysis can only be done at the research level, and then only on large (near-continental size areas) of wide spread emissions. It will be a long time before the BLM can say anything about specific projects on climate change or the impact of climate change on our resources.

Table 5.10.a. Comments Requiring a Change in the Document: Air Quality

215	EnCana Oil	15	Yes	The assumption on page 4-18 that a control efficiency of 37% would be obtained by watering of all exposed disturbance areas is inconsistent with the assumption on page 4-16 that 50% control of particulate emissions would be obtained by watering. The DRM should be corrected to consistently reflect the assumptions actually used in the quantification of impacts	The PRMP/FEIS has been corrected in Chapter 4 on air quality to reflect consistent assumptions.
479	Environmental Protection Agency	1	Yes	The BLM (in Table 4-8 of the DRMP/EIS) indicates that projected concentrations (of air pollutants) would be below National Ambient Air Quality Standards for criteria pollutants and hydrogen sulfide, but does not show the concentrations. The DRMP/EIS does not describe the methods used to calculate the projected concentrations. EPA recommends that the BLM disclose this information in the Final RMP/EIS.	The methods used to calculate the projected concentrations of pollutants and hydrogen sulfide are included in the PRMP/FEIS. Analyses of impacts on ozone, visibility, and deposition are included in Chapter 4 of the PRMP/FEIS. No comparisons are made to NAAQS in the PRMP/FEIS.
479	Environmental Protection Agency	2	Yes	The air quality analysis omits potential impacts to ozone, visibility or deposition. The planning area encompasses class I National Park Service airsheds. Ozone is of particular concern because of the potential emissions of volatile organic compounds and oxides of nitrogen from oil and gas development.	Analysis of impacts to ozone, visibility, and deposition require air dispersion modeling.
479	Environmental Protection Agency	3	Yes	The Final RMP/EIS should include information on the effects of oil and gas development on climate change (from CO2 emission). EPA recommends that the BLM encourage oil and gas lessees to participate in EPA's Natural Gas STAR program.	See response to comment 124-115.
479	Environmental Protection Agency	4	Yes	Because a semi-quantitative approach to air quality analysis was taken in the Moab RMP, it is not possible to determine potential impacts to air quality from specific oil and gas development (see Section 4.3.1.3 of the DRMP/EIS). Nevertheless, it is important to assign	A statement has been added to Chapter 2 of the PRMP/EIS, under Management Common to All, which states the following: "As appropriate, quantitative analysis of potential air

Table 5.10.a. Comments Requiring a Change in the Document: Air Quality

				responsibility for project-specific air quality analyses for the future. EPA recommends that the Final RMP/EIS contain this wording from the Rawlins BLM DRMP/EIS, which also used a comparative, emissions-based approach: "As project-specific developments are proposed, quantitative air quality analysis would be conducted for project-specific assessments performed pursuant to NEPA."	quality impacts would be conducted for project specific developments.
479	Environmental Protection Agency	19	Yes	On pg. 4-17 of the DRMP/EIS, the BLM discusses rates of emissions from compressor engines in grams per horsepower-hour. Table 4.6 shows emission rates in grams per second, but the text does not explain whether BLM made this calculation in order to estimate impacts using the semi-quantitative method or for some other reason. An explanation is needed in the Final RMP/EIS as to why different units appear in this section, or convert emission rates to the same units.	The text and tables in Chapter 4 of the PRMP/EIS have been modified to provide an explanation regarding the units of analyses. Conversions were made from AP-42 emission factors using assumptions typical for compressors used in oil/gas in Utah.
826	James Lynch	1	Yes	I did not find a discussion of air or water pollution in the alternative discussion.	A statement has been added to Chapter 2 under "Management Common to All," which states: "As appropriate, quantitative analyses of potential air quality impacts would be conducted for project specific developments.

Table 5.10.b. Comments Requiring a Change in the Document: Areas Of Critical Environmental Concern

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
124	SUWA	86	Yes	Upper Labyrinth ACEC nomination - SUWA nominates the area south of the town of Green River and north of the Ruby Ranch. The nominated ACEC that the Price BLM has on the west side of the	The BLM considered this ACEC nomination which was submitted during the comment period for the DRMP/EIS. The values mentioned by the Commenter in the Upper

Table 5.10.b. Comments Requiring a Change in the Document: Areas Of Critical Environmental Concern

				Green River. This ACEC meets that relevant criteria due for scenic, historical, fish, and natural processes associated with the river and its surrounding landscape; historic values ranging from Crystal Geyser to the Powell expedition; and fish and wildlife habitat. The scenery and landscape of this are is outstanding and offers visitors and outstanding experience either by hiking or by canoeing. The nomination meets the importance criteria for scenery and for historical values. In addition, the Green River is habitat to Threatened and Endangered fish and Labyrinth Canyon is an internationally acclaimed canoe trip through BLM lands. This area faces heightened threats from oil and gas development or with the state of Utah leasing portions of the riverbed.	Labyrinth area are scenic, historical, fish, and natural processes. The BLM convened an interdisciplinary team to consider this nomination. The team found the historical, fish, and natural processes to be relevant. Scenery was not found to be relevant. While the canoe trip along the Green River is a highly sought after recreational experience, this portion of the Green River is only a portal to the scenery in the lower part of the canyon below Ruby Ranch. The relevant values of historical, fish, and natural processes were not found to be important. While John Wesley Powell did float this portion of the river, there were no significant events occurred in this portion from a historical perspective. The threatened and endangered fish that may inhabit this portion of the river are found throughout the Colorado and Green River system. This particular reach of the river provides no special habitat for these fish. The natural processes along this portion of the Green River are neither fragile, sensitive, rare, irreplaceable, exemplary, or unique. Because the nomination does not meet the importance criteria, it will not be carried forward as a potential ACEC in the PRMP/FEIS. The analysis supporting this conclusion has been incorporated into Appendix I of the PRMP/FEIS.

Table 5.10.b. Comments Requiring a Change in the Document: Areas Of Critical Environmental Concern

203	Independent Petroleum Assn. of Mountain States	13	Yes	The DRMP/EIS fails to demonstrate that the proposed ACEC decisions meet the regulatory criteria of importance and relevance. 43 CFR § 1610-7-2. Secondly, many of the identified resource values already receive adequate protection through other management prescriptions. 43 USC § 1702 (a) (ACECs may be designated "where special management attention is required…to prevent irreparable damage"); BLM Manual 1613.51-53 (ACECs unnecessary when other designations are adequate to protect a resource or value.)	A rationale for designating or not designating ACECs in the Preferred Alternative of the DRMP/EIS is found in the Administrative Record referred to as the ACEC Final Report. The List of Threats and the Rationale for Designating or Not Designating ACECs in the Proposed Alternative is available to the public upon request. Relevant text has been added to Appendix I of the PRMP/FEIS.

Table 5.10.c. Comments Requiring a Change in the Document: Cultural Resources/Native American Consultation

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
1	Colorado Plateau Archaeological Alliance	26	Yes	The tiered approach reflected in the three action alternatives (more under Alternative B, less under Alternative C and even less under Alternative D) is problematic and would appear to reflect a common misperception that National Register designations are accompanied by greater levels of protection for listed resources.	All cultural resources are protected by law regardless if they are listed on the National Register or not. The priority for nominating cultural sites to the National Register has been removed.

Table 5.10.c. Comments Requiring a Change in the Document: Cultural Resources/Native American Consultation

123	COHVCO/Blue Ribbon	48	Yes	"Inadvertent impacts" is undefined and is not discussed in the EIS. Inadvertent impacts are therefore an unfounded assumption which cannot be attributable to OHV or mechanized use. BRC believes a plan of mitigation, rather than prohibition, is possible and beneficial. This particularly so because numerous recreators use OHVs to access important historical sites.	Information has been added to Chapter 3 of the PRMP/FEIS that cultural resources are being, or have been, negatively impacted by the presence of humans engaging in looting or vandalism. Basically that increased access results in increased inadvertent impacts, looting, and vandalism. References will be cited.
430	Ute Mountain Ute Tribe	1	Yes	Upon review of your draft it seems some of the Utah Mountain Ute Tribe's important cultural issues have not been addressed. The women of White Mesa Ute Community, located south of Blanding, Utah, have traditionally made baskets from squawbush. One of the most critical areas where they gather this plant is off Highway 128, adjacent to the Arches National Park boundary and the river. These baskets play an important role in the culture and traditions of the White Mesa Community. The Tribe would therefore formally request that gathering of squawbush be allowed to continue in this area, and that it be made clear that the proposed restrictions in this area do not apply to gathering of plans for both medicinal and traditional practices such as basket making. Allowing these traditional gathering practices to continue would result in minor environmental impacts, while simultaneously allowing the White Mesa community to practice and preserve their cultural heritage.	On page 2-56 of the DRMP/EIS, under management common to all alternatives, it states: "Permit sustainable harvest (including cutting of green willows and cottonwoods) for Native American traditional ceremonial use". Squawbush has been added to this list of plants to specifically accommodate the Utah Mountain Ute Tribe's request.
489	National Trust for Historic Preservation	2	Yes	The Draft RMP may exempt hundreds, if not thousands, of route miles from the requirements of Section 106 by labeling them "existing" routes.	A sentence has been added on pg. 2-7 of the DRMP/EIS defining "new route": New routes are defined as those not designated in the Travel Plan accompanying this RMP".

Table 5.10.c. Comments Requiring a Change in the Document: Cultural Resources/Native American Consultation

				Under the preferred alternative, BLM would not perform Class III inventories prior to designating an "existing" OHV route for continued use. Draft RMP at 2-7. This management prescription comes from a BLM Instruction Memorandum (1M) issued in December 2006, which generally requires Class III inventories for the designation of "new" routes but not for the designation of continued use on "existing" routes. IM No. 2007-030. However, neither the DRMP nor the IM define the term "existing route." BLM must define the term "existing" route to mean only those routes previously designated through the land-use planning process and for which BLM completed the Section 106 process.	
868	The Hopi Tribe	1	Yes	Regarding B, C, and D, we do not support the 2/3 of sites allocated for scientific use, and less than 1/3 for conservation for further use. Avoidance of Hopi sacred sites and traditional use areas is the only real means of preventing impairment of these resources.	The BLM concurs with the Hopi Tribe that archaeological resources cannot be allocated to various uses prior to the study of these resources. The decision allocating archaeological resources has been removed from the PRMP/FEIS.
492	Diane Orr	1	Yes	The National Historic Preservation Act directs the BLM to do inventories, actively manage and nominate sites for historic registration.	National Register nomination is done on a site-specific basis and does not require a land-use plan decision. The prioritization of National Register nominations has been removed from the PRMP/DEIS.
492	Diane Orr	2	Yes	There are two different totals given as to the number of cultural sites on BLM lands within the Moab Field Office.	The number of identified cultural sites has been corrected on p. 4-253.

Table 5.10.d. Comments Requiring a Change in the Document: Cumulative Impacts

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
658	Richard Griffin	1	Yes	The cumulative impact analysis for the RMP is inadequate. It does not support the conclusions reached and does not provide sufficient information to evaluate the impact.	The BLM has added reasonably foreseeable non-BLM actions to the cumulative impact analysis.

Table 5.10.e. Comments Requiring a Change in the Document: Hazardous Materials

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
9	ECOS Consulting	21	Yes	Page 4-241,3rd Paragraph, 4.3.11: "AML" is not defined and is not listed in the "Acronyms and Glossary" section. It is highly probable that the protection of sites from "hazardous materials spills and spill site cleanup" will involve some amount of soil disturbance and drainage re-direction and/or storage.	The acronym AML is defined on pg. 2-10 of the DRMP/EIS as Abandoned Mine Lands. This acronym will be added to the glossary. AML projects are implementation actions in which the potential environmental impacts would be analyzed on a case by case site specific basis following completion of the land-use plan.

Table 5.10.f. Comments Requiring a Change in the Document: Lands and Realty

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
12	Pacificorp	12	Yes	PacifiCorp does not support the BLM's proposal in the RMP to eliminate the existing utility corridor from Cisco to US Highway 191.	Under Alternatives C and D, the Interstate Highway 70 utility corridor has been widened to include all major existing utilities. The wider corridor merges two corridors designated in the 1985 Grand RMP. Currently, there are no rights-of-way for electrical lines within the corridor south of I-70. This language has been corrected to state that "the existing utility corridor from Cisco to Highway 191 north of Arches National Park would be merged with the I-70 corridor under all action alternatives" (pg. 4-65 of the DRMP/EIS). In addition, the statement on page 2-11 of the DRMP/EIS that the "utility corridor from Cisco to Highway 191 north of Arches has been eliminated" has been deleted from the text of the PRMP/FEIS.
215	EnCana Oil and Gas	19	Yes	There is a typographical error on page 4-68 in the last line of the second full paragraph. The line should read, "Alternative D, and would have corresponding impacts on the construction of future ROWs"	This is a typographical error, and it has been fixed.
586	U.S. Fish and Wildlife Service	5	Yes	page 2-11, table 2.1 We recommend that BLM identify and incorporate the FWS Interim Guidelines for Wind Power (2003) in the "Management Common to All Action Alternatives" for the Lands and Realty section. Implementation of these recommendations will help to minimize impacts from wind power development projects to wildlife, particularly birds and bats, and their habitat.	The text on pg. 2-11 of the DRMP/EIS has been changed to read "Authorization of any ROW for wind or solar energy development would incorporate best management practices (including the United States Fish and Wildlife Service's "Guidelines for Wind Power"…"

Table 5.10.g. Comments Requiring a Change in the Document: Livestock Grazing

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
9	ECOS Consulting	26	Yes	Page 4-242, Table 4.71: Percentages are wrong. Actually they are: 32.9% (Alternative B), 8.7% (Alternative C), or 7.4% (Alternative A), or 3.7% (Alternative D).	The BLM agrees that the percentages on Table 4.71 and in the text are wrong and that the percentages provided by the Commenter are correct. The corrections to the table and text have been made in the PRMP/FEIS.
204	The Nature Conservancy	21	Yes	We notice that the next-to-last item under Management Common to All Action Alternatives refers to grazing not being authorized on portions of Beaver Creek – which we support, but which appears to be inconsistent with the treatment of Beaver Creek in Alternatives C and D on Page 2-13. Further, this list contains reference to "Bogart," and in this context it is not clear if it refers to grazing not being authorized on the entire Bogart Allotment (which we support), or just along portions of streams within that allotment.	The reference to Beaver Creek and Bogart being unavailable for grazing in Riparian: Management Common to All Action Alternatives is incorrect and this error has been corrected.)
416	John and Sena Hauer	2	Yes	Suggestions regarding Alternative C: Build a livestock fence only on the southeast side of the highway, and do not permit grazing between the highway and the river. Build the fence only 1,900 feet from the highway on the southeast side instead of 2,000 feet, in order to compensate the permitee for lost grazing between the highway and the river. Advantages: Only one fence would have to be constructed. Livestock would not be permitted in the campground areas and raft put-ins at Onion Creek. The campground and put-ins at Hittle Bottom are already fenced.	The text in Chapter 2 of the PRMP/FEIS for Alt C has been changed to read: "A fence would be constructed along the southeast side of Highway 128 (set back to protect the scenic resources of the National Scenic Highway)".

Table 5.10.g. Comments Requiring a Change in the Document: Livestock Grazing

				Since the grazing between the river and the highway would be fragmented into such small areas, it would appear to be more convenient for the permitee to have an equal amount of grazing added to the northeast side than to attempt to utilize the small parcels of the northwest side of the highway.	
586	U.S. Fish and Wildlife Service	6	Yes	page 2-12, table 2-1 It is unclear why Alternative C (Preferred) would make available for grazing 12,673 more acres than Alternative A (No Action). We recognize that this may be to allow for greater flexibility in grazing management, such as rest rotation techniques, which can benefit range and habitat. This is unclear, however, and we recommend that the purpose of increasing grazing acreage NOT be to increase AUMs within the MPA.	Pear Park and Ida Gulch have been added to the list of allotments that are unavailable for grazing in the preferred alternative. Pear Park was unavailable for grazing in the 1985 Grand RMP (for wildlife forage). Ida Gulch is in habitat for Jones cycladenia. Other allotments that are unavailable in Alt A but available in Alt C would be subject to range studies prior to determining suitable grazing allocations. If there were suitable permittees interested in applying for these permits, an Environmental Assessment would be conducted. One consideration that may be identified would involve nearby permittees utilizing these newly available allotments without an increases in total AUMs. Additionally, all newly available allotments would require Section 7 consultation which will insure that the concerns and recommendations of the USFWS are considered.
195	Van Loan Ranches	2	Yes	There are two different Utah grazing allotments named Spring Creek in the Dolores Triangle. One is the spring Creek-Colorado allotment, managed by Colorado BLM as part of our Colorado allotment. The other allotment is Spring Creek-Utah, which has been unavailable for livestock grazing for a number of years. These are two separate, non-contiguous allotments.	The confusion regarding the two Spring Creek allotments has been corrected in the PRMP/FEIS. The map of grazing allotments has also been corrected.

Table 5.10.h. Comments Requiring a Change in the Document: Minerals–Oil and Gas

	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
124	SUWA	98	Yes	The BLM must consider a no leasing alternative. The current draft of the RMP fails to consider such an alternative. Federal courts have made clear that a no leasing alternative should be a vital component in ensuring that agencies have all possible approaches before them (See, e.g., Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228 [9th Cir. 1988].	The BLM's consideration of the no leasing alternative has been added to Chapter 2 of the PRMP/FEIS under the section on Alternatives Considered but Eliminated from Analysis.
201	Samson Resources	6	Yes	Section 1.4.7 -Memorandum of Understanding with Forest Service: The BLM improperly references a 1991 Memorandum of Understanding between the BLM and the United States Department of Agriculture, Forest Service (Forest Service) establishing joint BLM and Forest Service procedures for managing oil and gas leasing and operational activities in the Moab DRMP/EIS. The BLM and the Forest Service issued the Memorandum of Understanding required by Section 363 of the Energy Policy Act in April of 2006.	The reference to the Memorandum of Understanding between the BLM and the Forest Service regarding oil and gas leasing has been changed in the PRMP/FEIS from 1991 to 2006.
202	Cabot Oil & Gas	7	Yes		
214	Bill Barrett Corp.	27	Yes	On page 3-113 of the Moab DRMP/EIS, the analysis of the contribution of mineral resources, which as mentioned above does not provide an overall economic contribution of oil and gas, notes that production peaked in 1994 and has declined since. However, the data stops at 2000, just about the time that oil and gas commodity prices started to rise and, coupled with advances in the technology to recover unconventional resources, production throughout Utah and the Intermountain West started to soar.	Chapter 3 of the PRMP/FEIS has been updated to reflect the current trend in oil and gas production.

Table 5.10.h. Comments Requiring a Change in the Document: Minerals–Oil and Gas

215	EnCana Oil	14	Yes	The reference to the release of saline groundwater during drilling has been deleted from the text of the PRMP/FEIS.	The number of wells by alternative utilized in the air quality analysis in Chapter 4 of the DRMP/EIS. In the PRMP/FEIS the wording has been changed from proposed wells to projected wells.
306	Delta Petroleum	6	Yes	The economic analysis presented in the DEIS is based on old and outdated information with respect to oil and gas development. It relies on data from 2003 and older. The economic picture, development activities and approaches to resource extraction have undergone a major shift . . . That information is readily available from both state and federal sources, including some information in 2007, yet none of this recent information has been included in the DEIS. This is a major flaw under NEPA, since readily available information should be used for decision-making. This affects economic impacts and projections within all of the alternatives. Since this information is readily available, the BLM should amend the DEIS to reflect that information	Additional recent data has been added to Chapter 4 of the PRMP/FEIS pertaining to oil and gas employment, potential impacts to State revenues from oil and gas restrictions, information on property taxes and information on severance taxes.
491	Public Lands Advocacy	5	Yes	Offsite Mitigation – Under management Common to All Alternatives in Chapter 2, BLM indicates it will seek to "Fully mitigate all unavoidable habitat losses for special status species at a minimum 1:1 ratio." While we recognize that many companies have offered to perform off-site mitigation, several concerns must be raised. According to IM 2005-69, compensation or off-site mitigation must be entirely voluntary. While BLM may identify offsite mitigation opportunities, it stated they will not be carried forward unless volunteered by the applicant. We oppose any program that would impose off-site or compensation mitigation as a BLM requirement.	Chapter 2 of the PRMP/FEIS has been changed. The statement has been changed to "Mitigate all unavoidable habitat losses for special status species at a minimum 1:1 ratio, where required by policy or law".

