



Wyoming Greater Sage-Grouse

Proposed Resource Management Plan Amendment and Final Environmental Impact Statement



The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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Lower Bar Photos (L to R):

US Fish and Wildlife, Rachel Woita, James Yule



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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In reply refer to:
1610 (930)

Dear Reader:

The Wyoming Proposed Resource Management Plan (RMP) Amendment and Final Environmental Impact Statement (EIS) for Greater Sage-Grouse Management is available for your review and comment. The Bureau of Land Management (BLM) has prepared this document in consultation with cooperating agencies and in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Federal Land Policy and Management Act (FLPMA) of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

The planning area includes all the BLM Field Offices within Wyoming, encompassing approximately 18 million surface acres and 40 million acres of Federal mineral estate administered by the BLM.

The BLM has developed the Proposed RMP Amendment based on internal review and comments received from the public on the Draft EIS. Identification of this Proposed RMP Amendment does not constitute a final decision on the part of the BLM.

This Proposed RMP Amendment/Final EIS contains the proposed plan, a summary of changes that have occurred between the Draft and Final EISs, and impacts of the proposed plan. Anyone who participated in the process for the EIS and who has an interest that is or may be adversely affected by the proposed land use plan amendments in the Final EIS may protest the proposed plan amendments. A person who wishes to file a protest must do so in writing within 30 days from the date the US Environmental Protection Agency publishes the Notice of Availability of the Final EIS in the Federal Register.

Detailed instructions for filing such a protest with the Director of the BLM are available online at <https://www.blm.gov/programs/planning-and-nepa/public-participation/filing-a-plan-protest>. All protests must be in writing and filed with the BLM Director, either as a hard copy or electronically via BLM's ePlanning website by the end of the protest period. To file a protest electronically, visit <https://goo.gl/kmLtwT> and click the 'Submit Protest' button to the right of the Final EIS document. Protests in hard copy must be mailed to one of the following addresses, postmarked by the end of the protest period, noted above:

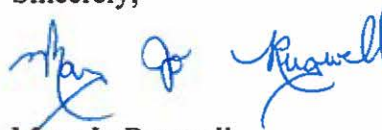
U.S. Postal Service Mail:
BLM Director (210)
Attention: Protest Coordinator
P.O. Box 71383
Washington, D.C. 20024-1383

Overnight Delivery:
BLM Director (210)
Attention: Protest Coordinator
20 M Street SE, Room 2134LM
Washington, D.C. 20003

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 on each protest. Responses to protest issues will be compiled and formalized in a Director's Protest Resolution Report made available following issuance of the decision. Upon resolution of all protests, the BLM will issue an Approved RMP Amendment and Record of Decision (ROD). The Approved RMP Amendment and ROD will be made available electronically on BLM's ePlanning website.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Mary Jo Rugwell', is written over a printed name and title.

Mary Jo Rugwell
State Director

Wyoming Greater Sage-Grouse Proposed Resource Management Plan Amendment and Final Environmental Impact Statement

Responsible Agency: United States Department of the Interior
Bureau of Land Management

Abstract: This proposed resource management plan (RMP) amendment and final environmental impact statement (EIS) have been prepared by the United States Department of the Interior (DOI), Bureau of Land Management (BLM) with input from cooperating agencies. The purpose of this RMP amendment (RMPA) is to enhance cooperation with the States by modifying the approach to Greater Sage-Grouse management in existing RMPs to better align with individual state plans and/or conservation measures and DOI and BLM policy. This document is considering amendments to ten BLM RMPs in Wyoming. The EIS describes and analyzes two alternatives as well as the Proposed RMP Amendment for managing Greater Sage-Grouse habitat on approximately 18 million acres of BLM-administered surface estate and 40 million acres of BLM subsurface federal mineral estate.

The No-Action Alternative is a continuation of current management; use of BLM-administered lands and resources would continue to be managed under the current BLM RMPs, as amended or revised in 2014 and 2015. The Management Alignment Alternative was derived through coordination with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. The Proposed RMP Amendment is a refinement of the Management Alignment Alternative and was developed in response to comments received on the Draft RMP Amendment/EIS. The Proposed RMP Amendment does not constitute a final decision; the approved RMP Amendment will be presented in the record of decision (ROD) that will be released following the protest period, Governor's consistency review period, and the resolution of any protests. Major planning issues addressed include Sagebrush Focal Area designations, habitat boundary designations, habitat objectives, compensatory mitigation strategy, livestock grazing, and the adaptive management process.

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TABLE OF CONTENTS

Chapter	Page
EXECUTIVE SUMMARY.....	ES-I
ES.1 Introduction	ES-1
ES.2 Purpose of and Need for Action	ES-2
ES.3 Issues and Related Resource Topics Identified Through Scoping.....	ES-2
ES.3.1 Issues and Related Resource Topics Retained for Further Consideration in the Proposed RMPA/Final EIS.....	ES-3
ES.3.2 Clarification of Planning Decisions in the 2015 Approved Resource Management Plan Amendment.....	ES-4
ES.3.3 Issues and Resource Topics Not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)	ES-5
ES.4 Alternatives Considered	ES-6
ES.4.1 No-Action Alternative.....	ES-6
ES.4.2 Management Alignment Alternative (Preferred Alternative)	ES-6
ES.4.3 Proposed Resource Management Plan Amendment.....	ES-7
ES.5 Summary of Environmental Consequences	ES-8
CHAPTER 1. PURPOSE OF AND NEED FOR ACTION.....	I-I
I.1 Introduction	I-1
I.2 Changes Between Draft and Final.....	I-3
I.3 Purpose of and Need for Action	I-3
I.4 Planning Area and Current Management.....	I-3
I.5 Planning Criteria.....	I-7
I.6 Issues and Related Resource Topics Identified Through Scoping.....	I-7
I.6.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS.....	I-9
I.6.2 Clarification of Planning Decisions in the 2015 Amendments and Revisions	I-10
I.6.3 Issues and Resource Topics not carried forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)	I-11
I.7 Relationships to Other Policies, Plans, and Programs	I-12
I.7.1 State Plans.....	I-12
I.7.2 Local Plans	I-12
CHAPTER 2. ALTERNATIVES AND PROPOSED RMP AMENDMENT DESCRIPTION	2-I
2.1 Introduction	2-1
2.1.1 Components of Alternatives.....	2-1
2.2 Changes Between the Draft EIS and Final EIS.....	2-1
2.3 Description of the Proposed RMP Amendment	2-2
2.4 Detailed Description of Alternatives and the Proposed RMP Amendment.....	2-4

CHAPTER 3. AFFECTED ENVIRONMENT	3-1
3.1 Introduction	3-1
3.1.1 USGS Reports.....	3-2
3.1.2 Multi-scale Habitat Suitability and Mapping Tools	3-2
3.1.3 Discrete Human Activities.....	3-2
3.1.4 Diffuse Activities	3-2
3.1.5 Fire and Invasive Species.....	3-3
3.1.6 Restoration Effectiveness.....	3-3
3.1.7 Population Estimation and Genetics.....	3-3
3.2 Resources Affected	3-4
3.3 Greater Sage-Grouse.....	3-5
3.3.1 Changes to Greater Sage-Grouse Habitat Based on Threats.....	3-7
3.4 Vegetation.....	3-8
3.5 Lands, Realty, and Renewable Energy	3-8
3.6 Minerals.....	3-8
3.7 Livestock Grazing	3-9
3.8 Socioeconomics	3-9
CHAPTER 4. ENVIRONMENTAL CONSEQUENCES	4-1
4.1 Introduction	4-1
4.2 Analytical Assumptions.....	4-1
4.3 General Method for Analyzing Impacts.....	4-2
4.4 Summary of Environmental Impacts of the No-Action Alternative	4-2
4.5 Environmental Impacts of the Management Alignment Alternative and the Proposed RMP Amendment.....	4-6
4.5.1 Modifying Habitat Management Area Designations.....	4-7
4.5.2 Sagebrush Focal Areas and Withdrawal.....	4-9
4.5.3 Habitat Objectives	4-10
4.5.4 Livestock Management—Permit Renewals.....	4-11
4.5.5 Livestock Management—Existing Range Improvement Structures	4-12
4.5.6 Livestock Management—Riparian Area Management.....	4-13
4.5.7 Noise	4-13
4.5.8 Adaptive Management	4-14
4.5.9 Prioritization of Fluid Mineral Leasing	4-16
4.6 Incomplete or Unavailable Information.....	4-16
4.7 Cumulative Effects Analysis	4-17
4.7.1 Range-wide Cumulative Effects Analysis - Greater Sage-Grouse	4-19
4.7.2 Why Use WAFWA Management Zones?.....	4-20
4.7.3 Cumulative Effects on Greater Sage-Grouse: Management Zone I	4-24
4.7.4 Cumulative Effects on Greater Sage-Grouse: Management Zone II/VII.....	4-26
4.7.5 Cumulative Effects on Greater Sage-Grouse: Management Zone III	4-29
4.7.6 Cumulative Effects on Greater Sage-Grouse: Management Zone IV.....	4-31
4.7.7 Cumulative Effects on Greater Sage-Grouse: Management Zone V.....	4-33
4.8 Irreversible and Irretrievable Commitment of Resources	4-36
4.9 Unavoidable Adverse Impacts.....	4-36
4.10 Relationship Between Local Short-Term Uses and Long-Term Productivity	4-37

CHAPTER 5. CONSULTATION AND COORDINATION.....	5-I
5.1 Public Involvement.....	5-I
5.1.1 Public Scoping.....	5-I
5.1.2 Website.....	5-2
5.1.3 Public Meetings.....	5-2
5.2 Cooperating Agencies	5-2
5.3 American Indian Tribal Consultation	5-3
5.4 List of Preparers.....	5-4
CHAPTER 6. REFERENCES.....	6-I
GLOSSARY	GLOSSARY-I
INDEX	INDEX-I

TABLES	Page
ES-1 Acres of On-The-Ground Treatment Activity for Fiscal Years 2015 to 2017 and Planned for 2018	ES-1
ES-2 Issues and Related Resource Topics	ES-3
1-1 Acres of Greater Sage-Grouse Habitat by BLM Field Office in the Decision Area	1-4
1-2 Issues and Related Resource Topics	1-9
2-1 Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment.....	2-4
2-2 Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion	2-24
3-1 Affected Environment Incorporated by Reference.....	3-4
4-1 Environmental Consequences for the No-Action Alternative Incorporated by Reference.....	4-3
4-2 Cumulative Effects Analysis Incorporated by Reference.....	4-21
5-1 Public Involvement, Coordination, and Consultation Events.....	5-1
5-2 Cooperating Agencies	5-3

FIGURES	Page
1-1 Existing Wyoming Greater Sage-Grouse Habitat Management Area Designations (Planning Area)	1-5
1-2 Existing Wyoming Greater Sage-Grouse Habitat Management Decision Area	1-6
2-1 Wyoming Great Sage-Grouse Habitat Management Decision Area.....	2-27
4-1 Sage-Grouse Management Zones and Greater Sage-Grouse Populations	4-23

APPENDICES

A	Proposed RMP Amendment with Management Goals, Objectives, and Decisions
B	Required Design Features
C	The Greater Sage-Grouse Habitat Management Strategy
D	Cumulative Effects Supporting Information
E	Responses to Substantive Public Comments on the Draft EIS

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ACRONYMS AND ABBREVIATIONS

Full Phrase

ACEC	area of critical environmental concern
AMWG	Adaptive Management Working Group
APD	application for permit to drill
ARMPA	approved resource management plan amendment
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CEA	cumulative effects analysis
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	condition of approval
COT	Conservation Objectives Team
CSU	controlled surface use
DDCT	density and disturbance calculation tool
DOI	US Department of the Interior
EIS	environmental impact statement
EO	executive order
ESA	Endangered Species Act of 1973
ESD	ecological site description
EVT	existing vegetation type
FIAT	Fire and Invasive Assessment Tool
FLPMA	Federal Land Policy and Management Act
GHMA	general habitat management area
GIS	geographic information system
HAF	habitat assessment framework
IHMA	important habitat management area
IM	Instruction Memorandum
LCHMA	linkage connectivity habitat management area
LUP	land use plan
LUPA	land use plan amendment
LWG	local working group
MOU	Memorandum of Understanding
MZ	Management Zone
NEPA	National Environmental Policy Act of 1969
NRCS	Natural Resources Conservation Service
NSO	no surface occupancy
OHMA	occupied habitat management area

PAC	priority area for conservation
PFC	proper functioning condition
PHMA	priority habitat management area
RDF	required design feature
RMP	resource management plan
RMPA	resource management plan amendment
ROD	Record of Decision
ROW	right-of-way
SFA	sagebrush focal area
SGI	Sage-Grouse Initiative
SGIT	Sage-Grouse Implementation Team
SO	Secretarial Order
TL	timing limitation
US	United States
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WAFWA	Western Association of Fish and Wildlife Agencies
WGFD	Wyoming Game and Fish Department

Executive Summary

ES.I INTRODUCTION

Greater Sage-Grouse is a state-managed species that is dependent on sagebrush steppe ecosystems. These ecosystems are managed in partnership across the range of the Greater Sage-Grouse by federal, state, and local authorities. Efforts to conserve the species and its habitat date back to the 1950s. Over the past two decades, state wildlife agencies, federal agencies, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitats. The United States (US) Department of the Interior (DOI) and the Bureau of Land Management (BLM) have broad responsibilities to manage federal lands and resources for the public benefit. Nearly half of Greater Sage-Grouse habitat is managed by the BLM.