Table 5.10.i. Comments Requiring a Change in the Document: Non-WSA Lands With Wilderness Characteristics

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
124	SUWA	233	Yes	The BLM arbitrarily excludes an area in Coal Canyon possessing wilderness characteristics by using legal lines as boundaries.	This appears to be a mapping error and has been corrected. About 338 acres has been added to the non-WSA lands with wilderness characteristics in Alt B.
124	SUWA	234	Yes	The BLM arbitrarily excludes an area in Coal Canyon possessing wilderness and fails to provide justification.	This appears to be a mapping error and has been corrected. About 165 acres has been added to the non-WSA lands with wilderness characteristics in Alt B.
124	SUWA	250	Yes	A small area of Horsethief Point adjoins the Park (Canyonlands National Park), with no physical impact or separation and has wilderness character.	This appears to be a mapping error and has been corrected. About 24 acres has been added to the non-WSA lands with wilderness characteristics in Alt B.
209	Sierra Club Glen Canyon Group	46	Yes	There appear to be errors and/or muddied discussion in the first paragraph, sentences 3 and 4, of page 4-143 attributing to Alternative C comments which apparently refer to another alternative.)	The fourth sentence in paragraph 1 of page 4-143 has been changed to state: "…same as in Alternative B."
209	Sierra Club Glen Canyon Group	47	Yes	Summary Pages 4-162 thru 4-168 The VRM table (Table 4.58) is incorrect in showing 0% Class I in Alternative B, while Table 4.55 designates some Class I in Beaver Creek, Behind the Rocks, Dead Horse Cliffs, Dome Plateau, Goldbar, Gooseneck, Horsethief Point, Hunter Canyon, Labyrinth Canyon, Mary Jane Canyon, Mill Creek Canyon, Negro Bill Canyon, and Westwater.	The Commenter is correct. There are 45,048 acres of non-WSA lands with wilderness characteristics that are designated as VRM Class I in Alt B. The designation is for other reasons, usually the establishment of an ACEC. Table 4.58 has been corrected to show that 45,048 acres are VRM Class I (17%) in Alt. B, while 221,437 acres are VRM Class II (83%) in Class B.

Table 5.10.i. Comments Requiring a Change in the Document: Non-WSA Lands With Wilderness Characteristics

215	EnCana Oil and Gas	20	Yes	The first sentence of this Section (p. 4-93) should be modified to say that no additional BLM lands would be closed to salable and leasable mineral resource development. Table 4.38 on page 4-85, shows that there are already 392,205 acres (2.1%) of closed BLM lands. This is an inaccurate sentence and needs to be modified to correctly identify that there are closed areas under Alternative A	The wording in this section has been changed to "Under Alternative A, no acres of lands with wilderness characteristics are to be managed to protect these characteristics, resulting in no additional closures of BLM lands to salable and leasable mineral resource development."

Table 5.10.j. Comments Requiring a Change in the Document: Paleontology

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
123	COHVCCO/Blue Ribbon	49	Yes	The DEIS, however, lacks the nexus between OHV use and an increase in vandalism or unauthorized collection of paleontological resources. Additionally, although it is difficult to determine the extent to which existing routes in paleontologically sensitive areas will be eliminated, again, existing routes will have not been shown with any data in the DEIS to pose an unreasonable risk to those resources.	Information has been added to Chapter 3 of the PRMP/FEIS that paleontological resources are being, or have been, negatively impacted by the presence of humans engaging in looting or vandalism. Basically that increased access results in increased inadvertent impacts, looting, and vandalism. References will be cited.

Table 5.10.k. Comments Requiring a Change in the Document: Recreation

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
124	SUWA	102	Yes	The total acreage of SRMAs in the planning area, by alternative differs in two Tables. Table 2.1 does not match the acreage in Table 4.69. Table 4.21 does not match the acreage in Table 2.1.	The acreage in the tables has been corrected in the PRMP/FEIS.
199	Canyonlands Field Institute	1	Yes	Dolores River Canyons SRMA - Support Alternative C with exceptions: In the boating management section, we request a CHANGE in party number to match the other sections of river managed by BLM in SE Utah i.e. change the party size to be 25 PLUS guides. In order to serve school groups, the 25 maximum passengers is necessary in most cases. In addition, make this number consistent with other stretches will make it easier on the public and our office staff in comparing trip options.	The BLM agrees with the Commenter that it is important to have consistent river rules. The BLM also agrees that school groups have special needs because the guide-passenger ratio must often be increased. The text has been changed to read "25 people, excluding guides."
204	The Nature Conservancy	18	Yes	Reference is made on Page 2-21 to allowing motorized travel use on (among other routes) "the motorized access route to the viewpoint of Ida Gulch (the saddle between Adobe Mesa and Castle Rock)." This appears to be confusing, because (to our knowledge) the saddle between Adobe Mesa and Castle Rock does not look down northward into Ida Gulch, but into an unnamed side drainage of Professor Creek. Motorized access into this saddle from the south (Castle Valley side) via a single designated route is fine. The view down into Ida Gulch is obtained from the saddle between Castle Rock and Parriott Mesa – a saddle to which motorized travel must NOT be allowed from either direction, i.e. the foot path up from the Castle Valley side, or the road into Ida Gulch from Highway 128.	The Commenter is correct that the route looks downward into Professor Valley and not into Ida Gulch. The wording has been corrected. The route that ascends the ridge and looks down into Ida Gulch is and will remain non-motorized only.

Table 5.10.k. Comments Requiring a Change in the Document: Recreation

209	Sierra Club Glen Canyon Group	27	Yes	Re: The Bookcliffs SRMA, There's an inconsistency in the RMP/EIS making the Bookcliffs SRMA a non-mechanized focus on page 2-18 (Alternative B) and non-motorized per page 4-135?	This is an error in Chapter 4 and has been changed to read "non-mechanized in both chapters.
209	Sierra Club Glen Canyon Group	30	Yes	Colorado Rivers SRMA: For boating management in the Colorado River, Two Rivers and Dolores River SRMAs, Alternative C should be the same as Alternative B in stating that no restrictions on private use would be established unless unacceptable resource impacts occur.	A sentence has been added to alternatives C and D for these SRMAs stating that no restrictions on private use would be established unless unacceptable resource impacts occur.

Table 5.10.l. Comments Requiring a Change in the Document: Riparian

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
1025	Western Watersheds Project	39	Yes	Significant discrepancies exist within the riparian sections and other sections referencing riparian resources within the DRMP/EIS.	The discrepancy in riparian data identified by the Commenter has been corrected in the PRMP/FEIS. The riparian analysis in Chapter 4 of the PRMP/EIS has been changed accordingly.

Table 5.10.m. Comments Requiring a Change in the Document: Socioeconomics

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
221	Fidelity Exploration	2	Yes	BLM has a responsibility to include a comprehensive socioeconomic analysis that is lacking in this DRMP. The following should be giving more consideration: -Oil and gas are vital sources of energy for the nation. BLM should discuss increasing energy demands, decreasing strategic necessity for development of mineral resources. Utah oil and natural gas resources need to be identified as crucial to help offset the deficit between supply and demand. -Federal lands contribute nearly one-third of the nation's natural gas supply; therefore, accounting for every resource rich area is crucial to producers and consumers. The DRMP should discuss the role of the planning area in the nation's natural gas supply. -The full, positive economic impact of mineral development in the planning area was not adequately analyzed, nor did the document analyze the negative impact associated with the severe restrictions called for in the Preferred Alternative C. Furthermore, the DRMP states that under Alternative b, the long-term economic benefits from oil and gas development would be slightly less than current circumstances or if Alternatives C or D were adopted (Table 2.2, p.2-78-2-79). This conclusion is counter-intuitive; it defies logic how the extremely restrictive Alternative B would have only slightly lower economic benefits from oil and gas when it would place so many more restrictions on development. Clearly, that analysis is flawed.	In 2007, Grand County provided 0.5% of Utah's total oil production and 1.8% of Utah's total gas production (DOGM, 2006). Utah ranks 12th nationally in oil production and 10th nationally in gas production (DOGM, 2008). These figures do not support the Commenter's assertion that this is crucial to the nation's energy supply. The impacts of minerals on social and economic conditions are detailed on pg. 4-259 through pg. 4-264. This analysis provides a reasonable assessment of the socioeconomic impacts. The restrictions imposed on oil and gas leasing in Alt B would result in fewer wells developed than in Alts, C, D, or A. These numbers are 264, 432, 448, 451, respectively. Therefore, Alt B would result in 168 fewer wells over the life of the plan. The well numbers were based on the Reasonably Foreseeable Development scenario for oil and gas and spread by alternative based on the restrictions imposed under each alternative. Impacts of minerals on socioeconomics are based on these wells numbers. Economic information on royalties, employment, severance taxes, and impacts to State revenues has been augmented in Chapter 4 of the PRMP/FEIS.

Table 5.10.m. Comments Requiring a Change in the Document: Socioeconomics

				BLM would greatly benefit from a comprehensive economic analysis of the impact of oil and gas to the region such as is currently underway by the University of Utah's Bureau of Economic and business Research for the Utah Governor's Office of Public Land Policy Coordination Office (The Structure and Economic Impact of Utah's Oil and Gas Exploration and Production Industry Phase I- The Uinta Basin) (Draft, November 2007) -Each alternative contained in the DRMP includes some lands closed to energy resource development. Such closures are based on BLM's assessment of resource values on those lands. Closure also implications, however, in terms of national energy consumption and commodity prices, foregone employment opportunities, tax revenues, and support for state and local economies. Although BLM must necessarily base land-use decisions on consideration of all resources values, social and economic impacts of closure decisions should be estimated to fulfill the agency's mandate under FLPMA, and to comply with guidelines contained in BLM's Land-use Planning Handbook (H-1601-H) and Instruction Memorandum (IM) No. 2002-167	Information has been added to the PRMP/FEIS using the newly completed study by the University of Utah Bureau of Economic and Business Research (January 2008) "The Structure and Economic Impact of Utah's Oil and Gas Production and Industry, Phase III - Grand County". Therefore, use of the study in Uintah County suggested by the Commenter is not appropriate.
299	Dan Harris	2	Yes	The analysis states that Alternative B will have only slightly lower economic benefits than Alts C and D. This is not true, especially for Green River	Economic information on royalties, employment, severance taxes, and impacts to State revenues has been augmented in Chapter 4 of the PRMP/FEIS. Information has been added to the PRMP/FEIS using the newly completed study by the University of Utah Bureau of Economic and Business Research (January 2008) "The Structure and Economic Impact of Utah's Oil and Gas Production and Industry, Phase III - Grand County".

Table 5.10.m. Comments Requiring a Change in the Document: Socioeconomics

318	Mike D.	1	Yes	The town of Green River should be covered in the Moab RMP. By placing too many restrictions on this development, oil and gas companies may go elsewhere, including outside the country, for their operations. This will have severe negative economic impact on our local economy.	The text in Chapter 3 concerning socioeconomics has been altered to include the fact that economic effects include those on the neighboring communities of Green River and Grand Junction.
319	Bruce Hansen	1	Yes		

Table 5.10.n. Comments Requiring a Change in the Document: Soils

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
309	Pam Hackley	3	Yes	The analysis should reevaluate the amount of potential disturbance to soils, especially from OHV use.	Numbers have been added to Chapter 4 and to Appendix G that show the miles of route designated and not designated in erodible soils types. There are 167 miles of route that are closed in the preferred alternative because of soils conflicts.

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
204	The Nature Conservancy	1	Yes	In addition to the species in the MPA with formal status as listed above, we urge that special attention be given to one additional plant: *Astragalus iselyi* (Isely's milkvetch). At present this plant has no special status. We had recommended that it be added to the Utah BLM list of Sensitive Plants when that list was being reviewed for revision in March 2007… the need for special status is heightened by a particular proposal for public-land disposal that	The Moab RMP does not add or subtract potential special status species to the Utah BLM list of Sensitive Plants. Parcel R-11, which contains habitat for the *Astragalus iselyi*, has been removed from the list of lands identified for disposal.

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

				appears within the three Action Alternatives of the DRMP. This action would, if implemented, remove from BLM control a major population center for this plant, probably increasing the need for BLM Sensitive designation of the remaining occurrences, and possibly creating a rationale for federal listing of the whole species.	
214	Bill Barrett Corp.	24	Yes	It would be inappropriate to require oil and gas leasees to "fully mitigate" impacts from oil and gas operations when oil and gas development is mandated and appropriate use of public lands.	The statement on pg. 2-44 of the DRMP/EIS which states "Fully mitigate all unavoidable habitat losses for special status species at a minimum of 1:1 ratio" has been changed from "fully mitigate" to "mitigate".
485	Center for Native Ecosystems	3	Yes	Alternative B applies a 1300' buffer for white-tailed and Gunnison's prairie dog habitat (C-22, 4-57). Alternative C applies a 660' buffer within white-tailed and Gunnison's prairie dog habitat (2-34, 2-47, 2-48, 4-57, 4-394). However, pages 2-84 and 4-316 refer to a 600' buffer for Alternative C. Page 4-395 seems to indicate that under Alternative D, white-tailed prairie dog habitat will be granted a 660' buffer while Gunnison's prairie dog habitat will not be conserved. This is confusing, and could easily be considered arbitrary and capricious.	The buffer was listed wrongly page 2-84 & 4-316 of the DRMP/EIS. The buffer is 660 feet, no 600; these errors have been corrected.
586	U.S. Fish and Wildlife Service	2	Yes	The bald eagle was removed from the Endangered Species list. It is, however, still protected under the MBTA and the BGEPA.	The wording in the plan has been corrected to correspond to this action. The two laws protecting bald eagles have been added to the text on pg. 3-143 of the DRMP/EIS.

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

586	U.S. Fish and Wildlife Service	3	Yes	Page 2-5, Section 2.1.1.5: 1st paragraph: The MFO has 3 listed bird species (and 1 candidate species), 1 listed mammal species, 1 listed plant species, and 4 listed fish species (see also Section 3.16). According to page 3-140, there are additionally 43 "Sensitive Species", not 4 as stated here.	The number of sensitive species has been corrected to 43. In addition, the enumeration of listed species has been changed to match USFWS's wording.
586	U.S. Fish and Wildlife Service	4	Yes	Page 2-5, Section 2.1.1.5 1st paragraph: The standard stipulations that have been developed in coordination between BLM and FWS (i.e., the Species Conservation Measures in the BO for Existing Utah BLM RMPs (2007)), should be included in the document. Appendix K is a close approximation in many respects, but there are inconsistencies and rearranged organization, and it is difficult to determine if items have been left out. The 2007 BO conservation measures were mutually developed and agreed to by FWS and BLM, and should be included in their entirety in the new RMP to ensure long-term species conservation as well as streamlined section 7 consultation.	This last sentence in the first paragraph on p. 2-5 of the DRMP/EIS has been changed to: "Species conservation measures (see Appendix K) have been developed in coordination with the United States Fish and Wildlife Service. They will be implemented under all alternatives." Appendix K has been updated with the 2007 "Species Conservation Measures for Utah BLM RMPs".
586	U.S. Fish and Wildlife Service	7	Yes	page 2-95, table 2.2, Special Status Species - Impacts from Riparian management: There must be typos in these descriptions (at the bottom of page 2-95), because they do not make sense. Alt. C cannot be the same as Alt. B, except with less riparian acres excluded than under Alt. C.	The wording has been corrected.
586	U.S. Fish and Wildlife Service	9	Yes	page 3-38, section 3.73. A number of the allotments identified in this section contain special status species and should be further discussed in Section 4.3.15.6 (page 4-367).	The following sentence has been added to Chapter 4: "Those allotments that remain unavailable for grazing are not subject to these impacts to special status species."

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

586	U.S. Fish and Wildlife Service	10	Yes	page 3-125, section 3.15.1.1.2.2 (Bookcliffs wildlife area) Is the clay reed mustard within the Moab Planning Area?	The USFWS is correct. This is an error. The clay reed mustard is not within the planning area; it is only within Uintah county.
586	U.S. Fish and Wildlife Service	11	Yes	page 3-125, section 3.15.1.1.2.2. (Bookcliffs wildlife area) typo-Jones cycladenia, with a small c.	The Jones cycladenia is not found in the Bookcliffs area. The text has been corrected.
586	U.S. Fish and Wildlife Service	12	Yes	page 3-127, section 3.15.1.2.5 (Colorado River Corridor ACEC) 4th paragraph mentions "two state sensitive rare plants" but the State of Utah has no sensitive plant list. Are these listed on the UNPS rare plant guide or NatureServe?	The sentence has been changed to "Two BLM sensitive plants, alcove rock daisy (*Perityle specuicola*)and alcove bog orchid (*Habenaria zothecina*) occur in Negro Bill Canyon."
586	U.S. Fish and Wildlife Service	14	Yes	page 3-128, section 3.15.1.2.5 The Colorado River Corridor ACEC "…contains about one quarter of all threatened Jones cycladenia plants." Does this mean within the MPA or across the range of the species? What is the source of this information (citation)?	The sentence has been changed to read: "The potential ACEC also contains threatened Jones cycladenia plants."
586	U.S. Fish and Wildlife Service	15	Yes	3-143, section 3.16.1.3 This bald eagle section should be moved to Section 3.16.2 (Sensitive Species).	This correction has been made.
586	U.S. Fish and Wildlife Service	16	Yes	3-143, section 3.16.1.4 The first sentence ("MSO habitat includes high canopy closure…") should be eliminated. The second sentence should read: "Steep slopes and canyons with rocky cliffs characterize much of the MSO habitat in Utah."	The sentence has been eliminated and the second sentence has been adjusted in accordance with the Commenter's request.
586	U.S. Fish and Wildlife Service	18	Yes	page 4-355, table 4.106 Place Latin names after common names for plant species.	The Latin names have been added to Table 4.106 for all plants.

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

586	U.S. Fish and Wildlife Service	20	Yes	4-363 section 4.3.15.3.5 What habitat types is this section referring to, and what special status species might be affected?	The title of the section has been changed.
586	U.S. Fish and Wildlife Service	21	Yes	4-365, section 4.3.15.5.3 Utility and communication infrastructure ROWs are also likely to fragment habitat, increase human access, and increase non-native invasive plants. These effects would have resulting impacts on various special status species, including prairie dogs and sage-grouse.	This sentence has been added to Section 4.3.15.5.3 of the DRMP/EIS.
586	U.S. Fish and Wildlife Service	22	Yes	page 4-370 section 4.3.15.7.1 Mineral exploration activities would also lead to greater road density, creating greater opportunity for OHV and other human disturbance.	This sentence has been added to Section 4.3.15.7.1 of the DRMP/EIS.
586	U.S. Fish and Wildlife Service	23	Yes	page 4-371, section 4.3.15.7.2.1 Potential direct adverse effects from oil and gas development would include: potential for spills, mortality from reserve pits, increased human access, OHV access, road mortality.	This sentence has been added to Section 4.3.15.7.2.1.
586	U.S. Fish and Wildlife Service	24	Yes	page 4-372, section 4.3.15.7.2.2 Explanation for greater detailed analysis on sage-grouse is reasonable, but you should still describe the impacts to other species as well.	Wording has been added to clarify that the habitat fragmentation analysis was performed for sage-grouse as an example of this type of action.
586	U.S. Fish and Wildlife Service	25	Yes	4-372, section 4.3.15.7.2.2. 5th paragraph: It's also possible that the analysis could be an underestimate of habitat degradation because more frequently used roads could cause disturbance greater than 400m.	The following sentence has been added to pg. 4-372 of the DRMP/EIS: "It is also possible that the analysis could underestimate habitat degradation because more frequently used roads could cause disturbance greater than 400 meters from the road."

Table 5.10.o. Comments Requiring a Change in the Document: Special Status Species

586	U.S. Fish and Wildlife Service	26	Yes	page 4-375, section 4.3.15.7.4 MSO do occupy rocky slope/canyon habitat in the MPA (not just the "potential" to occupy this habitat type).	The sentence now reads: "MSO are known to occupy the rocky slope/canyon habitat in the MPA.
586	U.S. Fish and Wildlife Service	27	Yes	page 4-376, table 4.116. Why is there a difference of 37 acres between Alternative B and C for Jones cycladenia? Are these 37 acres in Jones cycladenia habitat? If so, we suggest these acres also be made NSO/Closed.	The 37 acres has been added to the Jones cycladenia habitat that is NSO or closed to leasing in Alt C.
586	U.S. Fish and Wildlife Service	29	Yes	4-390, table 4.119. The document states there are 24,370 acres of habitat for Jones cycladenia. Please clarify, is this the size of the amount of suitable habitat or habitat potential for the plant?	The habitat is suitable for Jones cycladenia. The word has been added to Table 4.119.
586	U.S. Fish and Wildlife Service	34	Yes	page C-35, table C-4. Golden eagles are not listed under ESA. They are protected under the MBTA and BGEPA.	The title has been changed in Appendix C to read "federally protected species"
586	U.S. Fish and Wildlife Service	37	Yes	Appendix K. The BLM Committed Conservation Measures identified in this appendix should be consistent with the Species Conservation Measures developed for the Biological Opinion for Existing Utah BLM RMPs (2007) (see attached document).	Appendix K will be replaced with the correct and updated document.
586	Moab Trails Alliance	11	Yes	p. I-8 Under Relevance Criteria, seventh line, "……threatened plants do not occur….." Shouldn't "do not" be deleted or else the whole sentence be deleted?	The sentence has been corrected

Table 5.10.p. Comments Requiring a Change in the Document: Travel Management

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
6	Colorado 500	12	Yes	the MFO staff's choice to separate the citations from the body of the text makes it extremely cumbersome to review the use of the literature in this analysis. We have selected a citation that is pretty obviously aimed at roads, and because our comment is about roads, it seemed the most likely match. Please bear with us. From the Chapter in the DEIS called "References:" Forman, R.T.T. and L.E. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics '29:207-231. This does not have anything to do with undeveloped dirt roads and narrow trails, lightly trafficked, in a desert ecosystem. Just so you do not have to take our word for it, we have located and read the article, plus we have followed the citations in the article. None of the material we found is related to what this DEIS is analyzing. (multiple reference examples followed, text not included here)	Placing all references at the back of the document is standard operating procedure when assembling Environmental Impact Statements. The reference to the article by Foreman and Alexander is found on pg. 4-485 of the DRMP/EIS in the section on wildlife habitat fragmentation. The reference to the article concerns vehicles killing birds that are attracted to road kills. The BLM has added an expanded discussion to Appendix G of the extensive research on the impacts of OHV use on a variety of natural resources, including soil and water, vegetation, wildlife and habitat, and water and water quality . The BLM has also added an expanded discussion of the impacts of OHV use on socioeconomics, including user conflict, to Appendix G. Where appropriate, references to this section of Appendix G will be added to the relevant resource sections of Chapter 4.
6	Colorado 500	20	Yes	The placement of a "Mountain Bike Focus Area" (Map 2-9-C) exactly where the popular Copper Ridge motorcycle trail already is. This is an existing single-track loop, plus single-back connectors to the Sovereign Trails system (state land) and an existing single-track connector to Thompson Springs.	1. As stated explicitly in the DRMP/EIS. Focus areas are not designed to exclude other uses, such as the single-track motorcycle trail cited by the Commenter. Klondike Bluffs is a mountain bike focus area because the predominant use of Klondike Bluffs is mountain bike use. The Copper Ridge motorcycle trail was submitted to the BLM during scoping; the route could not be

Table 5.10.p. Comments Requiring a Change in the Document: Travel Management

				Requests that will resolve this comment: 1. We want BLM to provide the analysis that supports the statement "There are no routes solely dedicated to OHV use." Reprinting the same sentence from the AMS will not satisfy this request, as there is no analysis in the AMS that supports BLM's claim in 3.11.1.2.16. This additional analysis will obviously include maps of every existing road and trail. This analysis must detail who made each route, for what purpose, and when it was made. To accomplish this, interviews with residents of the Moab area, as well as residents of western Colorado and western Utah will be necessary, and interviews with motorcycle clubs and businesses, to gather the factual evidence that supports (or refutes) the claim that off-road motorcycles do not have their own dedicated system of routes in the MPA and in the MFO jurisdiction. 2. We want a third-party, non partisan review of this analysis. The reason that is necessary is that many private citizens donated hundreds of hours to help BLM map the single-track OHV routes in the run-up to this DEIS. Hundreds of miles of motorcycle trails were mapped. Since BLM has no compunctions about discarding that work, we have no reason to trust BLM in the conduct of any new route inventory or route development history. 3. Reprinting the same sentence from the AMS will not satisfy this request, because there is no analysis in that document that supports BLM's claim in 3.11.1.2.16. 4. If there is no such analysis, we want BLM to add this statement to 3.11.1.2.16: "MFO staff has	verified on the ground. This means that it was not popular enough to be evident on the ground. See also response to comment 122-36. 2. The BLM acknowledges the comment cited by the Commenter, but fails to see its relevance to the issue at hand. 3. The sentence referred to by the Commenter from the 1985 Grand RMP is simply a statement by the BLM that there are no trails managed solely for OHV use, which is the case in the No Action alternative. No amount of research or interviews or third-party analysis will change this fact from the 1985 Grand RMP. The Commenter provides no evidence to suggest otherwise. The fact that user groups may have their own trail systems does not mean that the BLM manages these for that single use. Additionally, no user group has the self-appointed authority to manage trails on public lands for their exclusive use. 4. The BLM, as part of its scoping for the land-use planning process, requested route information from the public. A result of this request, the BLM received several hundred miles of routes from the public, including numerous motorcycle routes. Most, but not all, of these routes were verified on the ground by the BLM and were included in one or more action alternatives for analysis. This process is described in detail in Appendix G of the DRMP/EIS. These include many (perhaps most, but the BLM is not familiar

Table 5.10.p. Comments Requiring a Change in the Document: Travel Management

				elected to omit at least 200 miles of existing motorcycle single-track trails from the inventory and to eliminate from consideration the designation of a "system" of existing single-track OHV trails in Alternative C. Staff has chosen to remove this data in advance of the Deciding Offer's review and Decision. Staff realizes that this will prevent the Deciding Officer any opportunity to evaluate and designate single-track OHV systems. Based on the record supporting this DEIS and Plan, it will likely be perceived as a pre-emptive Decision by the ID Team. There is no analysis that supports this action. There is ample evidence that these routes do exists, as many members of the public assisted in located and mapping them. However, MFO staff has elected to discard that data. Please refer to 3.11.1.2.16." Alternatively, and less contentious and less time consuming, and more likely to get this project to a Decision in a more timely way, we want the Moab BLM to restore the trails in the MFO database that were collected under the public perception that the trails would be called "motorcycle single-track" and included in the travel plan for consideration. We will not try to guess at the name BLM has assigned these trails. Restoring these trails to the database will simplify completion of the RMP, and it would fill several glaring voids in the "Travel Plan." Then, in the post-ROD implementation, site-specific monitoring would support the eventual site specific analysis of the impacts of these trails. We also request that BLM add the following section to Chapter 3: 1. Beginning on page 3-79, part 3.11.1.2.16 must be changed to "Popular Motorcycle Routes." These will be the same as the "popular bicycle" trails, plus	with each group's route naming system) of the routes presented by the Commenter. Some of the routes mentioned by the Commenter were not presented to the BLM during scoping, and were therefore not included in the travel plan process. The BLM is not in a position to forego travel planning indefinitely to accommodate new route proposals. As the DRMP/EIS explicitly states, new routes can be considered for inclusion in the travel plan on a site-specific basis in the future. See also response to comments 122-15 and 122-30. It is worth noting that several of the routes proposed by the Commenter are located in an area limited to existing trails as of 1985. The Commenter needs to be aware that on pg. 2-32 of the DRMP/EIS, it is stated: "No additional OHV routes would be allowed in saline soils other than those already designated in the Travel Plan". The Slickrock Bike Trail has been added to the motorcycle trail route map (2-11-E). The following routes mentioned by the Commenter are open to all motorized vehicles, including motorcycles: Gemini Bridges, Amasa Back, Flat Pass, Klondike Bluffs, Kokopelli's Trail, Poison Spider, Bartlett Wash, Moab Rim, Kane Creek Canyon Rim, Hurrah Pass and Onion Creek. The Commenter should consult the motorcycle trail map (2-11-E) to see if the routes he names are available to motorcycles. The BLM is unfamiliar with some of the names used by the Commenter.

Table 5.10.p. Comments Requiring a Change in the Document: Travel Management

				many more miles. The reason they are the same is, BLM changed the usage for this DEIS even though (because it is in the record) BLM cannot dispute the fact that motorcycles were suing those trails when the 1985 RMP was written. 2. We want BLM to include … (many named trails).	The Mel's Loop route has been placed in the proposed alternative for the PRMP/FEIS.
8	Arches National Park	5	Yes	Several roads are shown within Arches NP that are not park roads. These are circled on the attached map; please delete them. Alternately, since the RMP does not apply to Arches, we would prefer that the park simply be shown as a "blank spot" on the map, with all roads removed.	All routes within Arches National Park have been deleted from the Travel Plan maps accompanying the PRMP/FEIS.
970	National Parks and Conservation Association	7	Yes		
122	Ride with Respect	5	Yes	Section 3.11.2.6 (page 3-85&6&7) addresses use conflict and displacement, but not adequately so. It crudely lists a few circumstances the agency believes to exist. The lists are arbitrary, and should be removed.	The list of recreation conflicts in Section 3.11.2.6 of the DRMP/EIS is based upon professional judgment of Moab Field Office BLM staff. The areas listed are those that have come to the attention of BLM staff due to reports of conflicts by users themselves. The sentence on pg. 3-86 of the DRMP/EIS has been changed to read: "specific areas in which BLM staff have had reports of user conflict and displacement include…"
122	Ride with Respect	15	No	By any of these definitions, many OHV trails exist in the Moab field office beyond the data from BLM, RWR, or any other known source. RWR'S data is the best available information. All of the routes we submit currently exist, and new data of existing routes includes photographs to aid your staff in verification. RWR expects that you to contact us before determining that any of these routes are not legal, existing travel ways.	The routes considered in the alternatives for the Travel Plan accompanying the DRMP/EIS were those submitted by the public during the scoping period, including those submitted by Ride with Respect, and verified on the ground by BLM staff (see pgs. G-15 through G-21). On pg. 2-48 of the DRMP/EIS there is a provision for adding new routes. The provision states "identification of specific designated routes would be initially established through the

Table 5.10.p. Comments Requiring a Change in the Document: Travel Management

					chosen travel plan accompanying the RMP and may be modified through subsequent implementation planning and project planning on a case by case basis". New routes proposed by the Commenter will be considered after completion of the Record of Decision for the Moab RMP unless those routes are in a closed area to OHV use. However, at the completion of the RMP, all travel will be restricted to the routes designated in the plan.
122	Ride with Respect	21	Yes	Table 2.1 Wilderness & Travel Management (page 2-43 & 2-48) refer to WSA ways when stating that "If Congress designates the area as Wilderness, the routes will be closed." This sentence should be removed.	The sentence has been changed to read "If Congress designates the area as Wilderness, the routes could be closed." This sentence means that the will of Congress would override any route designation made in the DRMP/EIS. Congress does have the final authority, and close any route that it chooses.
122	Ride with Respect	22	Yes	Alternative C would require Special Recreation Permits for groups with "25 vehicles." The document ought to explicitly exclude counting more than one vehicle per person, since he/she can only use one vehicle at a time.	The 25 vehicle rule is intended to mean the primary vehicle driven by the participant. The phrase "one driver/vehicle" has been added to the Special Recreation Permit decisions in the PRMP/FEIS for clarification.
122	Ride with Respect	23	Yes	Table 2.1 Travel Management (2-48) also states "Only designated roads are available for motorized commercial and organized group use."	The words "and managed open areas" have been added to the appropriate section of the PRMP/EIS to clarify that permittees would be allowed in these areas.
122	Ride with Respect	24	Yes	Section 4.3.10.2.10.6 (page 4-220) should acknowledge that Labyrinth Rims in Alternative C would negatively impact motorcycling to the extent that it prohibits future use of Bartlett Slickrock by motorcycle.	The impacts of this restriction on motorcycling opportunities have been added to the text of the PRMP/FEIS.

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122	Ride with Respect	26	Yes	Likewise Section 4.3.10.2.12 (page 4-229) should state that soil decisions substantially reduce vehicular access to certain environments, including high-saline soils, and both riparian and non-riparian washes.	Text has been added to Chapter 4 of the PRMP/EIS acknowledging that soils and riparian decisions limit motorized users. The decision in soils has been changed so that soils are a limiting factor, rather than a factor that absolutely forbids new routes in saline soils.
122	Ride with Respect	42	Yes	For consistency, Slickrock Trail should appear on the map of designated motorcycle routes.	The Slickrock Trail has been added to the map of motorcycle routes in the PRMP/EIS for alternatives C and D.
123	COHVCO/Blue Ribbon	4	Yes	The BLM must disclose how the Recreational Settings may or may not affect future management decisions, allowable uses, including and especially travel management.	A sentence has been added to the PRMP/FEIS under Travel Management (Management Common to All Action Alternatives) for clarity that states "routes identified in the Travel Plan would be available regardless of other proposed management actions'.
123	COHVCO/Blue Ribbon	5	Yes	The DEIS is far from a model of clarity in distinguishing between program-level and project-level decision-making and management prescriptions. We urge BLM to clarify this distinction, and to specifically identify program-level management guidance from project-level management prescriptions for all management decisions, especially travel management.	The BLM followed the Land-use Planning Handbook (H-1601-1) to develop program level management guidance. In 2004, the Washington Office (WO) clarified the guidance in the handbook by issuing WO Instruction Memorandum 2004-005, which states specifically, "Selection of a network of roads and trails should be performed for all limited areas in each RMP. This requires establishment of a process that includes selecting specific roads and trails within the limited area or subarea and specifying limitations placed on use." The management decisions in Chapter 2 of the PRMP/FEIS will clearly show which

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					decisions are planning decisions and which decisions are implementation (project-level) decisions.
123	COHVCO/Blue Ribbon	8	Yes	A map is provided of the White Wash area which displays an area where access to dispersed camping sites has been eliminated.	The open area to the west side of the White Wash Sand Dunes has been enlarged to accommodate the camping that occurs to the south of the oil well. See also response to comment 120-83.
123	COHVCO/Blue Ribbon	10	Yes	BRC strongly opposes the fee system proposed for White Wash Sand Dunes in Alts C and D. A fee system at White Wash will be difficult to implement because of the distance from the Moab Field Office and ease of access to the Dunes and nearby trails. A fee system with the Federal Lands Recreation Enhancement Act. The BLM should remove the section requiring the Special Recreation Permit idea, and instead, insert guidance to pursue funding sources.	The possibility of a fee system for use of the open area in White Wash Sand Dunes is proposed in the DRMP/EIS as a means of funding the cost of the intensive management that this area would require to keep it open to cross country travel and provide services to visitors. Actual implementation of any new fee would follow the guidelines of the Federal Lands Recreation Enhancement Act, and be considered by the Utah BLM Resource Advisory Council. This action does not preclude pursuing other funding sources to help manage the White Wash Sand Dunes. For clarity the statement on pg. 2-25 of the DRMP/EIS has been changed to read "Implement a fee system under the guidelines of the Federal Lands Recreation Enhancement Act.

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124	SUWA	32	Yes	The plan says that all alternatives would ensure PFC, and that "the loss or degradation of riparian areas, wetlands and associated floodplains would be avoided or minimized; natural and beneficial values would be preserved and enhanced; and fish and wildlife and special status species would be provided for," 4-182, there is no explanation of how ORV use in these same streams affects that conclusion.	On page 4-245 of the DRMP/EIS, the impacts of travel on riparian resources are analyzed. The acres of riparian areas by OHV designation are specified. No cross-county travel is allowed in riparian areas under any of the action alternatives. To provide further analyses, a table has been added to Appendix G of the PRMP/FEIS detailing the number of miles of routes not designated due to resource conflicts including riparian areas. This data has been incorporated into the appropriate resource sections of Chapter 4. In Appendix G of the DRMP/EIS it is acknowledged that OHV use in riparian areas can result in loss of vegetation, degraded stream banks, and erosion.
196	Moab Trails Alliance	2	Yes	The amount of new trail ("C"= 150 miles, "B"= 75, etc) should be specifically stated as, "In addition to trails developed on existing roads as mapped on the Grand County Transportation Inventory map". The allotted new mileage will include only those routes mapped across previously undisturbed terrain.	Wording has been added to the DRMP/EIS on pg. 2-49 to clarify that the mileage is for new trails; converted existing routes are in addition to the specific mileage listed for each alternative.
196	Moab Trails Alliance	5	Yes	Typos: p. 4-464 second paragraph line 4 "carefully" should be careful.	The grammatical correction has been made in the PRMP/FEIS.
196	Moab Trails Alliance	6	Yes	Typos: p. I-8 Under Relevance Criteria, seventh line, "…threatened plants do not occur…" Shouldn't "do not" be deleted or else the whole sentence be deleted?	The sentence has been deleted.

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204	The Nature Conservancy	11	Yes	See DRMP 2-48* Finally, within this area we would like to see the designation of motorized travel on the road up Ida Gulch from Hwy 128 proceed no farther up-valley than the northern boundary of our section of private land (Sec 32, T24S R23E, SLM) in Ida Gulch. In the DRMP under all Action Alternatives this route is shown as designated for motorized travel through our property and onto BLM-administered lands to the east.	The BLM does not designate routes on private land. The Nature Conservancy may restrict travel on this route. The route will be removed from the designated travel maps in Alts C and D. This would restrict all motorized travel past the Nature Conservancy's private land.
206	Red Rock 4-Wheelers	11	Yes	There are a number of permitted Jeep Safari routes not included in Alternative C, and these should be added to this Alternative. These include segments of the Copper Ridge, Strike Ravine, 3D, Dolores Triangle, and Flat Iron Mesa routes.	The short segments on BLM are mapping errors which have been corrected (route numbers 13637, 15331, 15332, 15334, 15336). Strike Ravine and Flat Iron Mesa routes will need to be hand digitized, since they are not part of current Travel Plan database. Several of the segments are exclusively on State lands, and beyond the scope of the Travel Plan formulation.
208	Bookcliff Rattlers Motorcycle Club	9	Yes	BLM should identify routes suitable for ATVs in its travel plan, rather than passively assuming that many of the OHV routes submitted in scoping are motorcycle-only.	The BLM has incorporated the Commenter's suggestion for a change in route use involving ATVs in the PRMP/EIS. See also response to State of Utah comment 120-90.
209	Sierra Club Glen Canyon Group	10	Yes	. . .confusing Table 4.126 OHV Designations by Alternative on page 4-409. The table which contains both acres and miles has four footnotes, of which the second is not referenced in the table itself. "These are the miles of designated routes at time of EIS publication. After the issuing of the ROD, minor adjustments may be made by the MFO to more accurately define the designated	Footnote 2 refers to the bottom two rows of Table 4.126; this has been fixed. The "minor adjustments" that the Commenter wishes defined relate to GIS data smoothing issues, which the BLM would expect (but cannot predict with certainty before the data smoothing is completed) to add up to well less than one per cent in either direction.

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				routes." BLM should let us know where the superscript belongs in the table, what the definition of "minor" is, and how the public will be involved.	The manner of public involvement is an implementation activity. The process is described on page 2-48 of the DRMP/EIS.
209	Sierra Club Glen Canyon Group	44	Yes	Re: 4.3.8.2.13.1 OHV Travel Management Pages 4-146 thru 4-152, Table 4.5, Page ES-6 The paragraph beginning at the bottom of page 4-149 also apparently contains an error. Clearly, it means that OHV use will be limited to designated, not existing, routes. The same error is found in the last paragraph on page 4-150. Under all of the action alternatives, vehicles must stay on designated routes.	The Commenter is correct, and the wording has been changed to "designated".
209	Sierra Club Glen Canyon Group	55	Yes	The Glossary is not comprehensive. For example, "way" is defined, but "route" are not. "Mechanized" and "non-mechanized travel" are not defined at all. Attachment A of Appendix G includes additional terms which should be justified with Glossary definitions and/or referenced in the Glossary. It is possible that there are definitions in other appendices or the text of the document itself which, if added to the Glossary, would make it more user friendly.	The BLM has added the referenced words (route, mechanized and non-mechanized) to the glossary. The BLM would need more specifics to address the other glossary changes which the Commenter recommends.
218	Colorado b Division of Wildlife	1	Yes	Closing many of the spur roads that have no destination will also be of great benefit to wildlife. There is one road that is identified to be closed under preferred Alternative C in the travel management plan that concerns us, as we would like to have this road remain open. In the Dolores River Triangle there is a road starting in Township 21S Range 26E Section 32 SW 1/4 (state school section) that heads south for approximately one mile before it braches; both	As this route provides the only public access to public lands in Colorado, it has been added to the preferred alternative. The route has been designated in Alternatives C and D. Two routes that start in the State Section (T. 21 S., R. 26 E., Sec. 32) on the Colorado state line, cross Utah BLM land, and entre the state of Colorado have been added to the Preferred Alternative
195	Van Loan Ranches	1	Yes		

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				branches head southeast up different forks of spring Canyon along Spring Creek before entering into Colorado. This road provides the only public access into BLM land on the Colorado side of the border. The proposed road closures will eliminate our historic access.	
264	Curtis Rozman Ruby Ranch	2	Yes	It is very clear that BLM intends to make a large area in White Wash "open" to motorized use. We request that any "open" areas do not directly border our private property and that there is an adequate buffer between our private property and any designated open area. Please include a .25 - .5 mile buffer to minimize the vandalism and destruction of property that has been occurring (fence vandalism-- wires cut, posts used for firewood, gates destroyed-- also property shot at, livestock harassment, etc). See attached map.	The BLM proposes an open area of fewer than 2,000 acres in White Wash. The open area is primarily the sand dunes themselves. Everywhere else, all travel would be limited to designated routes. The acreage of open area in the PRMP/FEIS has been greatly reduced from the acreage of open area in the No Action (current) alternative. The southwest boundary of the open area has been adjusted to provide a buffer between the open area and the private property to accommodate the Commenter.
964	Moab Trails Alliance	7	Yes	Whenever different user groups are listed in the RMP, road cycling should be included as a category just the same as "driving for pleasure". This is fast becoming a popular use on the spectacular scenic byways of Grand County.	Road cycling has been added to the list of recreation activities in the Moab Field Office on pg. 3-80 of the DRMP/EIS.
310	Benjamin Reingold	2	Yes	The difference between an RMP and the Travel Plan is not clearly described in the DEIS.	A sentence has been added to the PRMP/FEIS under Travel Management that clarifies this distinction.