In September 2015, the US Fish and Wildlife Service (USFWS) determined that the Greater Sage-Grouse did not warrant listing under the Endangered Species Act of 1973 (ESA). In its “not warranted” determination, the USFWS based its decision in part on regulatory certainty from the conservation commitments and management actions in the BLM and US Forest Service (Forest Service) Greater Sage-Grouse land use plan amendments (LUPAs) and revisions, as well as on other private, state, and federal conservation efforts. Since 2015 the BLM, in discussion with partners, recognized that several refinements and policy updates would help strengthen conservation efforts, while providing increased economic opportunity to local communities.

The BLM continues to build upon its commitment to on-the-ground management to promote conservation through close collaboration with State governments, local communities, private landowners, and other stakeholders. **Table ES-I** shows the acres of on-the-ground treatment activity between 2015 and 2017 and planned for 2018, based on annual budgets allocated by Congress. The BLM’s accomplishments reflect contributions from programs other than Greater Sage-Grouse, including fuels, riparian, and range management.

Table ES-I
Acres of On-The-Ground Treatment Activity for Fiscal Years 2015 to 2017
and Planned for 2018

Fiscal Year	Conifer Removal	Fuel Breaks	Invasive Species Removal	Habitat Protection	Habitat Restoration	Total
2015	98,876	15,000	63,612	41,003	75,952	294,443
2016	165,963	14,614	66,621	42,305	95,748	385,251
2017	185,032	65,455	124,582	10,428	93,474	479,000
2018 ¹	118,384	65,442	68,512	9,240	54,509	316,087

¹ Planned

The BLM is now engaged in a planning effort to further enhance its continued cooperation with western states by ensuring greater consistency between individual state plans and the BLM’s multiple-use mission. This executive summary highlights the major components of this planning document and outlines the potential impacts from the proposed management changes. The BLM’s efforts seek to improve management alignment in ways that will increase management flexibility, maintain access to public resources, and promote conservation outcomes.

ES.2 PURPOSE OF AND NEED FOR ACTION

In the Federal Land Policy and Management Act (FLPMA), Congress provided the BLM with discretion and authority to manage public lands for multiple use and sustained yield and declared it the policy of the United States to, consistent with the laws governing the administration of the public lands, coordinate planning activities with the land use planning and management programs of other federal, state, and local governments. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign entities with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving the Greater Sage-Grouse and its habitat.

In light of the policies and other background summarized in **Section 1.1**, the purpose and need for this resource management plan amendment (RMPA)/EIS is to modify the approach to Greater Sage-Grouse management in existing land use plans through (1) enhancing cooperation and coordination with the State of Wyoming, (2) align with DOI and BLM policy directives that have been issued since 2015, and (3) incorporate appropriate management flexibility and clarifications to better align with Wyoming's conservation plan.

ES.3 ISSUES AND RELATED RESOURCE TOPICS IDENTIFIED THROUGH SCOPING

When deciding which issues to address related to the purpose and need, the BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental impacts; as such, they can help shape the proposal and alternatives.

The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process is presented in the Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (<https://goo.gl/FopNgW>).

The sections below lay out how issues raised during scoping, as well as related resource topics, are considered in this RMPA/environmental impact statement (EIS). Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in this RMPA/EIS—These were issues raised during scoping for which alternatives were developed to address the issues.
- Clarification of decisions in the 2015 approved resource management plan amendment (ARMPA)—These are decisions or frameworks in the 2015 ARMPA that require clarification as to their application or implementation. No new analysis is required, as the intentions behind the decisions were analyzed in the 2015 Final EISs.
- Issues and resource topics not carried forward for additional consideration or analysis—These are issues and resource topics brought up during scoping that were not carried forward in this RMPA/EIS—While some of these issues are considered in this EIS, they do not require additional analysis because they were analyzed in the 2015 Final EISs, and no new information has been identified that would warrant further analysis. Others are not carried forward in this RMPA/EIS because they do not further the purpose of aligning with the state's conservation plan.

ES.3.1 Issues and Related Resource Topics Retained for Further Consideration in the Proposed RMPA/Final EIS

The issues identified in **Table ES-2** were previously analyzed; however, based on the proposed changes, the resource topics and potential impacts that may require additional analysis are as follows: Greater Sage-Grouse, vegetation, lands and realty, minerals, livestock grazing, and socioeconomics; therefore, these resource topics are carried forward for analysis.

Table ES-2
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Modifying Habitat Management Area Designations <ul style="list-style-type: none"> Need for adjusting habitat management areas to reflect best available science and ensure consistency with habitat management areas identified by the Wyoming Game and Fish Department (WGFD) 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
Sagebrush Focal Areas (SFAs) <ul style="list-style-type: none"> Do SFAs contribute to achieving conservation outcomes? Relevance of this habitat designation in the absence of a withdrawal Constraints on mineral development within SFAs 	Greater Sage-Grouse Vegetation Minerals Livestock Grazing Socioeconomics
Withdrawal <ul style="list-style-type: none"> What would occur as a result of not moving forward with the recommended withdrawal? 	Greater Sage-Grouse Vegetation Minerals Socioeconomics
Managing Noise Standards Outside Priority Habitat Management Areas (PHMA) <ul style="list-style-type: none"> Are noise standards being applied consistent with the state management? 	Greater Sage-Grouse Realty Minerals
Habitat Objectives <ul style="list-style-type: none"> Use in assessing rangeland health standards Consideration of localized ecological site potential Habitat objectives tables 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
Livestock Management <ul style="list-style-type: none"> Management of existing range improvement structures Riparian area management 	Greater Sage-Grouse Vegetation Livestock grazing Socioeconomics
Modifying Adaptive Management Strategies <ul style="list-style-type: none"> What should be the process for changing or reverting to an adaptive management response? 	Greater Sage-Grouse
Compensatory Mitigation <ul style="list-style-type: none"> What are the impacts of following the State's mitigation framework? What would be the result of not requiring net conservation gain for recreation facilities? 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock grazing Socioeconomics

Table ES-2
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Prioritization of Fluid Mineral Leasing <ul style="list-style-type: none"> Prioritization of oil and gas leasing outside of PHMA 	Greater Sage-Grouse Vegetation Minerals Socioeconomics

Table ES-2 identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the impacts from implementing any of the alternatives also are described in Chapters 3 and 4.

ES.3.2 Clarification of Planning Decisions in the 2015 Approved Resource Management Plan Amendment

The following issues with existing planning decisions were raised during scoping. These issues require clarification to language in the 2015 amendments and revisions but do not require new analysis or a planning-level decision. The language below identifies how these issues will be addressed by the BLM outside of the land use planning process.

- Clarification is required for implementation-level actions on restrictions that should only be applied to PHMA. Based on language in the existing land use plans, there has been some confusion regarding application of PHMA-type restrictions in non-PHMA. The BLM will clarify this with step-down guidance for implementation-level actions.
- Currently, there is no direction on how the BLM and State of Wyoming could work to incentivize development outside of PHMA. The BLM will work with the State of Wyoming in determining the appropriate path forward in incentivizing development outside of PHMA.
- The State of Wyoming has identified several “de minimis” activities that are exempt from the requirements and restrictions of the Governor’s Executive Order (EO) for Greater Sage-Grouse Core Area Protection (EO 2015-4). These include activities such as residential and agricultural electric utilities, fence modifications, and small impoundment development, among other activities. Currently, the BLM has several categorical exclusions that may be used to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA) when such proposals are received on BLM-administered lands. Other “de minimis” activities are not covered by an appropriate categorical exclusion and, therefore, the BLM must comply with NEPA by preparing an environmental assessment or, as appropriate, EIS. BLM Wyoming will issue guidance to field offices regarding the appropriate use of categorical exclusions for those actions where categorical exclusions exist. BLM Wyoming will also explore the development of a programmatic NEPA analysis for other activities that the State of Wyoming considers “de minimis” in order to enable, as appropriate, field offices to use other tools, such as a determination of NEPA adequacy, to authorize projects.
- BLM Wyoming will develop guidance and clarification on the use of required design features (RDFs) when they are applied at the implementation level. RDFs are to be used as appropriate at the site-specific level and should not be assumed to apply to all projects.

- Recognizing that the Greater Sage-Grouse is a state-managed species, the BLM will work with the State of Wyoming (primarily the WGFD) when considering timing stipulation exception requests submitted by fluid mineral lease developers. Following an environmental record of review, the BLM can and does approve exception requests. The BLM will consider the analysis completed by the WGFD when preparing the appropriate environmental record of review and will document appropriate measures to avoid, minimize, and otherwise mitigate impacts.

ES.3.3 Issues and Resource Topics Not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)

The following issues were raised during scoping and are not carried forward for a variety of reasons. For example, population-based management is not carried forward for detailed analysis because the BLM does not manage species populations; that authority falls under the WGFD's jurisdiction.

Other issues were analyzed in the 2015 Final EISs, and no significant new information related to these issues has emerged since that time. The following issues, therefore, do not require additional analysis in this RMPA/EIS.

- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and general habitat management areas (GHMA)
- Retention of lands as identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and geothermal development
- Effects of no surface occupancy (NSO) stipulations on Greater Sage-Grouse habitat on non-BLM-administered land
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Vegetation treatments and wildfire response

The resource topics below are dismissed from detailed analysis. While these resource topics may have impacts related to Greater Sage-Grouse conservation that were analyzed in the 2015 Final EISs, they are dismissed from detailed analysis because they have no potentially significant impacts from actions proposed in this RMPA/EIS:

- Air quality
- Cultural resources
- Forestry
- Lands with wilderness characteristics
- Paleontology
- Recreation resources
- Soils
- Special designations and management areas
- Transportation and access management
- Visual resources
- Watershed and water quality

- Wild horses
- Wildland fire and fuels
- Wildlife (other than Greater Sage-Grouse) and fisheries

ES.4 ALTERNATIVES CONSIDERED

Alternatives development and analysis is the heart of an EIS. The alternatives considered in this document address all the issues brought forward by the public and considered by the BLM. The comparative analysis between alternatives establishes a framework for decision-makers to understand important trade-offs and identify the most effective way to meet the purpose and need and BLM's multiple-use mission. The alternatives analysis can support the BLM in adapting its management when information and circumstances change.

ES.4.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not amend the existing RMPs regarding Greater Sage-Grouse habitat management. Greater Sage-Grouse habitat would continue to be managed under current management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not change. Allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, lands and realty, and livestock grazing would also remain the same.

ES.4.2 Management Alignment Alternative (Preferred Alternative)

This alternative, identified herein as the BLM's Preferred Alternative, was developed through coordination with the state to align with the state conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continues to build upon the 2015 planning effort as envisioned in Secretarial Order (SO) 3353 by collaborating with states and stakeholders to improve alignment between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple-use mission. This enhanced cooperation between the BLM and the Governor's office would lead to improved management and coordination across the range of Greater Sage-Grouse in Wyoming.

Key aspects of this alternative include the following:

- Ensure that the BLM has the flexibility to update habitat management areas based on information consistent with the State of Wyoming's core areas
- Remove the SFA designation
- Clarify the use of the Habitat Objectives Tables
- Ensure that noise thresholds and monitoring outlined in EO 2015-4 are only applicable to leks inside PHMA/core
- Define a process to review and reverse adaptive management actions once the identified causal factor is resolved
- Follow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework

The Management Alignment Alternative does not propose to change any other decisions or objectives in the existing plans, other than those identified in **Table 2-1**. For example, in the 2015 ARMPA, Management Decision Special Status Species #11 describes how the BLM will support other agencies in their efforts to minimize impacts from predators. This management decision is in the existing plans and

is not proposed to change; therefore, all other existing management decisions that are not being proposed for change in this Proposed RMPA/Final EIS will remain the same, and remain in full force and effect.

Consistent with the Notice of Cancellation, which canceled the BLM's application to withdraw SFA from locatable mineral entry (82 *Federal Register* 195, October 11, 2017, p. 47248), this alternative would remove the recommendation for withdrawal. The effects of such an action are included in Chapter 4.

ES.4.3 Proposed Resource Management Plan Amendment

The Proposed RMP Amendment is a refinement of the Management Alignment Alternative and was developed based on internal review and comments received on the Draft RMPA/EIS. Changes between the Management Alignment Alternative and the Proposed RMP Amendment include refinement of language relating to habitat objectives, livestock grazing management, and prioritization of leasing. In addition, the Proposed RMP Amendment provides additional language for the management action related to compensatory mitigation that further defines and clarifies the coordination that would occur between the BLM and the State of Wyoming when the State determines that compensatory mitigation is warranted.

The Management Alignment Alternative in the Draft RMPA/EIS included a proposed management action for compensatory mitigation based on the mitigation framework the BLM incorporated into its plans in 2015. However, following extensive review of FLPMA, existing regulations, orders, policies, and guidance, the BLM has determined that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of BLM-administered lands (Instruction Memorandum 2018-093, *Compensatory Mitigation*, July 24, 2018). Consistent with that determination, compensatory mitigation must be voluntary unless required by other applicable laws, but the BLM recognizes that state authorities may also require compensatory mitigation. The BLM would not deny a proposed authorization in Greater Sage-Grouse habitat solely on the grounds that the proponent has not proposed or agreed to undertake voluntary compensatory mitigation.

To align this planning effort with the BLM's compensatory mitigation policy (IM 2018-093) and the State of Wyoming's mitigation framework, the Proposed RMP Amendment clarifies that the BLM would consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. In accordance with the State's goals for managing Greater Sage-Grouse, the Proposed RMP Amendment modifies the net conservation gain standard for compensatory mitigation to clarify that the BLM would pursue conservation benefits as a broader planning goal and objective. This means that the BLM would continue to require avoidance, minimization, and other onsite mitigation to adequately conserve Greater Sage-Grouse and its habitat, while remaining committed to implementing beneficial habitat management actions to reduce the threats of fire and invasive species. In fiscal year 2018, the BLM funded approximately \$29 million in sage-grouse management actions resulting in approximately 500,000 acres of treated sage-grouse habitat and expects to invest another \$17 million of habitat management projects in fiscal year 2019.

Since the signing of the ARMPA in September of 2015, BLM Wyoming has committed over \$15 million to complete more than 230 Greater Sage-grouse habitat improvement projects. This work includes a

wide variety of invasive species and fuels reduction treatments, riparian improvements, energy reclamation, habitat monitoring, and leading research identifying impacts associated with land use proposals. This funding also helped leverage state partner funding contributions and state-wide initiatives such as the Wyoming Landscape Conservation Initiative and the Powder River Basin Restoration Initiative that adopts an “all hands, all lands” approach to engaging stakeholder involvement.

The BLM would continue to apply the mitigation hierarchy as described in the CEQ regulations at 40 CFR 1508.20; however, the BLM would focus on avoiding, minimizing, rectifying, and reducing impacts over time. Compensation, which involves replacing or providing substitute resources for the impacts (including through payments to fund such work), would be considered only when voluntarily offered by a proponent or when imposed by the State. The BLM commits to cooperating with the State to analyze applicant-proposed or state-imposed compensatory mitigation to offset residual impacts.

Because this clarification simply aligns the Proposed RMP Amendment with BLM policy and the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects is speculative at this level of land use planning, analysis of compensatory mitigation is more appropriate for future project-specific NEPA. The BLM remains committed to achieving the planning-level management goals and objectives identified in this RMPA and the 2015 ARMPA by ensuring Greater Sage-Grouse habitat impacts are addressed through implementing mitigating actions consistent with the governing RMP.

The BLM also recognizes that Greater Sage-Grouse is a state-managed species, and that State authority regarding fish and resident wildlife remains the comprehensive management framework in the absence of specific, overriding federal law (43 CFR 24.3(a)). Further the BLM recognizes that state governments have established fish and wildlife agencies that are charged with the responsibility and mandate to implement state statutes for effective, appropriate, and efficient conservation and management of fish and resident wildlife species. Accordingly, the BLM has coordinated with the State to develop a memorandum of agreement (MOA) to guide the application of the mitigation hierarchy and compensatory mitigation actions for future project authorizations in Greater Sage-Grouse habitat on public lands.

The BLM would not deny a proposed authorization in Greater Sage-Grouse habitat solely on the grounds that the proponent has not proposed or agreed to undertake voluntary compensatory mitigation. In cases where waivers, exceptions, or modification may be granted for projects with a residual impact, voluntary compensatory mitigation consistent with the State’s management goals can be one mechanism by which a proponent achieves the RMPA goals, objectives, and waiver, exception, or modification criteria. When a proponent volunteers compensatory mitigation as their chosen approach to address residual impacts, the BLM can incorporate those actions into the rationale used to grant a waiver, exception, or modification. The final decision to grant a waiver, exception, or modification will be based, in part, on criteria consistent with the State’s Greater Sage-Grouse management plans and policies.

ES.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This section includes a summary comparison of environmental consequences from implementing the No-Action Alternative, the Management Alignment Alternative, and the Proposed RMP Amendment. A detailed description of environmental consequences is included in **Chapter 4**.

No-Action Alternative	Management Alignment Alternative and Proposed RMP Amendment
<p>Greater Sage-Grouse</p> <p>Impacts on Greater Sage-Grouse as a result of the No-Action Alternative are detailed in Chapter 4 of the Final EIS for the RMPAs and RMP revisions, and the analysis from those documents is incorporated by reference in this document.</p>	<p>The impacts on Greater Sage-Grouse as a result of this alternative would mostly be similar to those identified in the 2014 and 2015 amendments and revisions; the analyses from those documents are incorporated by reference in this document. There would be minimal change between the No-Action and Management Alignment Alternative. Although adverse effects on local populations may occur as a result of the management actions, no impacts on Greater Sage-Grouse conservation in Wyoming have been identified, and consistent management will be achieved across the state.</p>
<p>Solid Minerals</p> <p>Impacts on Greater Sage-Grouse from decisions associated with solid minerals as a result of the No-Action Alternative are detailed in Chapter 4 of the Final EIS for the RMPAs and RMP revisions.</p>	<p>Impacts on Greater Sage-Grouse as a result of removing the SFA designation and removing the recommendation to withdraw the SFAs from location and entry under the Mining Law would be minimal and would not affect Greater Sage-Grouse conservation in Wyoming.</p>
<p>Fluid Minerals</p> <p>Impacts on Greater Sage-Grouse from decisions associated with fluid minerals as a result of the No-Action Alternative are detailed in Chapter 4 of the Final EIS for the RMPAs and RMP revisions.</p>	<p>Impacts on Greater Sage-Grouse as a result of proposed decisions associated with fluid mineral leasing and development would not affect Greater Sage-Grouse conservation in Wyoming. A fluid mineral lease does not authorize surface-disturbing activities; therefore, impacts related to changes in the prioritization of leasing outside of PHMA would be likely to beneficially affect Greater Sage-Grouse conservation in Wyoming. Site-specific impacts would be identified at the time a project-level application is received.</p>
<p>Livestock Grazing</p> <p>Impacts on Greater Sage-Grouse from decisions associated with livestock grazing as a result of the No-Action Alternative are detailed in Chapter 4 of the Final EIS for the RMPAs and RMP revisions.</p>	<p>Impacts on Greater Sage-Grouse as a result of proposed decisions associated with livestock grazing would not affect Greater Sage-Grouse conservation in Wyoming. Proposed changes to the habitat objectives and livestock grazing would result in impacts similar to current management.</p>

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Chapter I. Purpose of and Need for Action

I.1 INTRODUCTION

Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe ecosystems. These ecosystems are managed in partnership across its range by federal, state, and local authorities. State agencies responsible for fish and wildlife management possess broad responsibility for protecting and managing fish, wildlife, and plants within their borders, except where preempted by federal law. Similarly, the Department of Interior (DOI) has broad responsibilities to manage federal lands and resources for the public's benefit. Approximately half of Greater Sage-Grouse habitat is managed by the Bureau of Land Management (BLM) and US Forest Service (Forest Service).

State agencies are at the forefront of efforts to maintain healthy fish and wildlife populations and to conserve at-risk species. State-led efforts to conserve the species and its habitat date back to the 1950s. For the past two decades, state wildlife agencies, federal agencies, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitats.

In 2010 the US Fish and Wildlife Service (USFWS) determined that listing the Greater Sage-Grouse under the Endangered Species Act (ESA) was “warranted, but precluded” by other priorities. In response, the BLM, in coordination with the DOI and the US Department of Agriculture, developed a management strategy that included targeted Greater Sage-Grouse management actions. In 2015, the agencies adopted land use plan amendments (LUPAs) and revisions to 98 BLM and Forest Service land use plans (LUPs) across ten western states. These LUPAs addressed, in part, threats to the Greater Sage-Grouse and its habitat. The amended LUPs govern the management of 67 million acres of Greater Sage-Grouse habitat on federal lands.

In September 2015, the USFWS determined that the Greater Sage-Grouse did not warrant listing under the ESA. The USFWS attributed its 2010 “warranted, but precluded” determination primarily to “inadequate regulatory mechanisms.” In its 2015 conclusion of “not warranted,” the USFWS based its decision in part on regulatory certainty from the conservation commitments and management actions in the federal LUPAs and revisions, as well as on other private, state, and federal conservation efforts.

The BLM continues to prioritize efforts to conserve Greater Sage-Grouse and restore sagebrush habitat and increase the number of acres treated every year. In Fiscal Year 2018, approximately 530,000 acres were treated and the BLM is currently working on more detailed metrics and data for these acres treated. Also, in Fiscal Year 2017, the BLM treated approximately 480,000 acres, for an increase of almost 100,000 acres over 2016 accomplishments. The Fiscal Year 2017 treatments included 185,000 acres of conifer removal; 65,000 acres of fuel breaks; 125,000 acres with invasive species treatments; 10,000 acres of habitat protection; and restored habitat on 94,000 acres of uplands and another 600 acres of riparian habitat.

The BLM is committed to working directly with local communities on sagebrush conservation efforts and to emulate the successes demonstrated by the Natural Resources Conservation Service (NRCS) through the Sage-Grouse Initiative on private lands. These efforts include:

- an agreement with the Intermountain West Joint Venture to work with local cattlemen associations to improve sagebrush rangeland conditions through actions such as controlling invasive species, improving mesic areas, and removing invasive conifers;
- a Memorandum of Understanding between the BLM, the NRCS, and the Forest Service resulting in development of a map that identifies areas where the agencies have ongoing restoration projects and opportunities for additional collaboration across land ownerships and associated landscapes;
- promoting a locally led collaborative conservation, the BLM, the USFWS, and the Geological Survey are collaborating with the Western Association of Fish and Wildlife Agencies as they lead the development and implementation of the Sagebrush Conservation Strategy;
- working with livestock permittees and stakeholders on “targeted grazing” to utilize grazing as a tool to create and maintain fuel breaks to manage the threats of wildfire and invasive species in or to Greater Sage-Grouse habitats; and,
- working to develop “outcome-based grazing” to provide greater flexibility for livestock permittees and land managers to meet habitat objectives as conditions on-the-ground change.

The plans recommended that Sagebrush Focal Areas (SFAs) be proposed for withdrawal; however, a proposed withdrawal of the SFAs was cancelled on October 11, 2017.

On March 29, 2017, the Secretary of the Interior (Secretary) issued Secretarial Order (SO) 3349, *American Energy Independence*. It ordered DOI agencies to reexamine practices “to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working Americans families.”