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941	Great Old Broads for Wilderness	4	Yes	Not enough has been done to determine the impact of the designated routes on cultural, riparian or wildlife resources.	Additional information on the impacts of travel on resources has been added to Chapter 4 of the PRMP/FEIS and to Appendix G (Travel).
995	Fred and Bessann Swanson	7	Yes		

Table 5.10.q. Comments Requiring a Change in the Document: Water Resources

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
215	EnCana Oil	7	Yes	Section 3.14.3.2.2 Salinity (p. 3-112) The second paragraph of this section states that the release of saline groundwater during drilling activities is a point source for salinity. This statement is inaccurate because groundwater is not released during drilling activities in natural gas drilling operations.	The reference to the release of saline groundwater during drilling has been deleted from the text of the PRMP/FEIS.

Table 5.10.r. Comments Requiring a Change in the Document: Wild and Scenic Rivers

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
124	SUWA	89	Yes	Segment 5 of the Colorado river should be scenic or wild.	The classification of Segment 5 was changed from scenic in Alt B to recreational in Alt C. Upon closer review, it was determined that the classification in Alt C should be changed to scenic in order to match the classification of scenic on the other side of the river in the Monticello Field Office. This change has been made in the PRMP/FEIS.
213	Utah Rivers Council	2	Yes	The preferred alternative in the Draft on page 2-41 changes the classification of one segment of the Green River, from Coal Creek to Nefertiti from its original classification of 'Wild' in the eligibility study to 'Scenic' under the preferred alternative. There is no basis for such a change due to a manageability issue. The Council urges the Moab F.O. to find the Coal Creek to Nefertiti segment of the Green River as a 'Wild' river in the preferred alternative, as it was in the eligibility study and in Alternative B.	The BLM has reevaluated the determination of the classification of the Green River from Coal Creek to Nefertiti. The classification of this segment in the proposed alternative for this river segment has been changed to "wild".

Table 5.10.r. Comments Requiring a Change in the Document: Wild and Scenic Rivers

213	Utah Rivers Council	9	Yes	The list of eligible segments of the Green River and the segments that are analyzed for suitability are inconsistent. In Appendix J, seven suitability factors were considered for each of the different rivers, including the Green River. Attachment 2 in Appendix J, pages J-61 to J-64, shows that 6 segments of the Green River are eligible to become a Wild and Scenic River. However, attachment 4, pages J-81 and J-82, lists the suitability considerations for the, "Green River – Segments 1 through 5". Thus, the suitability analysis fails to even include all 6 eligible segments in the analysis. It is impossible to determine which of the 6 eligible river segments were not included in the analysis because they are not listed nor mentioned.	There are 6 river segments along the Green River and this error has been corrected in the PRMP/FEIS. The heading on pg. J-81 of the DRMP/EIS has been changed to "Green River segments 1 through 6".
213	Utah Rivers Council	10	Yes	The suitability analysis of the Green River includes segments 1 through 5 together. The response to each of the seven suitability factors does not make it clear which of the segments the response applies to. This completely muddles the entire suitability analysis as it is impossible to determine why some segments were found suitable and others were found not suitable.	There are 6 river segments along the Green River and this error has been corrected in the PRMP/FEIS. Attachment 4, Suitability Considerations by Eligible River Segment, has been augmented for the Green River and this augmentation makes the suitability determinations more clear.

Table 5.10.s. Comments Requiring a Change in the Document: Wildlife

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
9	ECOS Consulting	58	Yes	Page 4-442, Table 4.138, 4.3.19: This table is missing a number of very important wildlife associations that must be considered by the BLM in its analyses of impacts in this Moab RMP/EIS. Add the wildlife association "aquatic macro-invertebrates" with the Aquatic habitat type.	The tables referred to have been modified as suggested by the Commenter in the PRMP/FEIS.

Table 5.10.t. Comments Requiring a Change in the Document: Woodlands (Forestry)

Record ID	Commenter	Comment Number	Requires Change	Comment Text	Response to Comment
204	The Nature Conservancy	29	Yes	Woodlands (Pg 2-55—2-56) As a more technical note, the language used in each of the four Alternatives on DRMP Page 2-56 appears to be confusing. Each one is a single run-on sentence that seems to combine the concepts of provide and prohibit. Although one can figure out which acreage value applies to which concept, it would be best for the Final RMP to use language such as separate sentences so that the distinction between "provide" and "prohibit" is clear and unambiguous.	The language on page 2-56 has been corrected to be more direct.

5.6 Record Of Decision

Following publication by the EPA and BLM of a Notice of Availability of the PRMP/FEIS in the Federal Register, there is a 30-day protest period. In addition, a 60-day Governor's Consistency Review period runs concurrently with the first half of the protest period.

The State Director will approve the PRMP/FEIS by issuing a public Record of Decision (ROD), which is a concise document summarizing the findings and decisions brought forth from the PRMP. However, approval shall be withheld on any portion of a plan being protested until final action has been completed on such protest. Before such approval is given, there shall be public notice and opportunity for public comment on any significant change made to the proposed plan.

Management actions specified for the Proposed Alternative in Chapter 2 of the PRMP/FEIS are labeled as follows:

Land-use Plan Decisions (P): These broad-scale decisions guide future land management actions and subsequent site-specific implementation decisions. Land-use plan decisions fall into two categories: desired outcomes (goals; standards, including land health standards; and objectives) and allowable uses and actions to achieve outcomes. Proposed land-use plan decisions are protestable to the BLM Director.

Implementation Decisions (I): These decisions take action to implement land-use plan decisions on a site-specific basis. They may be incorporated into implementation plans or may exist as stand-alone decisions. When issued, implementation decisions are generally appealable to the Interior Board of Land Appeals as outlined in 43 CFR Part 4.

Administrative and Policy Decisions (A): These decisions are based on law, regulation, and/or policy and do not require a land-use plan decision or implementation decision. They are not protestable or appealable.

5.7 Distribution List for the Proposed RMP/Final EIS

A copy of the PRMP/FEIS has been sent to all the entities identified in the distribution list below (Table 5.11). The individuals, groups, organizations, and agencies included in the mailing list for the Moab RMP will be notified that the PRMP/FEIS is available and a hard copy or compact disc of the document can be provided upon request. In an effort to reduce printing costs, the PRMP/FEIS is also available on the Moab RMP website at http://www.blm.gov/ut/st/en/fo/moab/planning.html, the Moab Field Office, the public room in the BLM Utah State Office, and the public libraries listed on the distribution list.

Table 5.11. Distribution List Proposed RMP/Final EIS

Federal Agencies (Required)	Local Federal Agencies
Bureau of Reclamation Denver Federal Center Denver, CO	Arches National Park Moab, UT
U.S. Fish and Wildlife Service Division of Environmental Quality Arlington, VA	Canyonlands National Park Moab, UT
Office of Environmental Compliance Department of Energy Washington, DC	U.S. Geological Survey Moab, UT
U.S. Environmental Protection Agency Office of Federal Activities Washington, DC	Manti-LaSal National Forest Price, UT
U.S. Geological Survey Environmental Affairs Program Reston, VA	Manti-LaSal National Forest Moab, UT
U.S. Environmental Protection Agency Region 8 Denver, CO	Colorado Canyons NCA Grand Junction, CO
Minerals Management Service Environmental Division Herndon, VA	BLM Monticello Field Office Monticello, UT
U.S. Geological Survey Reston, VA	BLM Grand Junction Field Office Grand Junction, CO
National Park Service Washington, DC	BLM Price Field Office Price, UT
Bureau of Indian Affairs Reston, VA	BLM Montrose Field Office Montrose, CO
Office of Surface Mining Washington, DC	BLM Durango Field Office Durango, CO
U.S. Department of the Interior Office of Environmental Policy and Compliance Washington, DC	BLM Vernal Field Office Vernal, UT
U.S. Department of the Interior Natural Resources Library Washington, DC	

Table 5.11. Distribution List Proposed RMP/Final EIS

Other Federal Agencies	Utah BLM Resource Advisory Council
Mineral Management Service Denver, CO	Mr. Carl Albrecht Richfield, UT
Federal Highway Administration Utah Division Salt Lake City, UT	Mr. Norman Carroll Orderville, UT
U.S. Department of Energy Grand Junction Office Grand Junction, CO	Mr. Michael Jenkins Salt Lake City, UT
U.S. Fish and Wildlife Service West Valley City, UT	Mr. Lowell Braxton Salt Lake City, UT
Bureau of Reclamation Provo, UT	Mr. Ray Bloxham Salt Lake City, UT
Natural Resources Conservation Service Provo Service Center Provo, UT	Ms. Ashley Korenblat Moab, UT
U.S. Army Corps of Engineers Chief, Planning Division Sacramento, CA	Mr. Clair "Riley" Cutler Salt Lake City, UT
Deputy Assistant Secretary of the Air Force Environment, Safety, and Occupational Health Washington, DC	Mr. Jerry Spangler Ogden, UT
Federal Depository Library System Government Printing Office Washington, DC	Mr. Gordon Topham Monroe, UT
	Mr. Drew Sitterud Castle Dale, UT
	Mr. F.E. "Fee" Busby Logan, UT
	Mr. Tom Clawson Salt Lake City, UT
	Mr. Lynn Stevens Blanding, UT
	Mr. Manuel Morgan Aneth, UT

Table 5.11. Distribution List Proposed RMP/Final EIS

State Agencies	County Governments
Public Lands Policy Coordination Office Salt Lake City, UT	Grand County Council Moab, UT
Utah State Historic Preservation Office Salt Lake City, UT	Grand County Council Administrator Moab, UT
Utah School and Institutional Trust Lands Administration Moab, UT	Grand County Road Department Moab, UT
Utah School and Institutional Trust Lands Administration Salt Lake City, UT	San Juan County Commission Monticello, UT
Utah Governor's Office of Planning and Budget Salt Lake City, UT	San Juan County Planner Monticello, UT
Utah Department of Transportation Price, UT	
Utah State Parks Moab, UT	
Utah Governor's Office of Planning and Budget Salt Lake City, UT	
City Governments	**Elected Officials**
City of Moab Moab, UT	Senator Orrin Hatch Washington, DC
Town of Castle Valley Moab, UT	Senator Bob Bennett Washington, DC
City of Monticello Monticello, UT	Representative Jim Matheson Washington, DC
Town of Green River Green River, UT	Mike Dmitrich State Senator Price, UT
	Brad King State Representative Price, UT 84501
	John Mathis State Representative Vernal, UT
Tribal Governments	
Hopi Tribal Council Kykotsmovi, AZ	Governor Pueblo of Laguna Laguna, N.M.

Table 5.11. Distribution List Proposed RMP/Final EIS

Hopi Cultural Preservation Office Hopi Tribal Council Kykotsmovi, AZ	NAGPRA Coordinator Pueblo of Laguna Laguna, NM
President Navajo Nation Window Rock, AZ	Governor Pueblo of Santa Clara Espanola, NM
Cultural Specialist Navajo Nation Window Rock, AZ	Land Claims and Rights Protection Officer Pueblo of Santa Clara Espanola, NM
Director Navajo Utah Commission Montezuma Creek, UT	Governor Pueblo of Zia Zia Pueblo, NM
Chairman Southern Ute Tribe Ignacio, CO	Cultural Preservation Officer Pueblo of Zia Zia Pueblo, NM
NAGPRA Coordinator Southern Ute Tribe Ignacio, CO	Governor Pueblo of Zuni Zuni, NM
Chairman Ute Mountain Ute Tribe Towaoc, CO	Manager Zuni Cultural Resources Enterprise Zuni, NM
Tribal Cultural Representative Ute Mountain Ute Tribe Towaoc, CO	Manager Uintah & Ouray Agency Bureau of Indian Affairs Fort Duchesne, UT
Chairwoman Uintah and Ouray Tribal Business Committee Fort Duchesne, UT	Chairwoman Paiute Indian Tribe of Utah Cedar City, UT
Director Cultural Rights and Protection Fort Duchesne, UT	Cultural Resources Director Paiute Indian Tribe of Utah Cedar City, UT
Public Libraries	**Adjoining State Agencies**
Public Reading Room Salt Lake City Public Library 210 East 400 South Salt Lake City, UT 84111	Colorado Division of Wildlife Grand Junction, CO
Grand County Public Library 257 East Center Moab, UT 84532	

Table 5.11. Distribution List Proposed RMP/Final EIS

San Juan County Public Library P.O. Box 66 Monticello, UT 84535	
Public Reading Room Marriott Library University of Utah 295 S. 1500 East Salt Lake City, UT 84112-0860	
Mesa County Public Library Public Reading Room 530 Grand Avenue Grand Junction, CO 81502-5019	
Library of Congress 101 Independence Avenue SE Washington DC 20540	

5.8 List of Preparers

The BLM Moab FO PRMP/FEIS was written and produced by a team composed of Moab FO interdisciplinary resource specialists and SWCA Inc., an independent, third-party consulting firm. In accordance with 40 CFR 1506.5(c), SWCA certified that it does not have any financial or other interest in the outcome of the decisions made pursuant to this RMP/EIS. Under the guidance and direction of the BLM, and in collaboration with the cooperating agencies, the team developed alternatives, collected baseline data to be used in the analysis, assessed potential affects of the alternatives, and prepared all the necessary elements of an RMP/EIS with additional participation, comments, and critique from the cooperating agencies and resource specialists with the BLM Utah State Office. Table 5.8 lists the name, position, and planning role of the team members associated with preparation of the PRMP/FEIS.

Table 5.12. List of Preparers

Name	Position	Education	Planning Role
BLM			
Ann Marie Aubry	Hydrologist	B.S.	Air Quality, Soils/Watershed
Dusty Carpenter	Ecology SCEP	B.S.	Livestock Grazing
Jean Carson	GIS Specialist		GIS Mapping
Kate Juenger	Planning Coordinator, Fire		
Brent Northrup	Resource Advisor	B.S.	RMP Project Manager, Minerals, Health and Safety
Marilyn Peterson	Outdoor Recreation Planner	B.S.	Wild and Scenic Rivers

Table 5.12. List of Preparers

Name	Position	Education	Planning Role
Pam Riddle	Wildlife Biologist	B.S.	Wildlife and Fisheries, Special Status Animal Species
Bill Stevens	Planning Specialist	Ph D.	Wilderness, Socioeconomics, Travel
Katie Stevens	Outdoor Recreation Planner	Ph D.	Areas of Critical Environmental Concern, Recreation
Rob Sweeten	Landscape Architect	B.S.	Visual Resource Management
Daryl Trotter	Environmental Protection Specialist	B.S.	NEPA Specialist, Riparian, Special Status Plant Species, Vegetation, Woodlands
Donna Turnipseed	Archaeologist	B.S.	Cultural, Paleontology, National Historic Trails
Mary von Koch	Realty Specialist	M.S.	Lands and Realty
Doug Wight	GIS Coordinator	M.S.	GIS Mapping
Dave Williams	Range Conservationist	B.S.	Livestock Grazing
Maggie Wyatt	Moab Field Office Manager	M.A.	Management
SWCA Inc.			
Laura Burch	Environmental Planner	M.P.A.	Socioeconomics, Hazardous Materials
Linda Burfitt	Technical Editor	B.A.	General
Karl Chalker	Technical Editor	M.A.	General
Tonya Dombrowski	Environmental Chemist	Ph D.	Air Quality
Sherri Ellis	Cultural Resources Lead	M.S.	Cultural Resources, Lands and Realty
Janet Guinn	Project Coordinator	B.A.	Project Coordination, Formatting
David Harris	NEPA Specialist	M.S.	Recreation, Travel, Visual Resource Management, Woodlands
Kristen Knippenberg	Resource Specialist, Technical Editor	M.F.A.	Minerals, editing
Greg Larson	Resource Specialist	M.S.	Fire, Lands, Soils
Cynthia Manseau	Technical Editor	B.A.	General
Susan Martin	Ecologist	M.S.	Special Status Plant Species, Vegetation
Eric McCulley	Geologist	B.S.	Riparian, Soils/Watershed
Molly Mollenaar	Cultural Anthropologist	M.A.	Native American Consultation

Table 5.12. List of Preparers

Name	Position	Education	Planning Role
Paul Murphey	Principal Investigator, Paleontology	Ph D.	Paleontology
Matt Peterson	Principal Ecologist	M.S.	NEPA Specialist/QA/QC
Deb Reber	Natural Resource Planner	B.S.	Project Manager/QA/QC
Jan Reed	Ecologist	B.A.	Livestock Grazing
Dave Reinhart	GIS Coordinator	B.A.	GIS Mapping
Tyson Schreiner	GIS Coordinator	B.S.	GIS Mapping
Thomas Sharp	Ecologist	M.S.	Special Status Animal Species, Wildlife
Sherri Wysong	Resource Specialist	B.S.	Special Designations, Wilderness Characteristics

ACRONYMS AND GLOSSARY

ACRONYMS

ACEC	Area of Critical Environmental Concern
AML	Abandoned mine lands
AMP	Allotment Management Plan
AMS	Analysis of the Management Situation
APD	Application for Permit to Drill (an oil or gas well)
APHIS	Animal and Plant Health Inspection Service (USDA)
ARPA	Archeological Resource Protection Act (of 1979)
AUM	Animal unit month
BA	Biological Assessment
BCC	Birds of Conservation Concern
BCF	Billion cubic feet (a measure of quantity of natural gas)
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act (of 1970)
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (of 1980)
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second (a unit of water flow)
CO	Carbon Monoxide
COA	Conditions of Approval
CRMP	Cultural Resource Management Plan
CSU	Controlled Surface Use
DEIS	Draft Environmental Impact Statement
DFC	Desired Future Condition
DOGM	(Utah) Division of Oil, Gas and Mining

DOI	(United States) Department of the Interior
DPC	Desired Plant Community
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPCA	Energy Policy and Conservation Act (of 1975)
ERMA	Extended Recreation Management Area
ESA	Endangered Species Act (of 1973)
ESR	Emergency Stabilization and Rehabilitation
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act (of 1976)
FMP	Fire Management Plan
FMZ	Fire Management Zone
FO	Field Office
FR	Federal Register
GAP	Geographical Analysis Program
GIS	Geographic Information Systems
HFRA	Healthy Forests Restoration Act (of 2003)
HMA	Herd Management Area
HMAP	Herd Management Area Plan
HMP	Habitat Management Plan
HUC	Hydrologic Unit Code
IBLA	Interior Board of Land Appeals
IMP	Interim Management Policy
KRCRA	Known Recoverable Coal Resource Area
LTA	Land Tenure Agreement
LUP	Land Use Plan
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act (of 1918)
MCF	Thousand cubic feet

MMCF	Million cubic feet
MOU	Memorandum of Understanding
MFO	Moab Field Office
MPA	Moab Planning Area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act (of 1990)
NEPA	National Environmental Policy Act (of 1969)
NHPA	National Historic Preservation Act
NOx	Nitrogen Oxides
NO_2	Nitrogen Dioxide
NOA	Notice of Availability (published in the Federal Register)
NOI	Notice of Intent (published in the Federal Register)
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
NSO	No Surface Occupancy (a stipulation on an oil and gas lease)
NWSRS	National Wild and Scenic River System
OHV	Off-Highway Vehicle
ORV	Off Road Vehicle (an older acronym, replaced by OHV)
PFC	Proper Functioning Condition (of riparian/wetland areas)
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter (less than 2.5 microns in diameter)
PM_{10}	Particulate Matter (less than 10 microns in diameter)
R&I	Relevance and Importance
R&PP	Recreation and Public Purposes (Act of 1926)
RAMP	Recreation Area Management Plan
RDCC	(Utah) Resource Development and Coordinating Committee
RFD	Reasonably Foreseeable Development
RHS	Rangeland Health Standards
RMIS	Recreation Management Information System
RMP	Resource Management Plan (BLM land use plan under FLPMA)

ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right of Way
S&G	Standards & Guidelines
SHPO	State Historic Preservation Officer
SITLA	(Utah) School and Institutional Trust Lands Administration
SOx	Sulfur Oxides
SO_2	Sulfur Dioxide
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SWREGAP	Southwest Regional Geographical Analysis Program
T&E	Threatened and/or Endangered (species as per ESA of 1973)
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TPY	Tons Per Year
UAAQS	Utah Ambient Air Quality Standards
UAC	Utah Administrative Code
UDA	Utah Division of Aeronautics
UDAQ	Utah Department of Air Quality
UDEQ	Utah Division of Environmental Quality
UDOGM	Utah Division of Oil, Gas, and Mining
UDOT	Utah Department of Transportation
UDWaR	Utah Division of Water Resources
UDWQ	Utah Division of Water Quality
UDWR	Utah Division of Wildlife Resources
UGS	Utah Geological Survey
USFWS	United States Fish and Wildlife Service
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USGS	United States Geological Survey

VRM	Visual Resource Management
WAFWA	Western Association for Fish and Wildlife Agencies
WMA	Wildlife Management Area
WSA	Wilderness Study Area
WSR	Wild and Scenic River(s) (Act of 1973)
WUI	Wildland Urban Interface

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GLOSSARY

Activity Plan: Site-specific plan which precedes actual development. This is the most detailed level of BLM planning.

All-Terrain Vehicle (ATV): A wheeled or tracked vehicle, other than a snowmobile or work vehicle, designed primarily for recreational use or for the transportation of property or equipment exclusively on undeveloped road rights of way, open country or other unprepared surfaces.

Allotment: An area of land where one or more livestock operators graze their livestock. Allotments generally consist of BLM lands but may also include other federally managed, state owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Categorization: Grazing allotments and rangeland areas used for livestock grazing are assigned to an allotment category during resource management planning. Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. Categorization is also used to organize allotments into similar groups for purposes of developing multiple use prescriptions, analyzing site-specific and cumulative impacts, and determining trade-offs.

Animal Unit Month (AUM): A standardized measurement of the amount of forage necessary for the sustenance of one cow unit or its equivalent for 1 month. Approximately 800 pounds of forage.

Area of Critical Environmental Concern (ACEC): Areas within the public lands where special management attention is required to: (1) protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or (2) protect life and safety from natural hazards.

Authorized Officer: The Federal employee who has the delegated authority to make a specific decision.

Avoidance Areas: Areas with sensitive resource values where rights-of-way leases, and easements would be strongly discouraged. Authorization made in avoidance areas would have to be compatible with the purpose for which the area was designated and not is otherwise feasible on lands outside the avoidance area.

Best Management Practices (BMPs): A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes. Best management practices are often developed in conjunction with land use plans, but they are not considered a land use plan decision unless the land use plan specifies that they are mandatory. They may be updated or modified without a plan amendment if they are not mandatory.

Big Game: Large species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

Browse: To browse (verb) is to graze; also, browse (noun) is the tender shoots, twigs, and leaves and shrubs often used as food by livestock and wildlife.

Candidate Species: Any species included in the Federal Register notice of review that are being considered for listing as threatened or endangered by the U.S. Fish and Wildlife Service.

Casual Use: Mining activities that only negligibly disturb federal lands and resources. Casual use generally includes the collecting of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, and nonmotorized sluicing. It also generally includes use of metal detectors, gold spears, and other battery-operated devices for sensing the presence of minerals, and hand battery-operated dry washers. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, suction dredges, motorized vehicles in areas designated as closed to off-road vehicles, chemicals, or explosives. It also does not include occupancy or operations where the cumulative effects of the activities result in more than negligible disturbance.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs.

Code of Federal Regulations (CFR): The official, legal tabulation or regulations directing federal government activities.

Collaboration: A cooperative process in which interested parties, often with widely varied interests, work together to seek solutions with broad support for managing public and other lands. This may or may not involve an agency as a cooperating agency.

Competitive Forage: Those forage species utilized by two or more animal species.

Conditions of Approval: Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

Conformance: That a proposed action shall be specifically provided for in the land use plan or, if not specifically mentioned, shall be clearly consistent with the goals, objectives, or standards of the approved land use plan.

Conservation Agreement: A formal signed agreement between the U.S. Fish and Wildlife Service or National Marine Fisheries Service and other parties that implements specific actions, activities, or programs designed to eliminate or reduce threats or otherwise improve the status of a species. CA's can be developed at a State, regional, or national level and generally include multiple agencies at both the State and Federal level, as well as tribes. Depending on the types of commitments the BLM makes in a CA and the level of signatory authority, plan revisions or amendments may be required prior to signing the CA, or subsequently in order to implement the CA.

Conservation Strategy: A Strategy outlining current activities or threats that are contributing to the decline of a species, along with the actions or strategies needed to reverse or eliminate such a decline or threats. Conservation strategies are generally developed for species of plants and animals that are designated as BLM Sensitive species or that have been determined by the Fish and Wildlife Service or National Marine Fisheries Service to be Federal candidates under the Endangered Species Act.

Contiguous: Lands or legal subdivisions having a common boundary; lands having only a common corner are not contiguous.

Cooperating Agency: Assists the lead Federal agency in developing an Environmental Analysis or Environmental Impact Statement. The Council on Environmental Quality regulations implementing NEPA defines a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA. Any tribe of Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Corridor: A wide strip of land within which a proposed linear facility could be located.

Council on Environmental Quality (CEQ): An advisory council to the President of the United States established by the national Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the president on environmental matters.

Critical Habitat. For listed species: Consists of 1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act, on which are found those physical or biological features (constituent elements) a) essential to the conservation of the species and b) which may require special management considerations or protection; and 2) specific areas outside the geographical are occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act upon a determination by the Secretary that such areas are essential for the conservation of the species. Designated critical habitats are described in 50 CFR§ 17 and 226.

Crucial Habitat. Habitat on which a species depends for survival because there are no alternative ranges or habitats available.

Crucial Winter Habitat (Range): Parts of the habitat necessary to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on the populations, such as breeding habitat, winter habitat, etc.

Cryptobiotic (Cryptogrammic) Soils: Biological communities that form a surface layer or crust on some soils. These communities consist of cyanobacteria (blue-green bacteria), micro fungi, mosses, lichens, and green algae and perform many important functions, including fixing nitrogen and carbon, maintaining soil surface stability, and preventing erosion. Crypto biotic crusts also influence the nutrient levels of soils and the status and germination of plants in the desert. These crusts are slow to recover after severe disturbance, requiring 40 years of more to recolonize even small areas.

Cultural Resources: Nonrenewable elements of the physical and human environment including archeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally utilized raw materials, etc.).

Cultural Site: Any location that includes prehistoric and/or historic evidence of human use or that has important sociocultural value.

Cumulative Impact: The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative

impacts can result from individually minor but collectively significant actions taking place over a period of time.

Current Habitat: habitat currently occupied by a species during the development of the plan.

Desired Condition: Description of those factors, which should exist within ecosystems both to maintain their survival and to meet social and economic needs.

Development Well: A well drilled within the known or proven productive area of an oil field with expectation of producing oil or gas from the producing reservoir.

Discretionary Closure: Those lands where the BLM has determined that fluid minerals leasing, even with the most restrictive stipulations, would not adequately protect other resources, values, or land uses.

Dispersed/Extensive Recreation: Recreation activities of an unstructured type, which are not confined to specific locations such as recreation sites. Example of these activities may be hunting, fishing, off-road vehicle use, hiking, and sightseeing.

Disturbance Area: Area of influence around a disturbance causing a change in animal behavior such as: leaving the area, increased stress, abandoning young, not breeding, and aberrant behavior.

Drought: Drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield.

Easement: A right afforded a person or agency to make limited use of another's real property for access or other purposes.

Endangered Species: A plant or animal species whose prospects for survival and reproduction are in immediate jeopardy, as designated by the Secretary of the Interior, and as is further defined by the Endangered Species Act.

Environmental Assessment (EA): A concise public document that analyzes the environmental impacts of a proposed federal action and provides sufficient evidence to determine the level of significance of the impacts.

Environmental Impact Statement (EIS): A detailed written statement required by the National Environmental Policy Act when an agency proposes a major federal action significantly affecting the quality of the human environment.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents.

Exclusion Area: Areas with sensitive resource values where rights-of-way , leases, and easements would not be authorized.

Extensive Recreation Management Area (ERMA): An area where significant recreation opportunities and problems are limited and explicit recreation management is not required. Minimal management actions related to the BLM's stewardship responsibilities are adequate in these areas.

Fawning Habitat: an area where big game animals usually give birth during a specific time of year.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579. October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy, and basic management guidance.

Federal Register: A daily publication, which reports Presidential and Federal Agency documents.

Fire Management Plan: A strategic plan that defines a program to manage wild land and prescribed fires and documents the fire management program in the approved land use plan; the plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Floodplain: The relatively flat area or lowlands adjoining a body of standing or flowing water, which has been or might be covered by floodwater.

Fluid Minerals: Oil and gas resources.

Focus Area: A recreation management zone that emphasizes particular types of recreation activities.

Fossil: Mineralized or petrified form from a past geologic age, especially from previously living things.

Geographic Information System (GIS): A computer system capable of storing, analyzing, and displaying data and describing places on the earth's surface.

Goal: A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established time frames for achievement.

Grandfather (to): To exempt groups or individuals from provisions of laws or regulations because of preexisting conditions, such as exempting mining operations existing before new mining regulations are implemented from provisions of those new regulations.

Grazing System: The manipulation of livestock grazing to accomplish a desired result.

Guidelines: Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as best management practices. Guidelines may be identified during the land use planning process, but they are not considered a land use plan decision unless the plan specifies that they are mandatory.

Habitat: A specific set of physical conditions that surround a species, group of species, or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover, and living space.

Habitat Fragmentation: The disruption (by division) of extensive habitats into smaller habitat patches. The effects of habitat fragmentation include loss of habitat area and the creation of smaller, more isolated patches of remaining habitat.

Historic Habitat: habitat occupied by a species prior to the development of this plan.

Impact: A modification of the existing environment caused by an action. These environmental consequences are the scientific and analytical basis for comparison of alternatives. Effects may be either direct, which are caused by the action and occur at the same time and place, or indirect,

which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, or cumulative.

Implementation Decisions: Decisions that take action to implement land use plan decisions. They are generally appealable to Interior Board of Land Appeals.

Implementation Plan: A site-specific plan written to implement decisions made in a land use plan. An implementation plan usually selects and applies best management practices to meet land use plan objectives. Implementation plans are synonymous with "activity" plans. Examples of implementation plans include interdisciplinary management plans, habitat management plans, and allotment management plans.

Indian Tribe: Any Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing tribal status.

Interdisciplinary Team: A group of individuals with different training, representing the physical sciences, social sciences, and environmental design arts, assembles to solve a problem or perform a task. The members of the team proceed to a solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions. The number and disciplines of the members preparing the plan vary with circumstances. A member may represent one or more disciplines or BLM program interests.

Lambing Habitat: An area where bighorn sheep deliver and nurse young during a specific time of year.

Land Use Allocation: The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions.

Land Use Plan: A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan-level decisions developed through the planning process, regardless of the scale at which the decisions were developed.

Land Use Plan Decision: Establishes desired outcomes and the actions needed to achieve them. Decisions are reached using the BLM planning process. When they are presented to the public as proposed decisions, they can be protested to the BLM Director. They are not appealable to Interior Board of Land Appeals.

Leasable Minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, sulphur, potassium, and sodium minerals, and oil, gas, and geothermal.

Lease: (1) A legal document that conveys to an operator the right to drill for oil, gas; (2) the tract of land, on which a lease has been obtained, where producing wells and production equipment are located.

Lease Notice: Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, and operational orders. A Lease Notice also addresses special items the lessee would consider when planning operations, but does not impose new or additional restrictions.

Lease Stipulation: A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek: An assembly area where birds, especially sage grouse, carry on display and courtship behavior.

Limited Roads and Trails Designation: Designated areas where the use of off-road vehicles is subject to restrictions, such as limiting the number or types or vehicles allowed, dates and times of use (seasonal restrictions), and limiting all use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use. Combinations of restrictions are possible, such as limiting use to certain types of vehicles during certain times of the year.

Locatable Minerals: Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

Management Decision: A decision made by the BLM to manage public lands. Management decisions are made on both land use plan decisions and implementation decisions.

Management Opportunities: A component of the analysis of the management situation; actions or management directions that could be taken to resolve issues or management concerns.

Mechanized Travel: Travel by use of a machine, either motorized or non-motorized.

Mineral Entry: The filing of a claim on public land to obtain the right to any minerals it may contain.

Mineral Estate: The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral Materials: Materials such as common varieties of sand, stone, building stone, gravel, and clay that are not obtainable under the mining or leasing laws but that can be acquired under the Mineral Materials Act of 1947, as amended. These are also called salable minerals.

Mineral Reserves: Known mineral deposits that are recoverable under present conditions but are as yet undeveloped.

Mineral Withdrawal: A formal order that withholds federal lands and minerals from entry under the Mining Law of 1872 and closes the area to mineral location (staking mining claims) and development.

Minimize: To reduce the adverse impact of an operation to the lowest practical level.

Mining Claim: A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law of 1872, as amended, and local laws and rules. A single mining claim may contain as many adjoining locations as the locator may make or buy.

Mitigation Measures: Methods or procedures that reduce or lessen the impacts of an action.

Multiple Use: The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the lands for some or all of these resources or related

services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some lands for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources, including but not limited to, recreation, range, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the lands and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or greatest unit output.

National Environmental Policy Act of 1969 (NEPA): An act that encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches the understanding or the ecological systems and natural resources important to the Nation, and establishes the Council on Environmental Quality.

National Wild and Scenic Rivers System: A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three river classifications: (1) recreation-rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past, (2) scenic-rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and (3) wild-rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

Neotropical Migratory Birds: Birds that travel to Central America, South America, the Caribbean, and Mexico during the fall to spend the winter and then return to the United States and Canada During the spring to breed. These birds include almost half of the bird species that breed in the United States and Canada.

No Surface Occupancy (NSO): A fluid minerals leasing constraint that prohibits occupancy or disturbance on all or part of the lease surface to protect special values or uses. Lessees may exploit the fluid mineral resources under the leases restricted by this constraint through use of directional drilling from sites outside the area.

Non-mechanized Travel: Travel by foot or on an animal.

Non-WSA Lands with Wilderness Characteristics: Undeveloped federal land that has been inventoried and/or reviewed by a BLM interdisciplinary team and determined to possess wilderness characteristics such as those listed in section 2(c) of the Wilderness Act of 1964. These lands do not possess special management designations like WSAs or protective management measures such as the IMP.

Noxious Weeds: A plant species designated by Federal of State law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the United States.

Objective: A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established time frames for achievement.

Occupied Habitat: An area occupied by a species during the development of this plan.

Open: Generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs.

Off-Highway Vehicle (OHV): Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies.

One-Hundred-Year Flood: A hydrologic event with a magnitude that has a recurrence interval of 100 years.

Open OHV Areas: Designated areas where off-road vehicles may engage in cross country travel.

Operator: Any person who has taken formal responsibility for the operations conducted on the leased lands.

Outstandingly Remarkable River Values: Values between those listed in Section 1(b) of the Wild and Scenic Rivers Act are "scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values…" Other similar values, which may be considered, include botanical, hydrological, paleontological, or scientific. Professional judgment is used to determine whether values exist to an outstandingly remarkable degree.

Paleontological Resources (Fossils): The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

Paleontology: A science dealing with the life forms of past geological periods as known from fossil remains.

Plan of Development: A mandatory plan, developed by an applicant of a mining operation or construction project that specifies the techniques and measures to be used during construction and operation of all project facilities on public land. The plan is submitted for approval to the appropriate Federal agency before any construction begins.

Plan of Operations: A plan for mining exploration and development that an operation must submit to BLM for approval when more than 5 acres a year will be disturbed or when an operator plans to work in an area of critical environmental concern or a wilderness area. A plan of Operations must document in detail all actions that the operator plans to take from exploration through reclamation.

Planning Area: A geographical area, including all land ownerships, for which BLM land use and resource management plans are developed and maintained for the BLM-administered lands within that geographical area.

Planning Criteria: The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Potential Wild and Scenic River: A flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, rills, and small lakes.

Prescribed Fire: The introduction of fire to an area under regulated conditions for specific management purposes.

Primitive and Unconfined Recreation: Non-motorized, non-mechanized and undeveloped types of recreational activities.

Production Well: A well drilled in a known field that produces oil or gas.

Project Area: The area of land upon which an operator conducts mining operations, including the area needed for building or maintaining of roads, transmission lines, pipelines, or other means of access.

Project Plan: Detailed survey and design plan.

Public Land: Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM, except lands located on the Outer Continental Shelf, and land held for the benefit of Indians, Aleuts, and Eskimos.

Quarry: An open or surface working, usually for the extraction of stone, slate, limestone, etc.

Range Development: A structure, excavation, treatment or development to rehabilitate, protect, or improve lands to advance range betterment.

Rangeland: Land used for grazing by livestock and big game animals on which vegetation is dominated by grasses, grass-like plants, forbs, or shrubs.

Raptor: Bird of prey with sharp talons and strongly curved beaks such as hawks, owls, vultures, and eagles.

Reasonably Foreseeable Development Scenario (RFD): The prediction of the type and amount of oil, gas and other mineral activity that would occur in a given area. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

Record of Decision (ROD): A document signed by a responsible official recording a decision that was preceded by the preparing of an environmental impact statement.

Recreational River: A wild and scenic river classification that identifies those rivers are river segments that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Relict: A remnant or fragment of the vegetation of an area that remains from a former period when the vegetation was more widely distributed.

Resource Management Plan (RMP): A land use plan as prescribed by the Federal Land Policy and Management Act which establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives and actions to be achieved.

Right-of-Way (ROW): A ROW grant is an authorization to use a specific piece of public land for a specific project, such as roads, pipelines, transmission lines, and renewable energy and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time.

Riparian Area: A form of wetland transition between permanently saturated wetlands and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

Riparian-Functioning at Risk (FAR): Riparian-wetland areas are considered to be in functioning condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Riparian-Non-Functioning (NF): Riparian-wetland areas that are clearly not providing adequate vegetation, landform, or large wood debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc.

Riparian-Properly Functioning Condition (PFC): Riparian/wetland areas are in PFC when adequate vegetation, landform, or woody debris is present to: dissipate high-energy water flow, filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks; develop diverse fluvial geomorphology (pool and channel complexes) to provide habitat for wildlife and support greater biodiversity

Rock Art: Petroglyphs or pictographs.

Route: A linear line for motorized travel.

Rutting Habitat: An area where big game species engage in breeding activities during specific times of the year.

Salable Minerals: Common variety minerals on the public lands, such as sand and gravel, which are used mainly for construction and are disposed of by sales or special permits to local governments. Also referred to as mineral materials.

Scenic Byways: Highway routes, which have roadsides or corridors of special aesthetic, cultural, or historic value. An essential part of the highway is its scenic corridor. The corridor may contain outstanding scenic vistas, unusual geologic features, or other natural elements.

Scoping: The process of identifying the range of issues, management concerns, preliminary alternatives, and other components of an environmental impact statement or land-use planning document. It involves both internal and public viewpoints.

Section 7 Consultation: The requirement of Section 7 of the Endangered Species Act that all federal agencies consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

Section 106 Compliance: The requirement of Section 106 of the National Historic Preservation Act that any project funded, licensed, permitted, or assisted by the Federal Government by

reviewed for impacts to significant historic properties and that the State Historic Preservation Officer and the Advisory Council on Historic Preservation be allowed to comment on a project.

Sediment Yield: The amount of sediment produced in a watershed, expressed in tons, acre feet, or cubic yards, of sediment per unit of drainage are per year.

Sensitive Species: All species that are under status review, have small or declining populations, live in unique habitats, or need special management. Sensitive species include threatened, endangered, and proposed species as classified by the Fish and Wildlife Service and National Marine Fisheries Service.

Significant: An effect that is analyzed in the context of the proposed action to determine the degree or magnitude of importance of the effect, wither beneficial or adverse. The degree of significance can be related to other actions with individually insignificant but cumulatively significant impacts.

Slope: The degree of deviation of a surface from the horizontal.

Special Recreation Management Area (SRMA): Areas, which require explicit recreation management to achieve recreation objectives and provide specific recreation opportunities.

Special Status Species: Includes proposed species, listed species, and candidate species under the Endangered Species Act; State-listed species; and BLM State Director-designated sensitive species (see BLM Manual 6840-Special Status Species Policy).

Stipulations: Requirements that are part of the terms of a mineral lease. Some stipulations are standard on all Federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency to protect valuable surface resources and uses.

Strategic Plan: A plan that establishes the overall direction for the BLM. This plan is guided by the requirements of the Government Performance and Results Act or 1993, covers a 5-year period, and is updated every 3 years. It is consistent with FLPMA and other laws affecting the public lands.

Surface Disturbance: activities that normally result in more than negligible disturbance to public lands and that accelerate the natural erosive process. These activities normally involve use and/or occupancy of the surface, cause disturbance to soils and vegetation, and are usually caused by motorized or mechanical actions. Surface disturbance may result from activities using earth-moving and drilling equipment; geophysical exploration; off road vehicle travel; vegetation treatments; the use of pyrotechnics and explosives; and construction of facilities like powerlines, pipelines, oil and gas wells, recreation sites, livestock facilities, wildlife waters, or new roads. Surface disturbance is not normally caused by casual use. Activities that are not typically surface disturbing include, but are not limited to, proper livestock grazing, cross-country hiking, minimum impact filming and vehicle travel on designated routes.

Sustainability: The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Threatened Species: Any plant or animal species defined under the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range; listings are published in the Federal Register.

Timing Limitation Stipulation: A fluid minerals leasing constraint that prohibits surface use during specified time periods to protect identified resource values. The constraint does not apply to the operation and maintenance of production facilities unless analysis demonstrates that such constraints are needed and that less stringent, project-specific constraints would be insufficient.

Undertaking: (16 USC Sec. 470w(7)) A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

User Day: Any calendar day, or portion thereof, for each individual accompanied or serviced by an operator or permittee on the public lands of related waters; synonymous with passenger day or participant day.

Utility Corridor: A parcel of land that has been identified by law, Secretarial order, through a land use plan or by other management decision as being the preferred location for existing and future right-of-way grants and suitable to accommodate one type of right-of-way or one or more rights-of-way which are similar, identical or compatible.