On June 7, 2017, the Secretary issued SO 3353, with a purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an interior review team, consisting of the BLM, the USFWS, and the US Geological Survey (USGS), to coordinate with the Greater Sage-Grouse Task Force. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that may require modification to make the plans more consistent with the individual state plans and to better balance the BLM’s multiple-use mission, as directed by SO 3349.

On August 4, 2017, the interior review team submitted its report in response to SO 3353. In this report the team recommended modifying the Greater Sage-Grouse plans and associated policies to better align with the individual state plans. On August 4, 2017, the Secretary issued a memo to the Deputy Secretary directing the BLM to implement the recommendations found in the report.

In the *Federal Register* of October 11, 2017, the BLM published the Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments.

During the public scoping period, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be considered, and if plans should be completed at the state level rather than at the national level. In addition, the BLM recognizes that Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. Input from state governors would weigh

heavily when the BLM considers what management changes should be made and when ensuring consistency with the BLM's multiple-use mission.

On May 4, 2018, the BLM released a Draft Resource Management Plan Amendment (RMPA)/Environmental Impact Statement (EIS) for a 90-day public comment period. Wyoming BLM received over 60,000 form letters and 123 individual letters from the public. Based on comments received on the Draft EIS, the Final EIS/Proposed RMPA has been updated as described below and in Chapters 2 and 4.

I.2 CHANGES BETWEEN DRAFT AND FINAL

As a result of public comments, best science, cooperating agency coordination, and internal review of the Draft RMPA/EIS, the BLM's Preferred Alternative, identified as Alternative B or Management Alignment Alternative in the Draft EIS, has been modified and is now the Proposed RMP Amendment for managing Greater Sage-Grouse habitat on BLM-administered lands within the planning area.

I.3 PURPOSE OF AND NEED FOR ACTION

In the Federal Land Policy and Management Act (FLPMA), Congress provided the BLM with discretion and authority to manage public lands for multiple use and sustained yield, to the extent consistent with the laws governing the administration of the public lands, and declared it the policy of the United States to coordinate planning and management activities with the land use planning and management programs of other federal, state, and local governments. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign entities with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving and restoring the Greater Sage-Grouse and its habitat.

In light of the policies and other background summarized in **Section I.1**, the purpose and need for this resource management plan amendment (RMPA)/EIS is to modify the approach to Greater Sage-Grouse management in existing land use plans through (1) enhancing cooperation and coordination with the State of Wyoming, (2) align with DOI and BLM policy directives that have been issued since 2015, and (3) incorporate appropriate management flexibility and clarifications to better align with Wyoming's conservation plan.

I.4 PLANNING AREA AND CURRENT MANAGEMENT

The planning area for these Greater Sage-Grouse resource management plan (RMP) amendments consists of lands managed by all of the BLM Wyoming Field Offices: Buffalo, Casper, Cody, Kemmerer, Lander, Newcastle, Pinedale, Rawlins, Rock Springs, and Worland. It includes all lands and federal mineral estate managed by the BLM within these areas. The decision area for the RMPA/EIS is BLM-administered lands in Greater Sage-Grouse habitat, as defined by the State of Wyoming's Core Area Strategy.

The BLM manages approximately 17,494,000 acres of surface estate and 40,700,000 acres of federal mineral estate in Wyoming. The decision area encompasses approximately 17 million acres of surface land and 28 million acres of federal mineral estate. **Table I-1**, below, identifies the acreage for priority habitat management areas (PHMA) and general habitat management areas (GHMA) for federal surface and federal mineral estate in each field office across the decision area. Approximately 1,915,990 acres are designated as sagebrush focal areas (SFAs), which are managed as PHMA in Wyoming.

Table I-1
Acres of Greater Sage-Grouse Habitat by BLM Field Office in the Decision Area

BLM Office	PHMA Acres		GHMA Acres		Total Habitat Acres	
	BLM Surface	Federal Mineral	BLM Surface	Federal Mineral	BLM Surface	Federal Mineral
Buffalo Field Office	136,877	840,465	627,579	3,994,864	764,456	4,835,329
Casper Field Office	726,376	1,561,575	531,643	2,281,859	1,258,019	3,843,434
Cody Field Office	317,262	435,451	769,356	1,101,459	1,086,618	1,536,910
Kemmerer Field Office	632,810	686,546	768,146	910,615	1,400,956	1,597,161
Lander Field Office*	1,686,648	1,888,629	685,289	882,057	2,371,937	2,770,686
Newcastle Field Office	81,468	529,358	169,349	1,150,165	250,817	1,679,523
Pinedale Field Office	421,079	675,858	491,028	818,530	912,107	1,494,388
Rawlins Field Office	1,520,006	1,920,060	1,916,257	2,384,409	3,436,263	4,304,469
Rock Springs Field Office	1,731,730	1,808,975	1,865,180	1,920,425	3,596,910	3,729,400
Worland Field Office	797,448	1,019,544	1,301,942	1,670,110	2,099,390	2,689,654
Total decision area acres	8,051,704	11,366,461	9,125,769	17,114,493	17,177,473	28,480,954

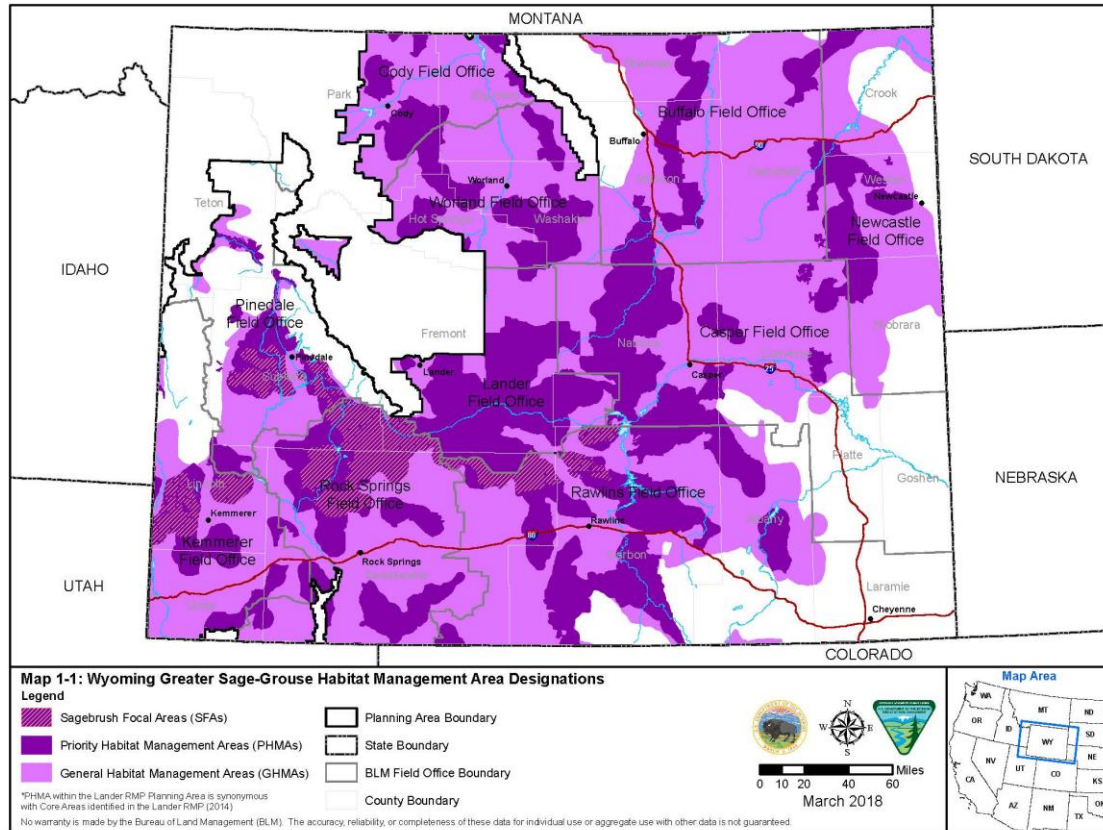
*The Lander Field Office does not contain PHMA/GHMA designations but rather uses the terminology of core and non-core areas, similar to the State of Wyoming's Executive Orders (EOs).

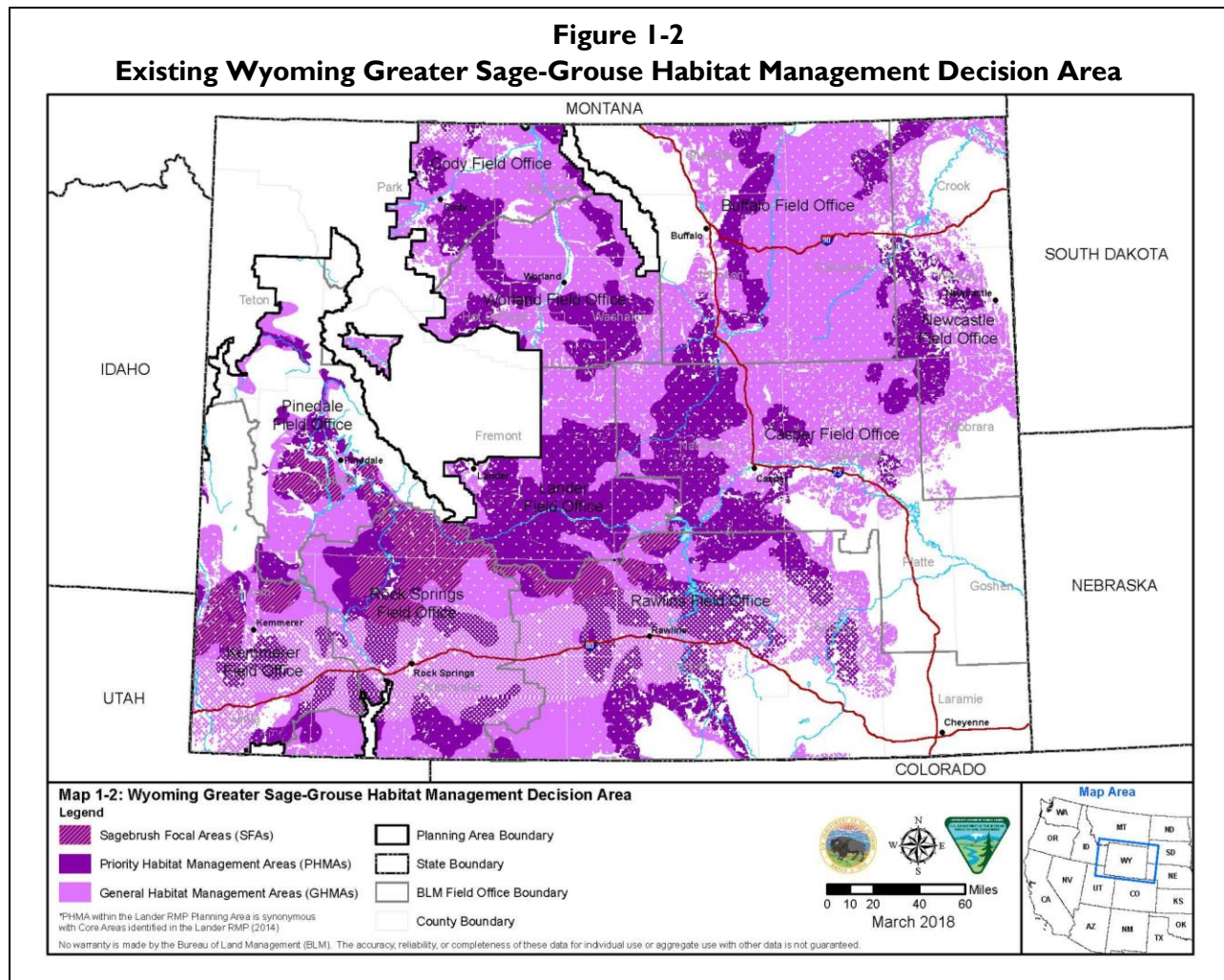
Figures I-1 and I-2 identify the planning (analysis) area for this RMPA/EIS and the decision area for this document, respectively. These maps depict the existing habitat management areas that are being considered in this RMPA/EIS.