Valid Existing Rights: Valid existing rights are legal rights to use the land that were in existence prior to implementation of the decisions in the RMP. The most significant types of valid existing rights are oil and gas leases, potash and salt leases, mining claims, and right-of-way authorizations. The oil and gas leasing stipulations specified for specific areas in the RMP would not apply to existing leases. These existing leases would be subject to the specific lease stipulations that were applied under the previous land use plan. Mining claims that exist on the effective day of a withdrawal may still be valid if they can meet the test of discovery of a valuable mineral required under the Mining Laws. An existing right-of-way would only be subject to the specific terms and conditions that were applied when it was authorized even if it is located within a right-of-way exclusion or avoidance area specified under the RMP.

Vegetation Manipulation: Alteration of vegetation by using fire, plowing, or other means.

Vegetation Type: A plant community with distinguishable characteristics described by the dominant vegetation present.

Visual Resources: The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Waiver: Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Water Quality: The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

Watershed: All lands, which are enclosed by a continuous hydrologic drainage, divide and lay upslope from a specified point on a stream.

Way: A vehicle route within a wilderness study area that was in existence and identified during the FLPMA Section 603-mandated wilderness inventory. The *Interim Management Policy for Lands under Wilderness Review (H-8550-1)* defines a way as "a trace maintained solely by the passage of vehicles which has not been improved and/or maintained by mechanical means to

ensure relatively regular and continuous use." The term is also used during wilderness inventory to identify routes that are not roads. The term developed from the definition of the term "roadless" provided in the *Wilderness Inventory Handbook* (September 27, 1978), as follows: "roadless: refers to the absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road."

Wild, Scenic or Recreational River: The three classes of what is traditionally referred to as a "Wild and Scenic River." Designated river segments are classified as wild, scenic and/or recreational, but the segments cannot overlap.

Wild, and Scenic River Study: Rivers identified in Section 5 of the Wild and Scenic Rivers Act for study as potential additions to the National Wild and Scenic Rivers System. The rivers shall be studied under the provisions of Section 4 of the Wild and Scenic Rivers Act.

Wilderness Study Area: A roadless area or island of undeveloped federal land that has been inventoried and found to possess wilderness characteristics described under Title VI, Section 603 of FLPMA and Section 2C of the Wilderness Act of 1964. These characteristics are: (1) generally appears to have been affected mainly by the forces of nature, with human imprints substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres or is large enough to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Wilderness: A congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation that is protected and managed to preserve its natural conditions as described in Section 2A of the Wilderness Act of 1964.

Wilderness Characteristics: Features of the land associated with the concept of wilderness that specifically deal with naturalness and opportunities for solitude and primitive and unconfined recreation. These characteristics may be considered in land use planning when BLM determines that those characteristics are reasonably present, of sufficient value (condition, uniqueness, relevance, importance), and need (trend, risk), and are practical to manage (from IM-2003-275, Change 1, Considerations of Wilderness Characteristics in LUP, Attachment 1). Key characteristics of wilderness listed in section 2 (c) of the Wilderness Act of 1964 were used by BLM in conducting wilderness inventories. These characteristics are features of land associated with the concept of wilderness.

Wildfire: Any unwanted wild land fire.

Wildland Fire: Any nonstructural fire, other than prescribed fire, that occurs in the wild land.

Winter Range. The portion of the winter range to which a wildlife species is confined during periods of heaviest snow cover.

Withdrawal: An action that restricts the use of public lands by removing them from the operation of some or all of the public land or mining laws.

Woodland: A forest community occupied primarily by noncommercial species such as juniper, mountain mahogany, or quaking aspen groves; all western juniper forestlands are classified as woodlands, since juniper is classified as a noncommercial species.

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REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for Hydrogen Sulfide. Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, Atlanta, Georgia.

Anyon, Roger. 1995. Letter to the Editor. *Society for American Archaeology Bulletin* 13(5).

Armour, C., D. Duff, and W. Elmore. 1994. The effects of livestock grazing on western riparian and stream ecosystems. *Fisheries* 19: 9-12.

Atwood, D., J. Holland, R. Bolander, B. Franklin, D. E. House, L. Armstrong, K. Thorne, and L. England. 1991. Utah Threatened, Endangered, and Sensitive Plant Field Guide. Bureau of Land Management, Utah State Office, Salt Lake City.

Atwood, G., and H. H. Doelling. 1982. History of Paradox Salt Deformation. Utah Geological and Mineral Survey Notes, Volume 16, No. 2. Utah Geological Survey, Salt Lake City.

Bearnson, Margaret S. 1994. Moab [online publication]. Utah History Encyclopedia, University of Utah Press. [Last Accessed June 18, 2007]. Available at http://www.media.utah.edu/UHE/m/MOAB.html.

Belsky, A. Joy, and Dana M. Blumenthal. 1997. Effects of livestock grazing on stand dynamics and soils in upland forests of the Interior West. *Conservation Biology* 11(2):315-327.

Bon, R. L., and Sharon Wakefield. 2002a. Map of large mine permits in Utah, 2002. In Utah Geological Survey Open File Report 398, 3 p., 1 pl. Approximate scale 1" = 14 miles.

Bon, R. L., and Sharon Wakefield. 2002b. Map of small mine permits in Utah, 2002. In Utah Geological Survey Open File Report 405, 7 p., 1 pl. Approximate scale 1:750,000.

Brown, P. E. 1996. A survey for bats of the Soledad Mountain project, Mojave, Kern County, California [online publication]. Bureau of Land Management, California State Office, Sacramento. [Accessed April 13, 2005]. Available at http://www.ca.blm.gov/GoldenQueen/pub-biob.htm.

Brugge, D. 1983. Navajo Prehistory and History to 1850. In *Southwest*, edited by A. Ortiz, pp. 489-501. Handbook of North American Indians, Vol. 10, W. Sturtevant, general ed. Smithsonian Institute, Washington, D.C.

Buckles, W. 1971. The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology of the Uncompahgre Plateau, West Central Colorado. PhD dissertation, Department of Anthropology, University of Colorado. University Microfilms, Ann Arbor.

Buechner, H. K. 1960. The bighorn sheep in the United States: Its past, present and future. Wildlife Monograph 4. The Wildlife Society, Washington, D.C.

Bureau of Economic Analysis (BEA). 2005. Regional Economic Accounts [online database]. Bureau of Economic Analysis, U.S. Department of Commerce. [Accessed December 21, 2005]. Available at http://www.bea.gov/bea/regional/definitions/nextpage.cfm?key=Per%20capita%20personal%20income.

Bureau of Land Management (BLM). 1979. Desolation and Gray Canyons of the Green River Management Plan [online publication]. Bureau of Land Management, Price River Resource Area, Moab District, Moab, Utah. [Last Accessed June 15, 2007]. Available at http://www.ut.blm.gov/planning/OTHERS/DESOGRP%20JUNE%201979.PDF.

BLM. 1982. Management Situation Analysis for the Grand Resource Area. Bureau of Land Management, Grand Resource Area, Moab District, Moab, Utah.

BLM. 1985a. Grand Resource Area Resource Management Plan. Bureau of Land Management, Moab District, Moab, Utah.

BLM. 1985b. Final Environmental Impact Statement on the Book Cliffs Resource Management Plan. Bureau of Land Management, Vernal District, Vernal, Utah. July.

BLM. 1985c. Grand Junction Resource Area Resource Management Plan and Final Environmental Impact Statement. Bureau of Land Management, Grand Junction District, Grand Junction, Colorado.

BLM. 1985d. San Juan/San Miguel Resource Management Plan. Bureau of Land Management, Montrose District, Montrose, Colorado.

BLM. 1985e. Energy and Mineral Resources Assessment. Rel. 3-115. BLM Manual 3031. Bureau of Land Management, Washington, D.C. June 19.

BLM. 1986a. Statewide Desert Bighorn Sheep Management Plan. Bureau of Land Management, Utah State Office, Salt Lake City.

BLM. 1986b. Visual Resource Contrast Rating. BLM Handbook H-8431-1. Bureau of Land Management, Washington, D.C.

BLM. 1987. Uncompahgre Basin Resource Management Plan and Final Environmental Impact Statement. Bureau of Land Management, Uncompahgre District, Montrose, Colorado.

BLM. 1989a. San Rafael Resource Management Plan/Final Environmental Impact Statement. Bureau of Land Management, San Rafael District, Price, Utah. July.

BLM. 1989b. Planning Criteria for Land Tenure Adjustments, Exchanges, Acquisitions, and Disposals: An Amendment to the 1985 Grand Resource Area Resource Management Plan. Bureau of Land Management. Moab District, Moab, Utah. February.

BLM. 1990. Utah BLM Statewide Wilderness Environmental Impact Statement. Bureau of Land Management, Utah State Office, Salt Lake City.

BLM. 1991a. Final Environmental Impact Statement: Vegetation Treatment on BLM Lands in Thirteen Western States. BLM-WY-91-022-4320. Bureau of Land Management, Wyoming State Office, Cheyenne. May.

BLM. 1991b. Riparian-Wetland Initiative for the 1990s. BLM/WO/GI-91/001+4340. Bureau of Land Management, Denver, Colorado.

BLM. 1991c. Utah Statewide Wilderness Study Report. Bureau of Land Management, Utah State Office, Salt Lake City. October.

BLM. 1992a. Environmental Assessment: Utah's Colorado Riverway Recreation Area Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 1992b. Visual Resource Management. BLM Manual 8400. Bureau of Land Management, Washington, D.C.

BLM. 1993a. Diamond Mountain Resource Area Resource Management Plan and Environmental Impact Statement. Bureau of Land Management, Vernal District, Vernal, Utah. March.

BLM. 1993b. Bighorn Sheep Rangeland Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 1993c. Process for Assessing Proper Functioning Condition. TR-1737-9. Bureau of Land Management, Proper Functioning Condition Work Group, Denver.

BLM. 1993d. Greater Sagers Wash Watershed Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 1994a. Sand Flats Recreation Area Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 1994b. Mineral Reports, Preparation and Review. Rel. 3-284. BLM Manual 3060. Bureau of Land Management, Washington, D.C.

BLM. 1995. Interim Management Policy for Lands Under Wilderness Review. BLM Handbook H-8550-1. Bureau of Land Management, California State Office, Sacramento.

BLM. 1997a. Standards for Rangeland Health and Guidelines for Grazing Management of BLM Lands in Utah. BLM-UT-GI-97-001-4000. Bureau of Land Management, Utah State Office, Salt Lake City. May.

BLM. 1997b. Environmental Impact Statement for Lisbon Valley Copper Project, San Juan County, Utah. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 1998a. Revised Guidelines for Domestic Sheep and Goat Management in Native Wild Sheep Habitats. Instruction Memorandum No. 98-140. Bureau of Land Management, Washington, D.C.

BLM. 1998b. General Procedural Guidance for Paleontological Resource Management. BLM Handbook H-8270-1. Bureau of Land Management, Washington, D.C.

BLM. 1998c. A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. TR-1737-15. Bureau of Land Management, Proper Functioning Condition Work Group, Denver.

BLM. 1999. Utah Wilderness Inventory. Bureau of Land Management, Utah State Office, Salt Lake City.

BLM. 2000. Soils Suitability Extension (SSE), v1.0. An ArcView tool developed by the BLM for the management of soils. Bureau of Land Management, National Science and Technology Center, Denver.

BLM. 2001a. Colorado Riverway Special Recreation Area Management Plan Amendment. EA # UT-062-99-151. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2001b. Mill Creek Canyon Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2001c. Questar, Williams and Kern River Pipeline Draft Environmental Impact Statement. State # 01-533. Bureau of Land Management, Utah State Office, Salt Lake City.

BLM. 2001d. Biological Soil Crusts: Ecology and Management. TR 1730-2. Bureau of Land Management, National Science and Technology Center, Denver.

BLM. 2002a. Preparation Plan for the Moab Field Office Resource Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2002b. Standards for Public Land Health and Guidelines for Recreation Management for BLM Lands in Utah [online publication]. Bureau of Land Management, Utah State Office, Salt Lake City. [Last Accessed June 15, 2007]. Available at http://www.ut.blm.gov/Recreation/recstandards.html.

BLM. 2002c. Environmental Justice. Instruction Memorandum No. 2002-164. Bureau of Land Management, Washington, D.C. May.

BLM. 2002d. Draft BLM Sensitive Plant Species List. Bureau of Land Management, Utah State Office, Salt Lake City.

BLM. 2002e. Forest and Woodland Management Action Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2003a. Resource Management Plan and Environmental Impact Statement for the Colorado Canyons National Conservation Area and Black Ridge Canyons Wilderness. Bureau of Land Management, Grand Junction Field Office, Grand Junction, Colorado.

BLM. 2003b. Canyon Rims Recreation Area Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2003c. Moab Field Office Visual Resource Inventory Map. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2003d. Socioeconomic Profile - Pinedale. Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming. January.

BLM. 2003e. Native American Coordination and Consultation. BLM Manual 8160. Bureau of Land Management, Washington, D.C.

BLM. 2003f. General Procedural Guidance for Native American Consultation. BLM Handbook H-8160-1. Bureau of Land Management, Washington, D.C.

BLM. 2004a. Moab Field Office Land Ownership (Memorandum). Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2004b. Three Rivers Withdrawal. Bureau of Land Management, Moab Field Office, Moab, Utah and Price Field Office, Price, Utah.

BLM. 2004c. National Sage-grouse Habitat Conservation Strategy. Bureau of Land Management, Washington, D.C. November.

BLM. 2004d. Moab Field Office Analysis of Management Situation. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2004e. Moab Field Office Social and Economic Baseline Study. Bureau of Land Management, Moab Field Office, Moab, Utah. April.

BLM. 2004f. Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2004g. Wild and Scenic Rivers Review Eligibility Determination, Moab Field Office. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2004h. Email of development scenario questionnaire (developed by BLM NSTC-AQ staff), from Dave Moore, BLM, Vernal Field Office, to Craig Nicholls, BLM, April 12.

BLM. 2005a. Land Use Planning Handbook. BLM Handbook H-1601-1. Bureau of Land Management, Washington, D.C.

BLM. 2005b. Cameo Cliffs Special Recreation Management Area Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2005c. Utah Land Use Plan Amendment for Fire and Fuels Management, September. UT-USO-04-01 [online publication]. Bureau of Land Management, Utah State Office, Salt Lake City. [Last Accessed June 15, 2007]. Available at http://www.ut.blm.gov/fireplanning/ LUPEAFire92605FINAL.pdf

BLM. 2005d. Final Programmatic Environmental Impact Statement for Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments. Bureau of Land Management, Washington, D.C. June.

BLM. 2005e. Mineral Potential Report for the Moab Planning Area, Grand and San Juan Counties, Utah. Bureau of Land Management, Moab Field Office, Moab, Utah. August.

BLM. 2005f. Reasonable Foreseeable Development Scenario for Oil and Gas. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2005g. Land and Mineral Records – LR2000 System Data [online database]. Bureau of Land Management, Washington, D.C. [Accessed January 15, 2005]. http://www.blm.gov/ lr2000/.

BLM. 2005h. The Ancestral Pueblos (Anasazi) [website]. Anasazi Heritage Center, Bureau of Land Management, Colorado State Office. [Accessed December 14, 2005]. Available at http://www.co.blm.gov/ahc/anasazi.htm#Who.

BLM. 2005i. Summary Data for Bureau of Land Management. Appendix D in Recreational Fee Demonstration Program Annual Report, FY 2003. Department of the Interior and Department of Agriculture, Washington, D.C.

BLM. 2006a. Normal Year Fire Rehabilitation and Stabilization Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM. 2006b. Moab Fire District Fire Management Plan. Bureau of Land Management, Moab Field Office, Moab, Utah.

BLM 2007. Final Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Impact Statement and Associated Record of Decision. USDI BLM. FES 07-21.

BLM 2007b. Final Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report. USDI BLM. FES 0721.

BLM 2007a. Northeast National Petroleum Reserve - Alaska Draft Supplemental Integrated Activity Plan/Environmental Impact Statement. USDOI BLM, August 2007. Available at: http://www.blm.gov/ak/st/en/prog/planning/npra_general/ne_npra/ne_npr-a_supplement.html.

Butler, B. S., G. F. Loughlin, V. C. Heikes, and others. 1920. The Ore Deposits of Utah. U.S. Geological Survey Professional Paper 111. U.S. Geological Survey, Washington, D.C.

Chaneton, E. J., and R. S. Lavado. 1996. Soil nutrients and salinity after long-term grazing exclusions in a Flooding Pampa grassland. *Journal of Rangeland Management* 49(2):182-187.

Chatman, M. L. 1987. Mineral Resources of the Black Ridge Canyons (CO-070-113), Black Ridge Canyons West (CO-070-113A/UT-060-1166/117), and Westwater Canyon (UT-060-118) Wilderness Study Areas, Mesa County, Colorado, and Grand County, Utah. U.S. Bureau of Mines Open-File Report MLA 44-87. U.S. Bureau of Mines, Washington, D.C.

Chenoweth, W. L. 1981. The Uranium and Vanadium Deposits of the Uravan Mineral Belt and Adjacent Areas, Colorado and Utah. New Mexico Geological Society Thirty-second Field Conference. New Mexico Geological Society, Socorro.

Chenoweth, W. L. 1989. Uranium Deposits of the Canyonlands Area. Four Corners Geological Society Guidebook, Eighth Field Conference. Four Corners Geological Society, Durango, Colorado.

Chenoweth, W. L. 1996. The Uranium Industry in the Paradox Basin. In Geology and Resources of the Paradox Basin – 1996 Special Symposium: Utah Geological Association and Four Corners Geological Society Guidebook 25, edited by A. C. Huffman, Jr., W. R. Lund, and L. H. Godwin, pp. 95-108. Utah Geological Association and Four Corners Geological Society.

Clark, W. D., and J. R. Karr. 1979. Effects of highways on red-winged blackbird and horned lark populations. *Wilson Bulletin* 91: 143-145.

Connelly, John W., Michael A. Schroeder, Alan R. Sands, and Clait E. Braun. 2000. Guidelines to Manage Sage Grouse Populations and Their Habitats. *Wildlife Society Bulletin* 28(4): 967–985.

Connelly, John W., Steven T. Knick, Michael A. Schroeder, and San J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming.

Constellation Copper Corporation (Constellation Copper). 2006. News Releases [internet website]. Constellation Copper Corporation. [Accessed March 2006]. Available at http://www.summominerals.com/press.html.

Cowardin, L. W., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Crawford, J. A., R. A. Olson, N. E. West, J. C. Mosley, M. A. Schroeder, T. D. Whitson, R. F. Miller, M. A. Gregg, and C. S. Boyd. 2004. Ecology and management of sage-grouse and sage-grouse habitat. *Journal of Rangeland Management* 57(1): 2-19.

CRCT Task Force. 2001. Conservation agreement and strategy for Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins.

Dames & Moore. 1978. Inventory and market analysis of the potash resources of the Paradox Basin. Job No. 08699-011. Prepared by Dames & Moore, Salt Lake City. Prepared for Bureau of Land Management, Utah State Office, Salt Lake City.

Dane, C. H. 1935. Geology of the Salt Valley Anticline and Adjacent Areas, Grand County, Utah. U.S. Geological Survey Bulletin 863. U.S. Geological Survey, Washington, D.C.

Department of Energy (DOE). 2003. Assessing the Potential for Renewable Energy on Public Lands. Department of Energy, Energy Efficiency and Renewable Energy, and Department of the Interior, Bureau of Land Management, Washington, D.C.

DOE. 2005. Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Final Environmental Impact Statement. DOE/EIS-0355. Department of Energy, Office of Environmental Management, Grand Junction, Colorado.

Department of Energy and Bureau of Land Management (DOE and BLM). 2006. West-wide Energy Corridor Programmatic EIS Information Center: "Programmatic Environmental Impact Statement for Designation of Energy Corridors on Federal Land in 11 Western States." DOE/EIS-0386 [internet website]. Department of Energy and Bureau of Land Management, Washington, D.C. [Last Accessed June 15, 2007]. Available at http:// corridoreis.anl.gov/index.cfm.

Desert Bighorn Council Technical Staff. 1990. Guidelines for management of domestic sheep in the vicinity of desert bighorn habitat. *Desert Bighorn Council Transactions* 34:33-35.

Doelling, H. H. 1972a. Sego coal field. In *Eastern and Northern Utah Coal Fields*, compiled by H. H. Doelling and R. L. Graham, pp. 191-267. Utah Geological and Mineralogical Survey Monograph Series No. 2. Utah Geological and Mineralogical Survey, Salt Lake City.

Doelling, H. H. 1972b. La Sal-San Juan coal fields. In *Eastern and Northern Utah Coal Fields*, compiled by H. H. Doelling and R. L. Graham, pp. 269-280. Utah Geological and Mineralogical Survey Monograph Series No. 2. Utah Geological and Mineralogical Survey, Salt Lake City.

Doelling, H. H. 2002. Geologic map of the Moab and Eastern Part of San Rafael Desert 30' × 60' Quadrangle, Grand and Emery Counties, Utah, and Mesa County, Colorado. Utah Geological Survey Map 180. 3 sheets (scale 1:100,000).

Doelling, H. H. 2004. Geologic map of the La Sal 30' × 60' Quadrangle, San Juan, Wayne and Garfield Counties, Utah, and Montrose and San Miguel Counties, Colorado. Utah Geological Survey Map 205. 2 sheets (scale 1:100,000).

Doelling, H. H., A. D. Smith, F. D. Davis, and D. L. Hayhurst. 1979. Methane Content of Utah Coals. In *Coal Studies*, edited by Martha Smith, pp. 1-43. Utah Geological and Mineral Survey Special Studies 49. Utah Geological and Mineral Survey, Salt Lake City.

Doelling, H. H., C. G. Oviatt, and P. W. Huntoon. 1988. Salt Deformation in the Paradox Region. Utah Geological and Mineral Survey Bulletin 122. Utah Geological and Mineral Survey, Salt Lake City.

Draxler, R. R., and G. D. Hess. 1998. An overview of the HYSPLIT-4 modeling system for trajectories, dispersion and deposition. *Australian Meteorological Magazine* 47(4): 295–308.

Eckels, M. T., D. H. Suek, and P. J. Harrison. 2005. New, old plays in southern Uinta basin get fresh look with 3D seismic technology. *Oil and Gas Journal* 103(11):32-40.

Edwards, T. C., Jr., C. G. Homer, S. D. Bassett, A. Falconer, R. D. Ramsey, and D. W. Wight. 1995. Utah Gap Analysis: An Environmental Information System. Final Project Report 95-1. Utah Cooperative Fish and Wildlife Research Unit, Utah State University, Logan.

Eisinger, C., and C. Lowe. 1999. A Summary of the Ground Water Resources and Geohydrology of Grand County, Utah. Utah Geological Survey Circular. Utah Geological Survey, Salt Lake City.

Elevatorski, E. A. 1978. Uranium Guidebook for the Paradox Basin, Utah-Colorado. Dana Point, California: Minobras.

Ellis, M. S., and J. T. Hopeck. 1985. Geologic map showing coal beds in the Dakota Sandstone, Harley Dome quadrangle and parts of the Bitter Creek Well, Westwater 4 SE, and Westwater 4 SW quadrangles, Colorado and Utah. U.S. Geological Survey Miscellaneous Field Studies Map MF-1800. Approximate scale 1:50,000.

Energy Information Administration (EIA). 2007. Official Energy Statistics from the U.S. Government [internet database]. Energy Information Administration, Washington, D.C. [Accessed February 2, 2007]. Available at http://www.eia.doe.gov/.

Environmental Protection Agency (EPA). 2001. Visibility in Mandatory Federal Class I Areas (1994-1998). Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

EPA. 2003a. Nonattainment Area Map [online database]. AIRData Homepage, Environmental Protection Agency. [Accessed April 11, 2003]. Available at http://www.epa.gov/air/data/nonat.html.

EPA. 2003b. Monitoring Values Report [online database]. AIRData Homepage, Environmental Protection Agency. [Accessed July 2, 2003]. Available at http://www.epa.gov/air/data/monvals.html.

EPA. 2003c. Visibility in our Nation's Parks and Wilderness Areas [internet website]. Visibility Homepage, Environmental Protection Agency. [Accessed May 22, 2008]. Available at http://www.epa.gov/oar/visibility/monitor.html.

EPA. 2003d. Designated Sole Source Aquifers in Region VIII [online publication]. Environmental Protection Agency. [Last Accessed June 18, 2007]. Available at http://www.epa.gov/safewater/sourcewater/pubs/qrg_ssamap_reg8.pdf.

EPA. 2003e. STORET Legacy Data Center [online database]. Environmental Protection Agency. [Last Accessed June 18, 2007]. Available at http://www.epa.gov/storpubl/legacy/gateway.htm.

EPA. 2003f. Integrated Risk Information System (IRIS) [online database]. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. [Accessed April 16, 2006]. Available at http://www.epa.gov/iris/index.html.

EPA. 2006. Chapter 1: External Combustion Sources, and Chapter 13: Miscellaneous Sources. In *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources AP-42*, Fifth Edition. Research Triangle Park, North Carolina. December.

EPA. 2008. Emissions Factors & AP 42. Technology Transfer Network Clearinghouse for Inventories & Emissions Factors. Available at: www.epa.gov/ttn/chief/ap42/.

Ferguson, T. J. 1997. Hopi Reconnaissance of the Carlota Copper Project: Ethnohistoric Overview and Cultural Concerns. Available at SWCA Environmental Consultants, Tucson, Arizona.

Ferguson, T. J., Kurt Dongoske, Leigh Jenkins, Mike Yeatts, and Eric Polingyouma. 1993. Working Together: The Roles of Archaeology and Ethnohistory in Hopi Cultural Preservation. *CRM* 16: 27-37.

Fitzgerald, J. P., C. A. Meaney, and D. M. Armstrong. 1994. *Mammals of Colorado*. Niwot: Denver Museum of Natural History and University Press of Colorado.

Fleischner, Thomas L. 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology* 8(3): 629-644.

Fletcher, J. L. 1980. Effects of noise on wildlife: a review of relevant literature 1971-1978. In *Proceedings of the Third International Congress on Noise as a Public Health Problem*, edited by J. V. Tobias, G. Jansen, and W. D. Ward, 611-620. American Speech-Language-Hearing Association, Rockville, Maryland.

Fletcher, J. L. 1990. Review of noise and terrestrial species: 1983-1988. In *Noise as a Public Health Problem Vol. 5: New Advances in Noise Research Part II*, edited by B. Berglund and T. Lindvall, 181-188. Swedish Council for Building Research, Stockholm.

Foreyt, W. J., and D. A. Jessup. 1982. Fatal pneumonia of bighorn sheep following association with domestic sheep. *Journal of Wildlife Disease* 18(2):163–168.

Forman, R. T. T., and L. E. Alexander. 1998. Roads and their major ecological effects. *Annual Review of Ecology and Systematics* 29:207-231.

Frid, A., and L. M. Dill. 2002. Human-caused disturbance stimuli as a form of predation risk. *Conservation Ecology* 6(1): 11.

Frison, G. 1978. *Prehistoric Hunters of the High Plains*. New York: Academic Press.

Galindo-Bect, M. S., and Glenn, E. P. 1999. Panaeid shrimp landing in the upper Gulf of California in relation to Colorado River freshwater discharge. *Fishery Bulletin* 98(1): 222-225.

Gautier, D. L., G. L. Dolton, K. I. Takahashi, and K. L. Varnes. 1996. 1995 National Assessment of the United States Oil and Gas Resources – Results, Methodology, and Supporting Data. U.S. Geological Survey Digital Data Series DDS-30, release 2. U.S. Geological Survey, Washington, D.C.

Gelbard, Jonathan L., and Jayne Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. *Conservation Biology* 17(2):420–432.

Gleason, R. S., and D. R. Johnson. 1985. Factors influencing nesting success of Burrowing Owls in southeastern Idaho. *Great Basin Naturalist* 45:81-84.

Gloyn, R. W. 2004. Uranium Potential in Utah. Unpublished report. Utah Geological Survey, Salt Lake City.

Gloyn, R. W., C. D. Morgan, D. E. Tabet, R. E. Blackett, B. T. Tripp, and M. Lowe. 1995. Mineral, Energy, and Ground Water Resources of San Juan County, Utah. Geological Survey Special Study 86. Utah Geological Survey, Salt Lake City.

Goddard Institute for Space Studies. 2007. Annual Mean Temperature Change for Three Latitude Bands. Datasets and Images. GISS Surface Temperature Analysis, Analysis Graphs and Plots. New York, New York. Available on the Internet: http://data.giss.nasa.gov/gistemp/graphs/Fig.B.lrg.gif.

Goldhor-Wilcock, A., and B. Stevens. 2003. Economic Impact of Public Land Recreation and Tourism on Moab City and Grand County, Utah. Bureau of Land Management, Washington, D.C.

Grand County. 2004. Grand County General Plan Update. Prepared by Grand County, Moab, Utah.

Grandison, K. W. 2004. Monitoring the effectiveness of bat compatible gates in the Silver Reef, East Reef and Tushar Mountain mining districts in southwestern Utah [online publication]. Bureau of Land Management, Utah State Office, Salt Lake City. [Last Accessed June 20, 2007]. Available at http://www.blm.gov/aml/pdfs/ BLM2004SummaryReportUtahBat.pdf.

Gualtieri, J. L. 2004. Geologic map of the Westwater 30' × 60' Quadrangle, Grand and Uintah Counties, Utah, and Garfield and Mesa Counties, Colorado. Utah Geological Survey Open File Report 441DM. 4 sheets (scale 1:100,000).

Gunnison Sage-grouse Rangewide Steering Committee (GSRSC). 2005. Gunnison Sage-grouse Rangewide Conservation Plan. Colorado Division of Wildlife, Denver. April.

Hahn, Gregory, and Jon P. Thorson. 2002. Geology of the Lisbon Valley Sandstone-hosted Disseminated Copper Deposits, San Juan County, Utah. Unpublished manuscript. Available at Society of Economic Geologists, Littleton, Colorado.

Hart, C. M., M. R. Gonzalez, E. P. Simpson, and S. H. Hurlbert. 1998. Salinity and fish effects on Salton Sea microecosystems: Zooplankton and nekton. *Hydrobiologia* 381: 129-152.

Hart, E. Richard. 1993. The Fence Lake Mine Project: Archaeology as Traditional Cultural Property. *CRM* 16:38-41.

Haug, E. A., B. A. Millsap, and M. S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). In *The Birds of North America*, No. 61, edited by A. Poole and F. Gill. Philadelphia: The Academy of Natural Sciences, and Washington, D.C.: The American Ornithologists' Union.

Hayden, M. 2003. UGS paleontology locality search for Grand County. Utah Geological Society, Salt Lake City.

Hite, R. J. 1960. Stratigraphy of the saline facies of the Paradox Member of the Hermosa Formation of southeastern Utah and southwestern Colorado. In *Geology of the Paradox Fold and Fault Belt*, Four Corners Geological Society Guidebook, Third Field Conference, pp. 86-89. Four Corners Geological Society, Durango, Colorado.

Holmer, R. 1978. A Mathematical Typology for Archaic Projectile Points of the Eastern Great Basin. Unpublished PhD dissertation, Department of Anthropology, University of Utah, Salt Lake City.

Holzworth, G. C. 1972. Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States. Office of Air Programs AP-10, Environmental Protection Agency, Research Triangle Park, North Carolina.

Hopi Cultural Preservation Office. 1995. Definition and Application of the TCP Concept for the Hopi Tribe. Available at Hopi Cultural Preservation Office, Kykotsmovi, Arizona.

Horn, Jonathan C., Alan D. Reed, and Susan M. Chandler. 1994. Grand Resource Area Class I Cultural Resource Inventory. Alpine Archaeological Consultants, Montrose, Colorado.

Huffman, A. Curtis, Jr. 1996a. Paradox Basin Province (021). In *1995 National Assessment of United States Oil and Gas Resources—Results, Methodology, and Supporting Data*, edited by D. L. Gautier, G. L. Dolton, K. I. Takahashi and K. L. Vranes. U.S. Geological Survey Digital Data Series DDS-30. U.S. Geological Survey, Washington, D.C.

Huffman, A. Curtis, Jr. 1996b. Paradox Basin Province (021). In *1996 Digital Map Data, Text, and Graphical Images in Support of the 1995 National Assessment of United States Oil and Gas Resources*, compiled by W. R. Beeman, R. C. Obuch, and J. D. Brewton. U.S. Geological Survey Digital Data Series DDS-35. U.S. Geological Survey, Washington, D.C.

Humane Society of the United States (HSUS). 2006. Wildlife Crossings—Wild Animals and Roads [internet website]. Humane Society of the United States, Washington, D.C. [Last Accessed June 20, 2007]. Available at http://www.hsus.org/wildlife/issues_facing_ wildlife/wildlife_crossings_wild_animals_and_roads/.

IMPROVE. 2002. IMPROVE Optical Data Webpage [online database]. National Park Service and Colorado State University, Cooperative Institute for Research in the Atmosphere, Fort Collins, Colorado. [Last Accessed June 20, 2007]. Available at http://vista.cira. colostate.edu/ improve/Data/IMPROVE/Data_IMPOptical.htm.

Institute for Outdoor Recreation and Tourism (IORT). 2001. Utah River Study Results Report: Recreational Use, Value, and Experience of Boaters on Rivers Managed by the BLM in Utah. Institute for Outdoor Recreation and Tourism, Utah State University, Logan.

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Basis (Summary for Policymakers). Cambridge University Press. Cambridge, England and New York, New York. Available at: http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf.

IORT. 2002. Slickrock Trail Mountain Bike Survey: Implications for Resource Managers and Area Communities. No. NR/RF/012. Institute for Outdoor Recreation and Tourism, Utah State University Extension, Moab.

Jackson, A. Lynn. 1983. Humates and their Development at Harley Dome: Utah, Grand Junction. In *Geological Society – 1983 Field Trip*, pp. 17-19. Utah Geological Society, Salt Lake City.

Jackson, Lynn. 2003. Mancos Shale Dust Research Final Report. Document provided in an email to Yu Shan Huang, Trinity Consultants, on October 21, 2003. Bureau of Land Management, Moab Field Office, Moab, Utah.

Jackson, M. K. 2000. Mineral Potential Report for the Shafer Canyon Wilderness Inventory Area. Bureau of Land Management, Moab Field Office, Moab, Utah.

Jacobsen, S. L. 2005. Mitigation Measures for Highway-caused Impacts to Birds. General Technical Report PSW-GTR-191. USDA Forest Service, Washington, D.C.

Jessup, D. A. 1985. Diseases of domestic livestock which threaten bighorn sheep populations. *Desert Bighorn Council Transactions* 29:29-30.

Johnson, E. A. 2003. Geologic Assessment of the Phosphoria Total Petroleum System, Uinta-Piceance Province, Utah and Colorado. Chapter 9 in *Petroleum Systems and Geologic Assessment of Oil and Gas in the Uinta-Piceance Province, Utah and Colorado*, compiled by USGS Uinta-Piceance Assessment Team. U.S. Geological Survey Digital Data Series DDS-69-B. U.S. Geological Survey, Washington, D.C.

Johnson, H. S., and William Thordarson. 1959. The Elk Ridge-White Canyon Channel System, San Juan County, Utah: Its Effects on Uranium Distribution. *Economic Geology* 54:119-129.

Johnson, M. G. 1973. Placer Gold Deposits of Utah. U.S. Geological Survey Bulletin 1357. U.S. Geological Survey, Washington, D.C.

Katzenstein, A. S., L. A. Doezema, I. J. Simpson, D. R. Blake, and F. S. Rowland. 2003. Extensive regional atmospheric hydrocarbon pollution in the southwestern United States. *Proceedings of the National Academy of Sciences* 100(21):11975–11979.

Kauffman, J. D., W. C. Krueger, and M. Vavra. 1983. Effects of cattle grazing on riparian plant communities. *Journal of Rangeland Management* 36:683-685.

Konrad, P. M., and D. S. Gilmer 1984. Observations on the nesting ecology of Burrowing Owls in central North Dakota. *Prairie Naturalist* 16:129-30.

Kufeld, R. C. 1973. Foods eaten by the Rocky Mountain elk. *Journal of Rangeland Management* 26:106-113.

Laronne, J. B. 1977. Dissolution Potential of Surficial Mancos Shale and Alluvium. Unpublished PhD dissertation, Colorado State University, Fort Collins.

Lentsch, L., and Y. Converse. 1997. Conservation Agreement and Strategy for Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) in the State of Utah. Publication Number 97-20. Utah Division of Wildlife Resources, Salt Lake City.

Leonard, S., G. Staidl, J. Fogg, K. Gebhardt, W. Hagenbuck, and D. Prichard. 1992. Riparian Area Management: Procedures for Ecological Site Inventory with Special Reference to Riparian-wetland Sites. BLM/SC/PT-92/004. Bureau of Land Management, Service Center, Denver, Colorado.

Lewis, C. E., and T. J. Harshbarger. 1976. Shrub and herbaceous vegetation after 20 years of prescribed burning in the South Carolina Coastal Plain. *Journal of Rangeland Management* 29:13-18.

Lloyd Levy Consulting. 2004. Job Generation in the Colorado Mountain Resort Economy: Second Homes and Other Economic Drivers in Eagle, Grand, Pitkin, and Summit Counties. Lloyd Levy Consulting, Denver, Colorado.

Lowry Jr., J. H., R. D. Ramsey, K. Boykin, D. Bradford, P. Comer, S. Falzarano, W. Kepner, J. Kirby, L. Langs, J. Prior-Magee, G. Manis, L. O'Brien, T. Sajwaj, K. A. Thomas, W. Rieth, S. Schrader, D. Schrupp, K. Schulz, B. Thompson, C. Velasquez, C. Wallace, E. Waller and B. Wolk. 2005. Southwest Regional Gap Analysis Project: Final Report on Land Cover Mapping Methods. RS/GIS Laboratory, Utah State University, Logan.

Lyon, L. J. 1983. Road density models describing habitat effectiveness for elk. *Journal of Forestry* 81:592-596.

MacMahon, J. A. 1988. Introduction to Vegetation of Utah. In *Atlas of the Vascular Plants of Utah*, edited by B. J. Albee, L. M. Shultz, and S. Goodrich. Occasional Publication No. 7. Salt Lake City: Utah Museum of Natural History.

Madsen, R. 1977. Prehistoric Ceramics of the Fremont. Museum of Northern Arizona Ceramic Series No. 6. Museum of Northern Arizona, Flagstaff.

Martinsen, W., D. Paul, J. McCreary, F. P. Howe, T. Aldrich, J. R. Parrish, R. Berger, R. Player, S. Hedges, T. Wallace, J. Tuey, and D. Fagan. 2005. Coordinated Implementation Plan for Bird Conservation in Utah, Version 1.0. Utah Steering Committee, Intermountain West Joint Venture, Missoula, Montana.

McFaul, E. J., G. T. Mason Jr., W. B. Ferguson, and B. R. Lipin. 2000. U.S. Geological Survey Mineral Databases—MRDS and MAS/MILS, U.S. Geological Survey Digital Data Series DDS-52, 2 disks. U.S. Geological Survey, Washington, D.C.

McMurtrie, Deborah. 2002. Emission inventory data provided to Yu Shan Huang, Trinity Consultants, in a March 28 email. Utah Department of Environmental Quality, Salt Lake City. Forwarded by Teri Bateman, Utah Department of Environmental Quality, Salt Lake City.

Merrell, H. W. 1979. Mineral Resource Inventory of the Paradox Salt Basin, Utah and Colorado. Utah Geological and Mineral Survey Report of Investigation No. 143. Utah Geological Survey, Salt Lake City.

Molenaar, Molly R. 2003a. Utah Department of Transportation Highway 6 Improvement Project: Native American Consultation and the Identification of Traditional Cultural Properties. SWCA Environmental Consultants, Salt Lake City.

Molenaar. 2003b. Stone Cabin 3D Seismic Survey Project: Native American Consultation and the Identification of Traditional Cultural Places. Prepared for Bill Barrett Corporation, Denver, Colorado. Submitted to Bureau of Land Management, Price Field Office, Price, Utah.

Molenaar. 2003c. Native American Ethnographic Survey: Price and Vernal Resource Management Plans. SWCA Environmental Consultants, Salt Lake City.

Monsen, Stephen B., Richard Stevens, and Nancy L. Shaw (compilers). 2004. Restoring Western Ranges and Wildlands. General Technical Report RMRS-GTR-136-VOL-1. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.

Morgan, C. D. 1993. Paradox Basin Plays – Overview. In *New Mexico Bureau of Mines and Mineral Resources Atlas of Major Rocky Mountain Gas Reservoirs*, pp. 90-94. New Mexico Bureau of Mines and Mineral Resources, Santa Fe.

Morrow, L. A., and P. W. Stahlman. 1984. The history and distribution of downy brome in North America. *Weed Science Supplement* 32:2-6.

National Academy of Sciences. 2006. Understanding and Responding to Climate Change: Highlights of National Academies Reports. Division on Earth and Life Studies. National Academy of Sciences. Washington, D.C. Available at: http://dels.nas.edu/basc/Climate-HIGH.pdf.

National Climatic Data Center (NCDC). 2004. Climate date for Utah [online database]. National Climatic Data Center, National Oceanic and Atmospheric Association. [Last Accessed June 20, 2007]. Available at http://lwf.ncdc.noaa.gov/oa/climate/research/cag3/city.html.

National Park Service (NPS). 1974. Canyonlands National Park General Management Plan. National Park Service, Canyonlands National Park, Moab, Utah.

NPS. 1979. Wild and Scenic River Study Final Environmental Statement, Colorado and Lower Dolores Wild and Scenic Rivers. National Park Service, Denver Service Center, Denver, Colorado. September.

NPS. 1989. General Management Plan, Development Concept Plan: Arches National Park, Utah. National Park Service, Arches National Park, Moab, Utah.

NPS. 1995. Canyonlands National Park and Orange Cliffs Unit of Glen Canyon National Recreation Area Backcountry Management Plan. National Park Service, Canyonlands National Park, Moab, Utah.