Current management for Greater Sage-Grouse conservation in Wyoming is provided in the Approved RMPAs (ARMPAs) for Greater Sage-Grouse in the Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices, as well as in the RMPs for Buffalo, Cody, Worland, and Lander; however, management actions proposed in this Final EIS/Proposed RMPA would not be universally applied across all RMPs. There are various management decisions in the existing ARMPA decision area and not to the Lander, Buffalo, Cody, or Worland RMPs because those RMPs were developed independently as land use plan revisions.

The Lander RMP revision, although completed in 2014, is being included in this RMPA/EIS because there are some proposed management actions that would apply to the Lander RMP. For example, one of the actions the BLM proposes is to update its Greater Sage-Grouse habitat management area designations when the State of Wyoming updates its core areas. This should apply to Lander, along with the other plans; however, there are several actions (identified by No Similar Action in **Table I-2**) that would *not* apply to the Lander RMP. See **Chapter 2** for more information.

Figure I-1
Existing Wyoming Greater Sage-Grouse Habitat Management Area Designations
(Planning Area)





PHMA are areas that meet some stage of the Greater Sage-Grouse life cycle requirements, based on best available science. These broad habitat maps are necessary at the RMP scale of planning in order to include a variety of important seasonal habitats and movement corridors that are spread across geographically diverse and naturally fragmented landscapes. Greater Sage-Grouse use multiple areas to meet seasonal habitat needs throughout the year, and the resulting mosaic of habitats (e.g., winter, breeding, nesting, early brood-rearing, late brood-rearing, transitional, and movement corridor habitats) can encompass large areas. Broad habitat maps increase the likelihood that all seasonal habitats (including transition and movement corridors) are included. While areas of non-habitat, in and of themselves, may not provide direct habitat value for Greater Sage-Grouse (e.g., canyons, water bodies, and human disturbances), these areas may be crossed by birds when moving between seasonal habitats; therefore, these habitat management areas are not strictly about managing habitat but are about providing those large landscapes that are necessary to meet the life-stage requirements for Greater Sage-Grouse. These areas will include areas that do not meet the habitat requirements described in the Seasonal Habitat Objectives tables in the 2015 Final EISs for Bighorn and Buffalo RMP revisions and the 2015 Final EIS for Greater Sage-Grouse. These areas meet Greater Sage-Grouse habitat needs by maintaining large, contiguous expanses of relatively intact sagebrush vegetation community.

The BLM will continue to implement other decisions in the existing RMPs, until otherwise amended.

I.5 PLANNING CRITERIA

Planning criteria establish constraints, guidelines, and standards for the planning process and help the BLM define the scope of planning and analysis.

The following criteria are based on standards prescribed by applicable laws and regulations, agency guidance, analysis pertinent to the planning area, professional judgment, and results of consultation and coordination with the public and other federal, state, and local agencies.

The BLM has identified the following planning criteria:

- It will comply with all laws, regulations, policies, and guidance related to public lands management and implementing the National Environmental Policy Act of 1969 (NEPA) on BLM-administered lands.
- Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. In making management determinations on BLM-administered lands, the BLM will use, to the fullest extent practicable, state game and fish agencies' Greater Sage-Grouse data and expertise.
- Lands addressed in the RMPA/EIS will be BLM-administered land in Greater Sage-Grouse habitats, including surface and split-estate lands with federal subsurface mineral rights. Any decisions in the RMPA/EIS will apply only to BLM-administered lands.
- This RMPA/EIS will comply with orders of the Secretary, including SO 3353 (Greater Sage-Grouse Conservation and Cooperation with Western States), which strives for compatibility with state conservation plans.
- This RMPA/EIS will incorporate, as appropriate, information in a USGS report that identified and annotated Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018).
- This RMPA/EIS will comply with BLM Manual 6840, Special Status Species Management.
- This RMPA/EIS will recognize valid existing rights.
- All activities and uses in Greater Sage-Grouse habitats will be managed to achieve Greater Sage-Grouse objectives and existing land health standards.

This RMPA/EIS will not amend more restrictive land use allocations or decisions for other resources under existing RMPs, such as wilderness study areas, areas of critical concern, cultural resources, and riparian areas.

I.6 ISSUES AND RELATED RESOURCE TOPICS IDENTIFIED THROUGH SCOPING

When deciding which issues to address related to the purpose and need, the BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental effects; as such, issues can help shape the proposal and alternatives. The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process is presented in a report titled Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (<https://goo.gl/FopNgW>).

When determining whether to retain an issue for more detailed analysis in this RMPA/EIS, the interdisciplinary team considered, among other things, the following:

- The environmental impacts associated with the issue and the threats to species and habitat associated with the issue are central to development of a Greater Sage-Grouse management plan or of critical importance.
- A detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives.
- The environmental impacts associated with the issue are a significant point of contention among the public or other agencies.
- There are potentially significant impacts on resources associated with the issue.

Ultimately, it is important for decision-makers and the public to understand the impacts that each of the alternatives would have on specific resources; therefore, the BLM uses resource topics as a heading to indicate which resources would be affected by a management change. Importantly, resource topics will help organize the discussions of the affected environment (**Chapter 3**) and environmental consequences (**Chapter 4**).

The sections below lay out how issues raised during scoping, as well as related resource topics, are considered in this EIS. Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in this RMPA/EIS—These are issues raised during scoping that are retained in this RMPA/EIS and for which alternatives were developed to address the issues. In some cases, the alternatives were previously analyzed in the 2015 Final EISs. In other cases, additional analysis is needed in this RMPA/EIS. Because the issues were analyzed under resource topics in 2015, the resource topics corresponding with those retained for further analysis are also considered in this RMPA/EIS. Just like issues, they may have been analyzed in the 2015 Final EISs for those decisions being included in this RMPA/EIS.
- Clarification of decisions in the 2015 amendments and revisions—These are decisions or frameworks in the 2015 amendments and revisions that require clarification as to their application or implementation. No new analysis is required, as the intentions behind the decisions were analyzed in the 2015 Final EISs.
- Issues and resource topics not carried forward for additional consideration or analysis—These are issues brought up during scoping that are not carried forward in this RMPA/EIS. While some of these issues are considered, they do not require additional analysis because they were analyzed in the 2015 Final EISs. Others are not carried forward because they do not further the purpose of aligning with the State of Wyoming's conservation plan.

Similar to issues, there are resource topics that are not retained for further analysis in this RMPA/EIS. This is because either they are not affected by the changes proposed in **Chapter 2** or because the effect was analyzed in the 2015 Final EISs.

1.6.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS

Table 1-2 summarizes those issues identified through scoping and that have been retained for consideration and additional discussion in **Chapters 3** and **4**.

Based on the issues identified in **Table 1-2** that have not been previously analyzed, the resource topics that have the potential to be affected are Greater Sage-Grouse, livestock grazing management, locatable minerals, and fluid minerals; therefore, these resource topics are carried forward for detailed analysis.

Table 1-2 identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the effects from implementing any of the alternatives also are described in **Chapters 3** and **4**.

Table 1-2
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Modifying Habitat Management Area Designations <ul style="list-style-type: none"> Need for adjusting habitat management areas to reflect best available science and ensure consistency with habitat management areas identified by the Wyoming Game and Fish Department (WGFD) 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
Sagebrush Focal Areas <ul style="list-style-type: none"> Do SFAs contribute to achieving conservation outcomes? Relevance of this habitat designation in the absence of a withdrawal Constraints on mineral development within SFAs 	Greater Sage-Grouse Vegetation Minerals Livestock Grazing Socioeconomics
Withdrawal <ul style="list-style-type: none"> What would occur as a result of not moving forward with the recommended withdrawal? 	Greater Sage-Grouse Vegetation Minerals Socioeconomics
Managing Noise Standards Outside PHMA <ul style="list-style-type: none"> Are noise standards being applied consistent with the state management? 	Greater Sage-Grouse Realty Minerals
Habitat Objectives <ul style="list-style-type: none"> Use in assessing rangeland health standards Consideration of localized ecological site potential Habitat objectives tables 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
Livestock Management <ul style="list-style-type: none"> Management of existing range improvement structures Riparian area management 	Greater Sage-Grouse Vegetation Livestock grazing Socioeconomics
Modifying Adaptive Management Strategies <ul style="list-style-type: none"> What should be the process for changing or reverting to an adaptive management response? 	Greater Sage-Grouse

**Table I-2
Issues and Related Resource Topics**

Issues	Resource Topics Related to the Issues
Compensatory Mitigation <ul style="list-style-type: none"> What are the impacts of following the State's mitigation framework? What would be the result of not requiring net conservation gain for recreation facilities? 	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock grazing Socioeconomics
Prioritization of Fluid Mineral Leasing <ul style="list-style-type: none"> Prioritization of oil and gas leasing outside of PHMA 	Greater Sage-Grouse Vegetation Minerals Socioeconomics

I.6.2 Clarification of Planning Decisions in the 2015 Amendments and Revisions

The following issues with existing planning decisions were raised during scoping. These issues will result in clarification to language in the 2015 amendments and revisions but do not require new analysis or a planning-level decision. The language below identifies how these issues would be addressed by the BLM outside of the land use planning process.

- Clarification is required for implementation-level actions on restrictions that should be applied only to PHMA. Based on language in the existing land use plans, there has been some confusion regarding application of PHMA-type restrictions in non-PHMA. BLM Wyoming will clarify this with future step-down guidance for implementation-level actions.
- Currently, there is no direction on how the BLM and the State of Wyoming could work to incentivize development outside PHMA. The BLM will work with the State of Wyoming in determining the appropriate path forward in incentivizing development outside PHMA.
- The State of Wyoming has identified several de minimis activities that are exempt from the requirements and restrictions of the Governor's EO for Greater Sage-Grouse Core Area Protection (EO 2015-4). These include activities such as residential and agricultural electric utilities, fence modifications, and small impoundment development, among other activities. Currently, the BLM has several categorical exclusions that may be used to satisfy the requirements of NEPA when some such proposals are received on BLM-administered lands. Other de minimis activities are not covered by an appropriate categorical exclusion, so the BLM must comply with NEPA by preparing an environmental assessment or, as appropriate, an EIS. BLM Wyoming will issue guidance to field offices regarding the appropriate use of categorical exclusions for those actions where categorical exclusions exist. BLM Wyoming will also explore the development of a programmatic NEPA analysis for other activities that the State of Wyoming considers de minimis in order to enable, as appropriate, field offices to use other tools, such as a determination of NEPA adequacy, to authorize projects.
- The 2015 ARMPA and ARMP developed a suite of required design features (RDFs) that should be applied at the project and/or site-specific level when projects are proposed in Greater Sage-Grouse habitat. There has been some confusion relating to when these RDFs should be applied; therefore, BLM Wyoming will develop guidance and clarification on the use of RDFs when they

are applied at the implementation level. RDFs are to be used as appropriate at the site-specific level and should not be assumed to apply to all projects.

- Recognizing that the Greater Sage-Grouse is a state-managed species, the BLM will work with the State of Wyoming (primarily the WGFD) when considering timing stipulation exception requests submitted by fluid mineral lease developers. Following an environmental record of review, the BLM can and does approve exception requests. The BLM will consider the analysis completed by the WGFD when preparing the appropriate environmental record of review.

I.6.3 Issues and Resource Topics not carried forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)

Issues and Related Resource Topics Not Carried Forward for Additional Analysis

Commenters raised population-based management as an issue for consideration during scoping for this RMPA/EIS. This issue was not carried forward for detailed analysis because the BLM does not manage species populations, an authority that falls under the WGFD's jurisdiction.

Because the issues listed below were analyzed in the 2015 Final EISs and no significant new information has emerged, they do not require additional analysis in this RMPA/EIS; these types of impacts on these resources are described in the range of alternatives in the 2015 Final EISs.

- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and GHMA
- Retention of lands as identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and geothermal development
- Effects of no surface occupancy (NSO) stipulations on Greater Sage-Grouse habitat on non-BLM-administered land
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Vegetation treatments and wildfire response

Resource Topics Not Carried Forward for Additional Analysis

The resource topics below are dismissed from detailed analysis. While these resource topics may have impacts related to Greater Sage-Grouse conservation that were analyzed in the 2015 Final EISs, they are dismissed from detailed analysis because they have no potentially significant impacts from actions proposed in this RMPA/EIS:

- Air Quality
- Cultural resources
- Forestry
- Lands with wilderness characteristics
- Paleontology
- Recreation resources
- Soils
- Special designations and management areas

- Transportation and access management
- Visual resources
- Watershed and water quality
- Wild horses and burros
- Wildland fire and fuels
- Wildlife (other than Greater Sage-Grouse) and fisheries

I.7 RELATIONSHIPS TO OTHER POLICIES, PLANS, AND PROGRAMS

The BLM amendments must be consistent with officially approved or adopted resource-related plans, and the policies and programs contained therein, of other federal agencies, state and local governments, and Native American tribes, so long as the guidance and RMPs are also consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. The BLM is aware that there are specific state laws and local plans 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, there may be inconsistencies that cannot be reconciled. The BLM will consider, to the extent practicable, all state and local land use plans during this planning effort.