NPS. 2003. Canyonlands National Park Long-range Interpretive Plan. National Park Service, Canyonlands National Park, Moab, Utah.

NPS. 2006. Superintendent's Orders Established for Canyonlands National Park. Compendium on 36 CFR 1.7(b). National Park Service, Canyonlands National Park, Moab, Utah.

Natural Resources Conservation Service (NRCS). 1981. Soil Survey of Grand County, Utah. U.S. Department of Agriculture, Natural Resources Conservation Service, Washington, D.C.

NRCS. 1989. Grand Area Soil Survey – Central Part. U.S. Department of Agriculture, Natural Resources Conservation Service, Washington, D.C.

Nelson, S. M., and S. A. Flickinger. 1992. Salinity tolerance of colorado squawfish. *Hydrobiologia* 246: 162-168.

Newton, Virginia. 1999. An Overview of Native American Land Use in East Central Utah, Grand, Emery, Carbon, Sanpete, and Utah Counties: The Aspen Products Pipeline Project. Cultural Resources Report No. 99-24. SWCA Environmental Consultants, Salt Lake City.

Office of Pipeline Safety. 2005. Office of Pipeline Safety [internet website]. Pipeline and Hazardous Materials Safety Administration, Washington, D.C. [Last Accessed June 20, 2007]. Available at http://ops.dot.gov/.

Olff, H., and M. E. Ritchie. 1998. Effects of herbivores on grassland plant diversity. *TREE* 13(7):261-265.

Oliver, George V. 2000. The Bats of Utah: A Literature Review. UDWR Publication 00-14. Utah Natural Heritage Program, Utah Division of Wildlife Resources, Salt Lake City.

Parker, J. M. 1981. Lisbon Field Area, San Juan County, Utah. In *Geology of the Paradox Basin*, edited by D. L. Wiegand, pp. 89-100. 1981 Rocky Mountain Association of Geologists Field Conference. Rocky Mountain Association of Geologists, Denver, Colorado.

Parker, Patricia L., and Thomas F. King. 1989. Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register 38. National Park Service, Interagency Resources Division, Washington, D.C.

Parrish, J. R., F. P. Howe, and R. Norvell. 2002. The Utah avian conservation strategy, version 2.0. UDWR Publication No. 02-27. Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City.

Patterson, Charles G. 1989. Mineral Resources of the Indian Creek, Bridger Jack Mesa, and Butler Wash Wilderness Study Areas, San Juan County, Utah. U.S. Geological Survey Bulletin 1754. U.S. Geological Survey, Washington, D.C.

Perlman, Susan E. 1998. Traditional Cultural Properties Survey of the Mid-America Pipeline Company's Proposed Rocky Mountain Expansion Project, Northwestern New Mexico, Western Colorado, and Eastern Utah. Cultural Resource Report 98-163. SWCA Environmental Consultants, Albuquerque.

Pettit, Jan. 1990. *Utes: The Mountain People*. Boulder: Johnson Books.

Piemeisel, R. L. 1951. Causes affecting change and rate of change in vegetation of annuals in Idaho. *Ecology* 32:53-72.

Popolizio, C. A., H. Goetz, and P. L. Chapman. 1994. Short-term response of riparian vegetation to four grazing treatments. *Journal of Rangeland Management* 47: 48-53.

Reed, Henry E. 1996. Limestone Exploration in the Paradox Basin. In *Geology and Resources of the Paradox Basin*, 1996 Special Symposium Guidebook 25. Utah Geological Association, Salt Lake City, and Four Corners Geological Society, Durango, Colorado.

Reijnen, R., and R. Foppen. 1994. The effects of car traffic on breeding bird populations in woodland, 1: Evidence of reduced habitat quality for willow warblers breeding close to a highway. *Journal of Applied Ecology* 31: 85-94.

Reiter, D., and D. Blahna. 2001. Utah River Study Results Report: Recreational Use, Value, and Experience of Boaters on Rivers Managed by the BLM in Utah. Institute for Outdoor Recreation and Tourism, Utah State University, Logan.

Reiter, D., D. Blahna, and R. Von Koch. 1998. Off-highway Vehicle Four-wheeler Survey: A Summary Report of 1997 Moab Easter Jeep Safari Participants. Institute for Outdoor Recreation and Tourism, Utah State University, Logan.

Roberts & Schaefer. 1996. Executive Report of the Revision to the Final Feasibility Study for the Lisbon Valley Copper Project Located in Lisbon Valley, Utah. Prepared by Roberts & Schaefer. Prepared for Summo USA Corporation.

Romin, L. A., and J. A. Muck. 2002. Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances. U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City.

Saab, V. A., C. E. Bock, T. D. Rich, and D. S. Dobkin. 1995. Livestock grazing effects in western North America. In *Ecology and Management of Neotropical Migratory Birds: A Synthesis and Review of Critical Issues*, edited by T. E. Martin and D. M. Finch, 311-353. London: Oxford University Press.

San Juan County. 1996. San Juan County Master Plan. Prepared by San Juan County, Monticello, Utah.

Sarr, D., R. A. Knapp, J. Owens, T. Balser, and T. Dudley. 1996. Ecosystem recovery from livestock grazing in the southern Sierra Nevada. Aldo Leopold Wilderness Research Institute, Missoula, Montana.

Sawyer, H., R. Neilson, and L. McDonald. 2006a. Sublette Mule Deer Study (Phase II): Long-term Monitoring Plan to Assess Potential Impacts of Energy Development on Mule Deer in the Pinedale Anticline Project Area, 2006 Annual Report. Western Ecosystems Technology, Inc., Cheyenne, Wyoming.

Sawyer, H., R. M. Neilson, F. Lindzey, and L. L. McDonald. 2006b. Winter habitat selection of mule deer before and during development of a natural gas field. *Journal of Wildlife Management* 70:396-403.

Schroedl, A. 1991. Paleo-Indian Occupation in the Eastern Great Basin and Northern Colorado Plateau. *Utah Archaeology* 4(1):1-15.

Seal, Franklin. 2002. Local prospector eyes humate mine near Crescent Junction, takes out lease from SITLA. *Moab Times-Independent*, p. A1-A2.

Seidel, J. W. 1977. Elk calving behavior in west central Colorado. In *Proceedings of the Western States Elk Workshop*, pp. 38-40. Colorado Division of Wildlife, Denver.

Shackleton, D. M., C. C. Shank, and B. M. Wikeem. 1999. Natural History of Rocky Mountain and California Bighorn Sheep. In *Mountain Sheep of North America*, edited by R. Valdez and P. R. Krausman, pp. 78-138. Tucson: University of Arizona Press.

Shubat, M. A., B. T. Tripp, C. E. Bishop, and R. E. Blackett. 1991. Mines and Prospects Containing Gold in Utah. Utah Geological and Mineral Survey Open-File Report 207. Utah Geological and Mineral Survey, Salt Lake City.

Singer, F. J., L. C. Zeigenfuss, and L. Spicer. 2001. Role of patch size, disease, and movement in rapid extinction in bighorn sheep. *Conservation Biology* 15(5):1347–1354.

Sogge, M. K., R. M. Marshall, S. J. Sferra, and T. J. Tibbitts. 1997. A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol. Technical Report NPS/ NAUCPRS/NRTR-97/12. U.S. Geological Survey Biological Resources Division, Colorado Plateau Field Station, Northern Arizona University, Flagstaff.

Sonoran Institute. 2003. Population, Employment, Earnings and Personal Income Trends: San Juan County, Utah. Sonoran Institute, Tucson, Arizona. April.

Sonoran Institute. 2005. Socioeconomic Profile: San Juan County Utah. Economic Profile System Community, Sonoran Institute, Tucson, Arizona. December.

Spangler, Jerry D. 1995. Paradigms & Perspectives: A Class I Overview of Cultural Resources in the Uinta Basin and Tavaputs Plateau. Uinta Research, Salt Lake City.

Sprinkel, D. A. 1999. Digital Geologic Resources Atlas of Utah. Bulletin 129DF. Utah Geological Survey, Salt Lake City.

Squires, J. R., and R. T. Reynolds. 1997. Northern Goshawk (*Accipiter gentilis*). In *The Birds of North America*, No. 298, edited by A. Poole and F. Gills. The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.

Stevens, R. 2004. Incorporating wildlife habitat needs into restoration and rehabilitation projects. In *Restoring Western Ranges and Wildlands*, edited by S. B. Monsen, R. Stevens, and N. L. Shaw, 155-174. General Technical Report RMRS-GTR-136-VOL-1. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.

Stiver, S. J., A. D. Apa, J. R. Bohne, S. D. Bunnell, P. A. Deibert, S. C. Gardner, M. A. Hilliard, C. W. McCarthy, and M. A. Schroeder. 2006. Greater Sage-grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming. December.

Stokowski, P. A., and C. LaPointe. 2000. Environmental and Social Effects of ATVs and ORVs: An Annotated Bibliography and Research Assessment. School of Natural Resources, University of Vermont, Burlington.

Swarthout, E. C. H., and R. J. Steidl. 2003. Experimental effects of hiking on breeding Mexican spotted owls. *Conservation Biology* 17(1): 307-315.

The Wilderness Society (TWC). 2004. The Economic Benefits of Wilderness: Focus on Property Value Enhancement. Ecology and Economics Research Department, The Wilderness Society, Washington, D.C. March.

Trimble, S. W., and A. C. Mendel. 1995. The cow as a geomorphic agent: A critical review. *Geomorphology* 13: 233-253.

Trinity Consultants (Trinity). 2003. 1996 Mesoscale Model (MM5) data processed using the CALMET meteorological model. Trinity Consultants, Phoenix.

Trinity Consultants (Trinity), and Craig Nicholls. 2006. Air Quality Assessment Report - Vernal and Glenwood Springs Resource Management Plans. Trinity Consultants, Phoenix. August.

U.S. Census Bureau. 2000. Census of Population [online database]. U.S. Census Bureau, Washington, D.C. [Accessed December 22, 2005]. Available at http://www.census.gov/main/www/cen2000.html.

U.S. Census Bureau. 2005. Poverty [online database]. U.S. Census Bureau, Washington, D.C. [Accessed December 22, 2005]. Available at http://www.census.gov/hhes/www/poverty/poverty.html.

U.S. Department of Agriculture (USDA). 2002. 2002 Census of Agriculture [online database]. National Agricultural Statistics Service, U.S. Department of Agriculture. [Last Accessed June 18, 2007]. Available at http://www.nass.usda.gov/Census_of_Agriculture/index.asp.

USDA, Forest Service (USFS). 1986. Land and Resource Management Plan, Manti-La Sal National Forest. USDA Forest Service, Manti-La Sal National Forest, Price, Utah.

USFS. 1992. Recommended Old-Growth Definitions and Descriptions and Old-Growth Allocation Procedure. USDA Forest Service, Southwestern Region, Albuquerque, New Mexico. September.

USFS. 1993. Characteristics of Old-growth Forests in the Intermountain Region. USDA Forest Service, Intermountain Region, Ogden, Utah. April.

USFS. 1996. Potential fossil yield classification (PFYC). Paleontology Center of Excellence and the Region 2 Paleo Initiative, USDA Forest Service, Washington, D.C.

USFS, BLM, and NPS. 1996. Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use. Available at Bureau of Land Management, Utah State Office, Salt Lake City.

U.S. Department of the Interior (USDI). 2005. Payment In Lieu of Taxes: County Payments and Acres [online database]. U.S. Department of the Interior. [Accessed December 22, 2005]. Available at http://www.nbc.gov/pilt/search.cfm#search.

U.S. Fish and Wildlife Service (USFWS). 1983. Northern States Bald Eagle Recovery Plan. U.S. Fish and Wildlife Service, Denver.

USFWS. 1987. Environmental Assessment for the Upper Colorado River Endangered Fish Recovery Program. U.S. Fish and Wildlife Service, Upper Colorado River Endangered Fish Recovery Program, Lakewood, Colorado.

USFWS. 1988. Black-footed Ferret Recovery Plan. U.S. Fish and Wildlife Service, Denver.

USFWS. 1990a. Humpback Chub (*Gila cypha*) Recovery Plan, 2nd Revised. U.S. Fish and Wildlife Service, Denver.

USFWS. 1990b. Bonytail Chub Recovery Plan. Prepared by the Colorado River Fishes Recovery Team, Denver. Prepared for Region 6, U.S. Fish and Wildlife Service, Washington, D.C.

USFWS. 1991. Colorado Pikeminnow Recovery Plan. Prepared by the Colorado River Fishes Recovery Team, Denver. Prepared for Region 6, U.S. Fish and Wildlife Service, Washington, D.C.

USFWS. 1995. Mexican Spotted Owl (*Strix occidentalis lucida*) Recovery Plan. U.S. Fish and Wildlife Service, Denver.

USFWS. 1999. Razorback Sucker Recovery Plan. Prepared by the Colorado River Fishes Recovery Team, Denver. Prepared for Region 6, U.S. Fish and Wildlife Service, Washington, D.C.

USFWS. 2002a. Colorado Pikeminnow (*Ptychocheilus lucius*) Recovery Plan (Amendment and Supplement for Recovery Goals), Final Revision 2. U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City.

USFWS. 2002b. Humpback Chub (*Gila cypha*) Recovery Goals: amendment and supplement to the Humpback Chub Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

USFWS. 2002c. Bonytail (*Gila elegans*) Recovery Goals, Amendment and Supplement to the Bonytail Chub Recovery Plan, Final Revision 2. U.S. Fish and Wildlife Service, Denver.

USFWS. 2002d. Razorback Sucker (*Xyrauchen fexanus*) Recovery Plan, Amendment and Supplement for Recovery Goals, Final Revision 1. U.S. Fish and Wildlife Service, Denver.

USFWS. 2002e. Final Recovery Plan for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). U.S. Fish and Wildlife Service, Albuquerque.

USFWS. 2002f. Birds of Conservation Concern, 2002. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.

USFWS. 2005. Designation of Critical Habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). U.S. Fish and Wildlife Service, Washington, D.C.

U.S. Geological Survey (USGS). 2003. Petroleum Systems and Geologic Assessment of Oil and Gas in the Uinta-Piceance Province, Utah and Colorado. Compiled by Uinta-Piceance Assessment Team. U.S. Geological Survey Digital Data Series DDS-69-B. U.S. Geological Survey, Washington, D.C.

U.S. Geological Survey (USGS), 2007. Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies and Internet Resources.

University of Utah, 2008. The Structure and Economic Impact of Utah's Oil and Gas Exploration Industry Phase III – Grand County. Bureau of Economic and Business Research.

Utah Department of Environmental Quality (UDEQ). 2001. Utah's Non-Point Source Management Plan [online publication]. Utah Department of Environmental Quality, Salt Lake City. [Last Accessed June 18, 2007]. Available at http://www.waterquality.utah.gov/documents/NPS_Mgmt_Plan_2001.pdf.

UDEQ. 2002. Utah's 2002 303(d) List of Waters. Utah Department of Environmental Quality, Salt Lake City.

Utah Department of Workforce Services (UDWS). 2005. Grand County: Demographic and Economic Profile [online database]. Utah Department of Workforce Services, Salt Lake City. [Accessed August 2005]. Available at http://jobs.utah.gov/.

Utah Division of Air Quality and Environmental Protection Agency (UDAQ and EPA). 2006. US EPA Air Data Mapping and Emissions Tool, Nonattainment Areas Maps for Utah [online database]. Utah Division of Air Quality, Salt Lake City. [Last Accessed June 18, 2007]. Available at http://www.airmonitoring.utah.gov/ and http://www.epa.gov/air/data/nonat.html?st%7EUT%7EUtah.

UDOGM. 2008. Data Research Center [online database]. Utah Division of Oil Gas and Mining. Available at http://oilgas.ogm.utah.gov/Data_Center/DataCenter.cfm#production

Utah Division of Oil Gas and Mining (UDOGM). 2002. Map of Abandoned Mine Sites within Grand County [online database]. Abandoned Mine Reclamation Program, Utah Division of Oil, Gas, and Mining, Salt Lake City. [Last Accessed June 15, 2007]. Available at http://www.ogm.utah.gov.

UDOGM. 2004. December 2003 Production Book [online publication]. Utah Division of Oil Gas and Mining. [Accessed January 2004]. Available at http://ogm.utah.gov/oilgas/PUBLICATIONS/Reports/2003_prd/book1203.htm.

Utah Division of Travel Development (UDTD). 2004. 2004 State and County Economic Travel Indicator Profiles. Utah Division of Travel Development, Salt Lake City.

Utah Division of Water Resources (UDWRe). 2000. Utah State Water Plan, Southeast Colorado River Basin. Utah Division of Water Resources, Salt Lake City.

Utah Division of Water Rights (UDWRi). 2003. Water Use Records Application [application download]. Utah Division of Water Rights, Salt Lake City. [Last Accessed June 18, 2007]. Available at http://waterrights.utah.gov/cgi-bin/wuseview.exe.

Utah Division of Wildlife Resources (UDWR). 1985a. Cisco Desert Habitat Management Plan. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 1985b. Hatch Point Habitat Management Plan. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 1985c. Dolores Triangle Habitat Management Plan. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 1986. The Potash-Confluence Habitat Management Plan. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 1999. Statewide Management Plan for Bighorn Sheep. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 2000a. Utah Upland Game Annual Report, 1999. Publication 00-27. Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 2000b. Utah Black Bear Management Plan. Publication 00-23. Utah Division of Wildlife Resources, Salt Lake City. June 27.

UDWR. 2002. Strategic Management Plan for Sage-grouse. Publication 02-20. Utah Division of Wildlife Resources, Salt Lake City. June.

UDWR. 2005a. Utah Comprehensive Wildlife Conservation Strategy. Publication Number 05-19. Utah Division of Wildlife Resources, Salt Lake City. September.

UDWR. 2005b. Utah Sensitive Species List. Unpublished document, Utah Division of Wildlife Resources, Salt Lake City.

UDWR. 2006. Utah Big Game Annual Report, 2005. Publication 06-21. Utah Division of Wildlife Resources, Salt Lake City.

UDWR, 2007. Aerial Survey Counts (Pronghorn). Utah Division of Wildlife Resources. Salt Lake City.

UDWR, 2007. Utah Bighorn Sheep State-wide Management Plan. Utah Division of Wildlife Resources. Salt Lake City.

UDWR, 2008. 2008 Antlerless Deer Permit Summary and Recommendations. Utah Division of Wildlife Resources. Salt Lake City.

UDWR, 2008. 2008 Antlerless Elk Permit Summary and Recommendations. Utah Division of Wildlife Resources. Salt Lake City.

Utah Geological and Mineralogical Survey (UGMS). 1966. Gold Placers in Utah – A Compilation. Utah Geological and Mineralogical Survey Circular 47. Utah Geological and Mineralogical Survey, Salt Lake City.

Utah Geological Society (UGS). 2003. Maps [online database]. Utah Geological Survey, Salt Lake City. [Last Accessed June 18, 2007]. Located at http://www.ugs.state.ut.us/maps/index.htm.

Utah Native Plant Society. 2005. Utah Rare Plant Guide [online database]. Utah Native Plant Society, Salt Lake City. [Last Accessed June 15, 2007]. Available at http://www.utahrareplants.org/rpg_species.html.

Utah State Governor's Office of Planning and Budget (GOPB). 2001. Cities and Counties of Utah: First in a Series of Census 2000 Analyses [online publication]. Utah State Governor's Office of Planning and Budget, Salt Lake City. [Accessed April 2002]. Available at http://www.governor.state.ut.us/dea/ccBrief3.pdf.

GOPB. 2002. Race and Ethnicity in Utah: Third in a Series of Census 2000 Analyses [online publication]. Utah State Governor's Office of Planning and Budget, Salt Lake City. [Accessed April 2002]. Available at http://governor.utah.gov/dea/Minorities.pdf

Venturoni, L., P. Long, and R. Perdue. 2005. The Economic and Social Impacts of Second Homes in Four Mountain Resort Counties of Colorado. 2005 Annual Meeting of the Association of American Geographers, Denver, April 7.

Walcek, C. J. 2002. Effects of wind shear on pollution dispersion. *Atmospheric Environment* 36: 511–517.

Welsh, S. L., N. D. Atwood, S. Goodrich, and L. C. Higgins. 2003. *A Utah Flora*, Third Edition, revised. Provo, Utah: Brigham Young University.

Western Regional Climate Center (WRCC). 2004. Temperature and precipitation for meteorological stations in Eastern Utah [online database]. Western Regional Climate Center, Desert Research Institute. [Last Accessed June 18, 2007]. Available at http://www.wrcc.dri.edu/index.html.

Witkind, I. J. 2004. Geologic map of the Huntington 30' and 60' Quadrangle, Carbon, Emery, Grand, and Uintah Counties, Utah. Utah Geological Survey Open File Report 440DM. 5 sheets (scale 1:100,000).

World Climate. 2003. Climate data for Moab, Grand County, Utah and Monticello, San Juan County, Utah [online database]. World Climate. [Last Accessed June 19, 2007]. Available at http://www.worldclimate.com/.

Zeveloff, S., and F. Collett. 1988. *Mammals of the Intermountain West*. Salt Lake City: University of Utah Press.

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