Specifically, the BLM considered the plans shown below.

I.7.1 State Plans

State plans considered during this planning effort include the following:

- The State of Wyoming's Greater Sage-Grouse Core Area Protection strategy (EO 2015-4)
- Supplement to Greater Sage-Grouse Suitable Habitat Definitions (EO 2017-2)
- Revised Greater Sage-Grouse Compensatory Mitigation Framework (the Core Area Protection Strategy, EO 2015-4)

I.7.2 Local Plans

Local land use plans considered during this planning effort include all local plans from all counties and conservation districts across Wyoming that may be affected by any decisions in this proposed amendment addressing alignment with state management plans.

Chapter 2. Alternatives and Proposed RMP Amendment Description

2.1 INTRODUCTION

This chapter presents the No-Action Alternative, the Management Alignment Alternative, and the Proposed RMP Amendment evaluated as part of this RMPA/EIS. The Management Alignment Alternative was developed to meet the purpose and need presented in **Chapter 1**. The Proposed RMP Amendment has been developed based on the Management Alignment Alternative and in response to comments received on the Draft EIS/RMPA.

2.1.1 Components of Alternatives

Goals are broad statements of desired outcomes and are not quantifiable or measurable. Objectives are specific measurable desired conditions or outcomes intended to meet goals. Goals and objectives can vary across alternatives, resulting in different allowable uses and management actions for some resources and resource uses.

Management actions and allowable uses are designed to achieve goals and objectives. Management actions are measures that guide day-to-day and future activities. Allowable uses delineate uses that are permitted, restricted, or prohibited, and may include stipulations or restrictions. Allowable uses also identify lands where specific uses are excluded to protect resource values, or where certain lands are open or closed in response to legislative, regulatory, or policy requirements. Implementation decisions are site-specific actions and are typically not addressed in RMPs.

Some portions of the Proposed RMP Amendment are not applicable to all land use plans. For example, because the Lander RMP makes no reference to net conservation gain, proposed changes to the amendments and revisions regarding net conservation gain would not apply to the Lander RMP. Similarly, some actions that are applicable only in the amendments, and not to the revisions, are identified as such. The phrase “No Similar Action” means that the management alternative that is being described is not applicable to the plan referenced.

2.2 CHANGES BETWEEN THE DRAFT EIS AND FINAL EIS

As a result of public comments, best available science, cooperating agency coordination, and internal review of the Draft RMPA/EIS, the BLM’s Preferred Alternative, identified as Alternative B or Management Alignment Alternative in the Draft RMPA/EIS, has been modified and is now the Proposed RMPA for managing Greater Sage-Grouse habitat on BLM-administered lands within the planning area in Wyoming. The changes between the Draft EIS and this Final EIS are summarized below:

- Development of the Proposed RMP Amendment based on internal and public comments
- Updates to the information contained in Chapter 3
- Updates to the analysis contained in Chapter 4
- Updated cumulative effects analysis

2.3 DESCRIPTION OF THE PROPOSED RMP AMENDMENT

The Proposed RMP Amendment was developed primarily through coordination with the State to better align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse, and in response to public comments received on the Draft EIS.

Key aspects of the Proposed RMPA are the following:

- Ensure that the BLM has the flexibility to update habitat management areas based on information consistent with the State of Wyoming's core areas and based on the appropriate level of NEPA analysis
- Remove the sagebrush focal area designation
- Clarify the use of the habitat objectives tables
- Ensure that noise thresholds and monitoring outlined in EO 2015-4 are applicable only to leks inside PHMA/core, consistent with the State of Wyoming's Core Area Strategy
- Define a process to review and reverse adaptive management actions once the identified causal factor is resolved
- Work with the State of Wyoming to implement the appropriate amount of compensatory mitigation, when and if determined necessary by the State of Wyoming, using the State's Greater Sage-Grouse Compensatory Mitigation Framework

The BLM recognizes that Greater Sage-Grouse is a State-managed species, and, in accordance with 43 CFR 24.3(a), that State authority regarding fish and resident wildlife guides how the BLM cooperates with the State in the absence of specific, overriding federal law. Further, the BLM recognizes that state governments have established fish and wildlife agencies that are charged with the responsibility and mandate to implement state statutes for effective, appropriate, and efficient conservation and management of fish and resident wildlife species. Accordingly, the BLM has coordinated with the State to develop a memorandum of agreement (MOA) to guide the application of the mitigation hierarchy and compensatory mitigation actions for future project authorizations in Greater Sage-Grouse habitat on BLM-administered lands.

The MOA describes the State's policies, authorities, and programs for Greater Sage-Grouse conservation and the process regarding how the BLM would incorporate avoidance, minimization, and other recommendations from the State necessary to improve the condition of Greater Sage-Grouse habitat consistent with RMPA goals and objectives, in one or more of the NEPA analysis alternatives. The MOA would be implemented to provide an improvement to Greater Sage-Grouse habitat at a State level (as opposed to a WAFWA Management Zone or a Field Office), in collaboration with applicable partners (e.g., federal, tribal, and state agencies). Generally, and as described in the MOA, when the BLM receives applications for projects in Greater Sage-Grouse habitat, the BLM would ensure project design is aligned with State requirements and would ensure the proponent coordinates with the State to develop any additional mitigation—including compensatory mitigation—that the State may require in order to comply with State policies and programs for the conservation of Greater Sage-Grouse.

The Proposed RMP Amendment would not affect any other decisions or objectives in the existing plans, other than those identified in **Table 2-1**. For example, the 2015 Record of Decision (ROD)/ARMPA Management Decision Special Status Species # 11 describes how the BLM would support other agencies in their efforts to minimize impacts from predators. This management decision is in the existing plans and is not proposed to change; therefore, all other existing management decisions that are not being proposed for change in this EIS/RMPA will remain the same, in full force and effect. See **Appendix A** for the complete list of existing and proposed management actions from the existing RMPs.

Consistent with the notice of cancellation, which canceled the BLM's application to withdraw SFA from locatable mineral entry (82 *Federal Register* 195, October 11, 2017, p. 47248), this alternative would remove the recommendation for withdrawal. The effects of such an action are included in **Chapter 4**.

2.4 DETAILED DESCRIPTION OF ALTERNATIVES AND THE PROPOSED RMP AMENDMENT

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
<i>Modifying habitat boundaries</i>				
Modifying habitat management area designations	No existing decision	No similar action.	The BLM would update its Greater Sage-Grouse habitat management areas, including biologically significant units (BSUs), in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e. plan maintenance, environmental assessment, etc.)
<i>Sagebrush Focal Area Designations</i>				
Sagebrush Focal Areas	ARMPA: MD SSS 14	<p>From the ARMPA: Designate SFAs, as shown on Map 1-2 (1,915,990 acres). SFAs would be managed as PHMA, with the following additional management:</p> <ul style="list-style-type: none"> Recommend for withdrawal from the General Mining Act of 1972, subject to valid existing rights, the lands shown in Map 2-3 (252,160 acres) <p>Prioritized for vegetation management and conservation actions in these areas, including, but not limited to, land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and</p>	No similar action (no areas would be designated as SFA).	<p>No similar action (no areas would be designated as SFA). Lands previously identified as SFA would be managed as PHMA, consistent with Core Area boundaries.</p> <p>Delete MD SSS 14.</p> <p>Remove references to SFA in all other management decisions, as appropriate.</p> <p>MD LG 4 MD LG 5 See Map 2-1.</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		habitat restoration (see specific management sections)		
		Buffalo RMP, Lander RMP, Cody RMP, and Worland RMP: No similar action (no SFAs designated).		
SFA Withdrawal	ARMPA: MD MR 12	From the ARMPA: MD MR 12—Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: 252,160 acres within SFAs would be recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights. A total of approximately 21,251,690 acres are open to locatable mineral location and entry (Map 2-3).	Across all RMPs: No similar action.	For the ARMPA: MD MR 12 is modified as follows: Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 CFR 3809.5 and CFR 228.3).
	ARMPA: MD LG 4			
	ARMPA: MD LG 5	Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The Authorized Officer (AO) may convey to the operator suggested conservation measures, based upon the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 Code of Federal Regulations (CFR) 3809.5 and CFR 228.3).		These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15 day completeness review of notices (or modifications thereto) and 30 day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may</p>		<p>must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15 day completeness review of notices (or modifications thereto) and 30 day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate Geographic Information System (GIS) database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p>

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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p> <p>Buffalo RMP, Lander RMP, Cody RMP, and Worland RMP: No similar action (no SFAs and no recommended withdrawal).</p>		<p>For the ARMPA: Delete reference to SFAs in MD LG 4.</p> <p>For the ARMPA: Delete references to SFAs in MD LG 5.</p> <p>Buffalo, Cody, Worland, and Lander RMPs: No similar action.</p>
Habitat Objectives				
	ARMPA: Management Objective (MO) #6	<p>From the ARMPA: Develop specific habitat objectives to protect, enhance, or restore Greater Sage-Grouse priority habitat, based on Ecological Site Descriptions (ESDs) and BLM land health evaluations (including within wetland and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry, possibly altering the ESD. If an effective grazing system that meets Greater Sage-Grouse habitat requirements is not already in place, analyze at least one alternative</p>	<p>For the Plans covered under the ARMPA: Develop specific habitat objectives to protect, enhance or restore Greater Sage-Grouse habitat based on ESDs and BLM land health evaluations taking into account site history (historic treatments or habitat manipulations) that may have changed the soil chemistry, possibly altering the ESD.</p> <p>Buffalo, Cody, Worland, and Lander RMPs: No similar action.</p>	<p>For the ARMPA: Develop specific habitat objectives to protect, enhance or restore Greater Sage-Grouse habitat based on ESDs and BLM land health evaluations taking into account site history (historic treatments or habitat manipulations) that may have changed the soil chemistry, possibly altering the ESD.</p> <p>Buffalo, Cody, Worland, and Lander RMPs: No similar action.</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		that conserves, restores, or enhances Greater Sage-Grouse habitat in the NEPA document prepared for grazing management (Doherty et al. 2011; Williams et al. 2011).		
		Buffalo, Cody, Worland, and Lander RMP: No similar action.		
Seasonal habitat objectives for Greater Sage-Grouse	No existing decision	From the ARMPA, Buffalo, Cody, and Worland RMPs: The habitat objectives for Greater Sage-Grouse (Table 2-2 [ARMPA], Table 2-6 [Buffalo]), and Table 2-7 [Cody and Worland]) is a list of indicators, characteristics, and values that describe Greater Sage-Grouse seasonal habitat use areas. The BLM used indicator values derived from a synthesis of local and regional Greater Sage-Grouse habitat research and data to describe the typical vegetation communities that Greater Sage-Grouse select. While the habitat objectives are not attainable on every site or every acre within designated Greater Sage-Grouse habitat management areas, the values reflect a range of habitat conditions that generally lead to greater survival of individuals within a population. When permitting land use activities, BLM should consider the ecological site potential within designated habitat management areas	For the ARMPA, Buffalo RMP, Worland RMP, and Cody RMP: Include as preamble to the tables— The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the habitat assessment framework. Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site. Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat suitability within a home range.	For the ARMPA, Buffalo RMP, Worland RMP, and Cody RMP: Include as preamble to the tables- The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater sage-grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site. The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to establish indicator values in the Habitat Objectives tables was developed in disparate geographic regions and will not reflect local conditions. The BLM is required to use the best available information and specific values should be developed locally or at the project level. Collectively, the indicators for

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>to validate the habitat conditions achievable for a specific site.</p> <p>The seasonal habitat descriptions in habitat objectives tables (noted above) vary across the range of Greater Sage-Grouse, within a subregion, and between sites. They are not land health standards but are quantitative measures that inform the special status species habitat land health standard for Greater Sage-Grouse. These measurable values reflect ecological potential, and may be adjusted based on local factors influencing Greater Sage-Grouse habitat selection. Local data or recent science may indicate that Greater Sage-Grouse select for vegetation structure and composition in seasonal habitats not characterized by the values in the habitat objectives table. In these cases, it may be appropriate to adjust the values.</p> <p>Habitat objectives should be evaluated in the context of annual variability in ecological conditions and should not be used singly to determine habitat suitability for Greater Sage-Grouse. They may be used to demonstrate trends over time, during plan evaluations for effectiveness of Greater Sage-Grouse</p>	<p>The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to determine the values in the Habitat Objectives tables was developed in disparate geographic regions and may not be based on local conditions. The BLM uses the best available information to; specific values should be developed locally or at the project level. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6) to determine seasonal habitat suitability within a home range and documented in a Greater Sage-Grouse habitat assessment.</p> <p>When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.</p>	<p>sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6)</p> <p>When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard. Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select</p>

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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>conservation, or when identifying limiting habitat characteristics for a given area.</p> <p>The indicators, characteristics, values and desired seasonal habitat conditions in the Greater Sage-Grouse Plan Habitat Objectives Table are meant to inform the wildlife habitat component of the land health standards evaluation process (43 CFR 4180.2), but do not replace rangeland health assessments. Results from the land health evaluation should be used to support BLM in land use authorization processes and during development of objectives for management actions such as vegetation treatments. BLM land use authorizations will contain terms and conditions regarding the actions needed to achieve or make progress toward achieving habitat objectives and land health standards.</p> <p>The habitat objectives tables are to be used:</p> <ul style="list-style-type: none"> • To assess habitat suitability for Greater Sage-Grouse following the BLM policy on Greater Sage-Grouse habitat assessments • To evaluate land use plan effectiveness for Greater Sage-Grouse conservation, and 	<p>Not all areas within a given habitat type would be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.</p> <p>The values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities.</p> <p>Adequate nesting cover is determined by ESD site potential or best available science in consideration of local variability.</p> <p>Lander RMP: No similar action.</p>	<p>for vegetation structure and composition not characterized by values in the table.</p> <p>The values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities. Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.</p> <p>Lander RMP: No similar action.</p>

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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<ul style="list-style-type: none"> As a basis to develop measurable project objectives for actions in BLM-designated Greater Sage-Grouse habitat management areas when considered alongside land health standards, ecological potential and local information. <p>Lander RMP: No similar action.</p> <p>ARMPA, Buffalo, Cody, and Worland RMPs: As an indicator for perennial grass and forb height (includes residual grasses): Adequate nesting cover greater than or equal to 7 inches or as determined by ESD site potential and local variability.</p> <p>Lander RMP: No similar action.</p>		
Livestock Management				
Permit renewals	<p>ARMPA: MD LG 4</p> <p>Buffalo: Page 76; Grazing-6017</p> <p>Cody: Page 21; Record #6130</p> <p>Worland: Page 21, Record #6202</p>	<p>ARMPA: Within PHMA, all BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made toward meeting them, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a significant factor in failing to achieve the standards for healthy rangelands, the use would be</p>	<p>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP: Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met or no progress is being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or</p>	<p>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP: Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress</p>

Table 2-1
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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		adjusted by the response specified in the instrument that authorized the use.	progress toward achieving the land health standards (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.	toward achieving the land health standards (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.
		<p>Cody RMP, Worland RMP: All BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made toward meeting then, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use would be adjusted by the response specified in the instrument that authorized the use.</p>	<p>If NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there is no need to analyze an alternative for Greater Sage-Grouse.</p>	<p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p>
		<p>ARMPA, Buffalo RMP, Cody RMP, Worland RMP: The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives (Tables 2-2 and 2-3) and land health standards (43 CFR 4180.2), and one or more defined responses that would allow the Authorizing Officer to make adjustments to livestock grazing that</p>	<p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/SSS portion of the Standards for Healthy Rangelands.</p>	<p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p>

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		have already been subjected to NEPA analysis. Lander RMP: No similar action.	Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat. Lander RMP: No similar action.	Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat. Lander RMP: No similar action.
Permit renewals	ARMPA: MD LG 5 Cody: Record #6126 Worland: Record #6198	From the ARMPA: BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to meet, maintain or make progress toward achieving the standards and conform with the guidelines, which through this process would identify appropriate actions to address non-achievement and non-conformance.	For the ARMPA: The BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant causal factors in failing to achieve, maintain, or make progress toward achieving the standards and conform with the guidelines, which through this process would identify appropriate actions to address non-achievement and non-conformance.	For the ARMPA: BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant causal factors in failing to achieve, maintain, or make progress toward achieving the standards and conform with the guidelines, which through this process would identify appropriate actions to address non-achievement and non-conformance.

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>Allotments within SFAs, followed by those within PHMA, and focusing on those containing riparian areas, including wet meadows, would be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks include monitoring for actual use, utilization, and use supervision.</p> <p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFAs followed by PHMA outside of the SFAs. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p>Buffalo RMP: No similar action.</p> <p>Cody RMP, Worland RMP: The BLM would prioritize (1) the review of grazing permits/leases, in particular</p>	<p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting land health standards, with an emphasis on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p>Buffalo, Cody, Worland, Lander RMPs: No similar action.</p>	<p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting land health standards, with an emphasis on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p>Buffalo, Cody, Worland, Lander RMPs: No similar action.</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in areas not meeting land health standards, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations.		
		Lander RMP: No similar action.		
Range improvement projects	ARMPA: MD LG 8	<p>From the ARMPA: In GHMA and PHMA, existing range improvements (e.g., fences, livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary.</p> <p>The potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements would be evaluated. The potential for modification of those structural range improvements identified as posing a risk would be addressed. Supplements and supplemental feeding would continue to be authorized where appropriate.</p>	<p>ARMPA: In PHMA, existing range improvements (e.g., fences and livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.</p>	<p>ARMPA: In PHMA, existing range improvements (e.g., fences and livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.		
Riparian area management	ARMPA: MD LG 10	From the ARMPA: Grazing between riparian habitats and upland habitats would be balanced to promote the production and availability of beneficial forbs to Greater Sage-Grouse for use during nesting and brood-rearing. Grazing in meadows, mesic habitats, and riparian pastures also would be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing within PHMA, while maintaining upland conditions and functions.	ARMPA: In PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing management would be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing, while maintaining upland conditions and functions. Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.	ARMPA: In PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing would be managed to promote the production and availability of beneficial grasses and forbs for use during brood-rearing, while maintaining upland conditions and functions. Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.
		Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP: No similar action.		
Noise				
Noise requirements in PHMA	ARMPA: MD SSS 12 Buffalo: Record # SS WL-4025 Cody: Record #4111	ARMPA and Worland RMP: New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	Within PHMA (Core) across all RMPs: New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). Specific noise protocols for measurement and stipulations for implementation would be developed as additional research	Within PHMA (Core) across all RMPs: New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would

Table 2-1
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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
	<p>Worland: Record #4110</p> <p>Lander: Record #4117</p>	<p>Lander RMP: Limit noise sources to 10 decibels above ambient noise measured at the perimeter of occupied Greater Sage-Grouse leks from March 1 – May 15, unless scientific findings indicate a different noise level is appropriate. In addition, limit noise sources in other important Greater Sage-Grouse habitats if research and/or policy indicate the need.</p> <p>Cody RMP: New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 6:00 am during the breeding season (March 1 to May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.</p> <p>From Buffalo RMP: Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15).</p>	<p>and information emerges.</p>	<p>be developed as additional research and information emerges.</p> <p>These measures would be considered at the site-specific project level where and when appropriate.</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.		
Modifying Adaptive Management Strategies				
Adaptive management triggers	ARMPA: MD SSS 13 Buffalo: Record #SS WL-4010 Cody: Record #4116 Worland: Record #4115	Generally, across the ARMPA, Buffalo, Cody, and Worland RMPs: The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.	Across the ARMPA, Buffalo, Cody, and Worland RMPs: The Adaptive Management Working Group (AMWG) would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met). Lander RMP: No similar action.	Across the ARMPA, Buffalo, Cody, and Worland RMPs: The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met). Lander RMP: No similar action.
Modifying Compensatory Mitigation Strategies				
	ARMPA: MD SSS 4 MD REC 2 Buffalo RMP: Page 339	From the ARMPA, Buffalo RMP, Cody RMP, and Worland RMP: In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM would require and ensure mitigation that provides a net conservation gain to the species including any accounting for any uncertainty associated with the effectiveness of such mitigation. This	Within PHMA across all RMPs: Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. The BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the Council on Environmental Quality (CEQ) mitigation hierarchy as appropriate at the site-specific project	Across all RMPs: Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		would be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions...The BLM would implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO 2015-4) that includes “compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater Sage-Grouse.”	level and would defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation. Remove the phrase “net conservation gain” from all management actions across all RMPs.	and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area. Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015): <ol style="list-style-type: none"> 1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization. 2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-
		Lander RMP: No similar action.		

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
				<p>Grouse.</p> <p>3. Incorporate state required or recommended mitigation into the BLM's NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSg habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</p> <p>4. Analyze whether the compensatory mitigation:</p> <ul style="list-style-type: none"> • achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming's Executive Order 2015-4. • provides benefits that are in place for at least the duration of the impacts • accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>5. Ensure mitigation outcomes are consistent with the State of Wyoming's mitigation strategy and principles outlined in Appendix C, The Greater Sage-Grouse Habitat Management Strategy.</p>

Table 2-1
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				<p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2018-093, <i>Compensatory Mitigation</i>, July 24, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM would consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis would be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM would cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a requirement from the State, the BLM's NEPA analysis would evaluate the need</p>

Table 2-1
Description of the No Action, Management Alignment Alternative, and the Proposed RMP Amendment

Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
				to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM would defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.
				Remove the phrase “net conservation gain” from all management actions across all RMPs and appendices, including in reference to MD REC 2.
Fluid Mineral Leasing				
Prioritization of leasing	ARMPA: MO 14	From the ARMPA: Priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid	For the ARMPA: To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA. Leasing is allowed in PHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to,	For the ARMPA: Leasing is allowed in PHMA. To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral

Table 2-1
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Topic	Management Decision or Objective	No Action Alternative	Management Alignment Alternative	Proposed RMP Amendment
		<p>mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM would work with the lessee, operator, or project proponent in developing an application for permit to drill (APD) for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and would ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.</p> <p>Buffalo, Cody, Worland, Lander RMPs: No similar action.</p>	<p>30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts on Greater Sage-Grouse habitat and would ensure that the best information about the Greater Sage-Grouse habitat informs and helps to guide development of such federal leases.</p> <p>Buffalo, Cody, Worland, Lander RMPs: No similar action.</p>	<p>development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid, reduce and otherwise mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponent in developing an application for APD for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and would ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.</p> <p>Buffalo, Cody, Worland, Lander RMPs: No similar action.</p>

Notes:

MD: Management Decision

MO: Management Objective

LG: Livestock Grazing

Preamble to Habitat Objectives Tables

The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.

The habitat objectives tables outline rangewide attributes and values for each objective. Some of the science-based information used to establish indicator values in the Habitat Objectives tables were developed in disparate geographic regions and will not reflect local conditions. The BLM is required to use the best available information, and specific values should be developed locally or at the project level. Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat are compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6).

When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.

Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.

The values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities.

Figure 2-1 displays the proposed decision area for Greater Sage-Grouse habitat management in Wyoming. This map has been updated from those presented in **Chapter 1** to reflect the removal of the SFA designation.

Table 2-2
Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion

Attribute	Indicators	Desired Condition⁶	Reference
Breeding and Nesting (Seasonal Use Period March 1–June 15) (Doherty 2008; Holloran and Anderson 2005)			
Lek Security	Proximity of trees	Trees absent or uncommon shrub/grassland ecological sites within 1.8 miles (approximately 3 kilometers) of occupied leks	Baruch-Mordo et al. 2013; Stiver et al. 2015
	Proximity of sagebrush to leks	Adjacent protective sagebrush cover within 330 feet (approximately 100 meters) of an occupied lek	Stiver et al. 2015

Table 2-2
Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion

Attribute	Indicators	Desired Condition⁶	Reference
Cover	% of seasonal habitat meeting desired conditions	>80% of the nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).	Connelly et al. 2000
	Sagebrush cover ²	5 to 25%	Connelly et al. 2000; Connelly et al. 2003; Hagen et al. 2007
	Sagebrush height	4–31 inches (10–80 centimeters)	Connelly et al. 2000
	Arid sites ³	12–31 inches (30–80 centimeters)	
	Mesic sites ⁴		
	Predominant sagebrush shape	Predominantly spreading shape ⁵	Stiver et al. 2015
	Perennial grass cover (such as native bunchgrass) ²	>10% >15% Cool-season bunchgrasses preferred	Connelly et al. 2000; Stiver et al. 2015; Cagney et al. 2010
	Arid sites ³ Mesic sites ⁴		
	Perennial grass and forb height (including residual grasses)	Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.	Connelly et al. 2000; Connelly et al. 2003; Doherty et al. 2014; Hagen et al. 2007; Stiver et al. 2015
	Perennial forb cover ²	>5% >10%	Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun 2000.
	Arid sites ³ Mesic sites ⁴		
Brood-Rearing/Summer¹ (Seasonal Use Period June 16–October 31)			
Cover	% of seasonal habitat meeting desired condition	>40% of the summer/brood habitat meets recommended brood habitat characteristics where appropriate (relative to ecological site potential, etc.)	Connelly et al. 2000
	Sagebrush cover ²	5–25%	Connelly et al. 2000
	Sagebrush height	4–32 inches (20.3–80 centimeters)	Connelly et al. 2000
	Perennial grass cover and forbs ²	>5% arid sites >10% mesic sites	Connelly et al. 2000
	Riparian areas/mesic meadows ²	Proper functioning condition	Preferred forbs are listed in Stiver et al. 2015
	Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present	Stiver et al. 2015

Table 2-2
Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion

Attribute	Indicators	Desired Condition ⁶	Reference
Winter (Seasonal Use Period November 1–February 28)			
Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.).	Connelly et al. 2000
	Sagebrush cover above snow ²	>5%	Connelly et al. 2000; Stiver et al. 2015
	Sagebrush height above snow	>10 inches (>25 centimeters)	Connelly et al. 2000

Notes:

¹ Where credible data support different seasonal dates than those identified, dates may be shifted, but the amount of days cannot be shortened or lengthened by the local unit.

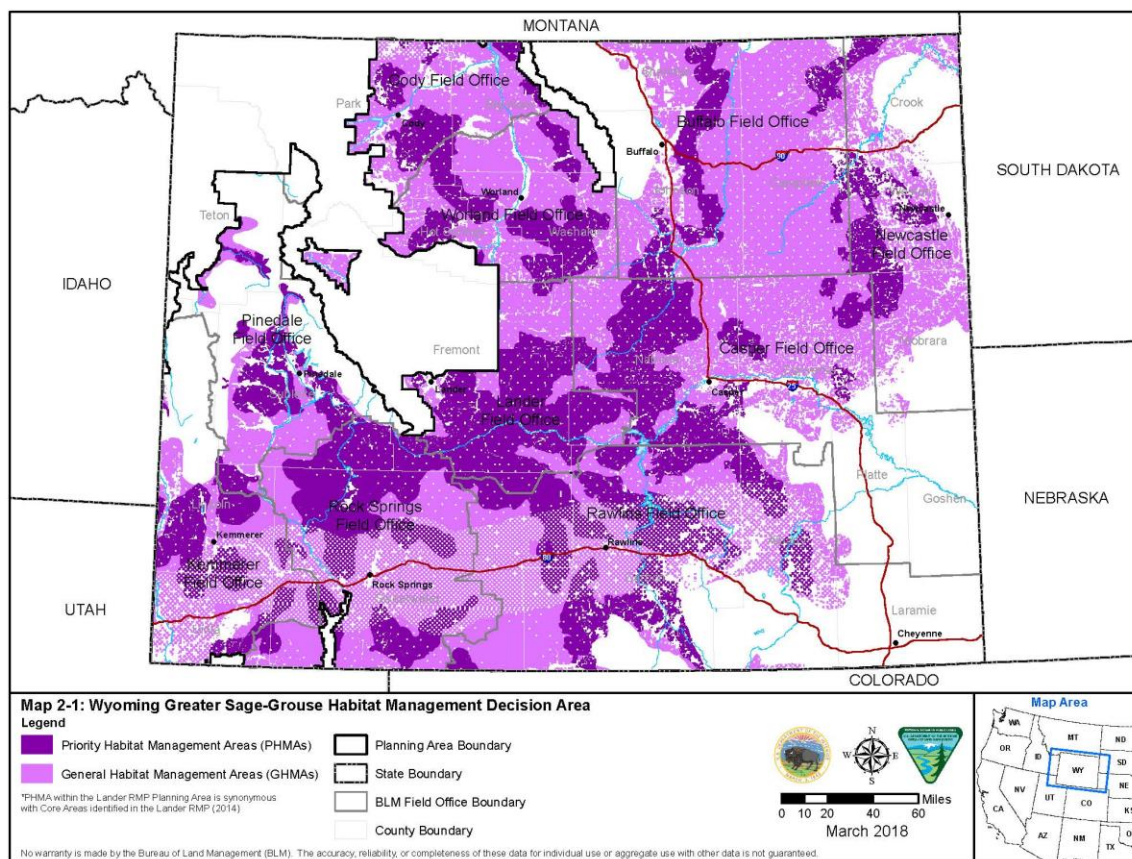
² Absolute cover is the actual recorded cover and can exceed 100% when recorded across all species and all layers. It is not relative cover, which is the proportions of each species, and equals 100%. Note that cover is reported for only those species (e.g., sagebrush and preferred forbs) that are sampled to determine suitability of habitat for Greater Sage-Grouse. Overall cover at the site will be greater than that sampled for Greater Sage-Grouse habitat, due to other species present.

³ Arid corresponds to the 10-12-inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

⁴ Mesic corresponds to the ≥12-inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

⁵ Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired condition range for nesting/early brood-rearing habitat characteristics, consistent with the breeding habitat suitability matrix identified in Stiver et al. 2015. Sagebrush plants that are more tree or columnar shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush) and a natural part of the plant community; however, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site-specific scales.

⁶ All desired conditions will be dependent upon site capability and local variation (e.g., weather patterns, localized drought, and ESD state).

Figure 2-1 Wyoming Great Sage-Grouse Habitat Management Decision Area

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Chapter 3. Affected Environment

3.1 INTRODUCTION

The purpose of this chapter is to describe the existing characteristics of the planning area, including human uses that could be affected by implementing the Proposed RMP Amendment as described in **Chapter 2**. The affected environment provides the context for assessing potential impacts described in **Chapter 4**. The resource topics included in this chapter reflect those that are identified in **Table I-2** as corresponding to an issue carried forward for detailed analysis in this RMPA/EIS.

The BLM analyzed the management situation in full compliance with its regulations and policies. The BLM evaluated inventory and other data and information, partnering with USGS and coordinating extensively with States, to help provide a basis for formulating reasonable alternatives. The BLM described this process in its Report to the Secretary in response to SO 3353 (Aug. 4, 2017). Among other things, the Report describes how the BLM coordinated “with each State to gather information related to the [Secretary’s] Order, including State-specific issues and potential options for actions with respect to the 2015 GRSG Plans and Instruction Memorandums (IMs) to identify opportunities to promote consistency with State plans.” (Report to the Secretary at 3.) This process overlapped to some degree with the BLM’s scoping process, which also assisted the BLM in identifying the scope of issues to be addressed and significant issues, and with coordination with the States occurring after the Report.

The geographic extent of this environmental analysis is the same as that in the 2015 Final EIS for the Greater Sage-Grouse RMP Amendments and the Final EISs for the Lander RMP Revision, Buffalo RMPA Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions, combined; therefore, the analyses from those documents have been incorporated by reference in this document.

While the BLM acknowledges that there have been changes to the landscape since 2015, due to the scale of this analysis, covering approximately 17 million acres of BLM-administered lands and approximately 28 million acres of federal mineral estate, data collected consistently across the range indicate that the extent of these changes to the landscape are relatively minimal. For example, BLM monitoring data collected and analyzed annually at the BSU scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA, Buffalo Field Office RMP Revision, and Bighorn RMP Revision; and Appendix N of the Lander RMP Revision) indicate that there has been a minimal overall increase in estimated disturbance (less than 1 percent rangewide from 2015 through 2017) within PHMA. Moreover, there has been an overall decrease in sagebrush availability (less than 1 percent rangewide from 2012 through 2015) in PHMA within BSUs. Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that which existed in 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated by reference into this RMPA/EIS. Where notable changes to the baseline condition have changed, a discussion is included.

Acreage figures and other numbers are approximated using GIS technology and do not reflect exact measurements or precise calculations.

3.1.1 USGS Reports

As part of the consideration of whether to amend some, all, or none of the 2014 and 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).

Following the 2015 plans, the scientific community has continued to improve the knowledge available to inform management actions and an overall understanding of Greater Sage-Grouse populations, habitat requirements, and their response to human activity.

The review discussed the science related to six major topics identified by the USGS and BLM, as follows:

- Multi-scale habitat suitability and mapping tools
- Discrete human activities
- Diffuse activities
- Fire and invasive species
- Restoration effectiveness
- Population estimation and genetics

3.1.2 Multi-scale Habitat Suitability and Mapping Tools

The science developed since 2015 corroborates previous knowledge about Greater Sage-Grouse habitat selection. Advances in modeling and mapping techniques at the landscape scale can help inform allocations and targeting of land management resources to benefit Greater Sage-Grouse conservation. Similar improvements at the site scale facilitate a better understanding of the importance of grass height to nest success, which indicates the potential need for a reevaluation of the existing habitat objectives (Hanser et al. 2018, p. 2).

The BLM has completed a plan maintenance action, whereby the agency has clarified its ability to modify the habitat objective indicator values based on local, site-specific information.

3.1.3 Discrete Human Activities

The science developed since 2015 corroborates prior knowledge about the impact of discrete human activities on Greater Sage-Grouse. New science suggests that strategies to limit surface disturbance may be successful at limiting rangewide population declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations (Hanser et al. 2018, p. 2). This information may have relevance when considering the impact of changes on management actions designed to limit discrete disturbances.

3.1.4 Diffuse Activities

The science developed since 2015 does not appreciably change prior knowledge about diffuse activities, such as livestock grazing, predation, hunting, wild horses and burros, fences, recreation, and noise; however, some study authors questioned current assumptions, provided refinements, or corroborated existing understanding.

Studies have shown that the impacts of livestock grazing vary with grazing intensity and season. Predation from ravens can limit Greater Sage-Grouse populations in areas with overabundant predator numbers or degraded habitats. Applying predator control has potential short-term benefits in small, declining populations; however, reducing human subsidies may be necessary to generate long-term changes in raven numbers. This is because raven control has produced only short-term declines in local raven populations.

Refinements to the current hunting seasons used by State of Wyoming wildlife agencies may minimize potential impacts on Greater Sage-Grouse populations; however, none of the studies singled out current application of hunting seasons and timings as a plausible cause for Greater Sage-Grouse declines.

Finally, no new insights into the impacts of wild horses and burros, fence collision, recreation, or noise on Greater Sage-Grouse have been developed (Hanser et al. 2018, p. 2).

This information was considered when determining the scoping issues addressed in **Chapter I, Section I.5**.

3.1.5 Fire and Invasive Species

Science since 2015 indicates that wildfire will continue to threaten Greater Sage-Grouse through loss of available habitat, reductions in multiple vital rates, and declining population trends, especially in the western part of its range. The concepts of resilience after wildfire and resistance to invasion by nonnative annual grasses have been mapped across the sagebrush ecosystem. These concepts inform restoration and management strategies and help prioritize application of Greater Sage-Grouse management resources (Hanser et al. 2018, p. 2).

3.1.6 Restoration Effectiveness

Since 2015, tools have been developed to help managers strategically place and design restoration treatments where they will have the greatest benefit for Greater Sage-Grouse. Studies (Hanser et al. 2018, p. 3) indicate that Greater Sage-Grouse populations did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal.

Restoration activities occur mainly at the implementation level, and the BLM maintains the flexibility to incorporate new tools in the agency's project planning for restoration actions.

3.1.7 Population Estimation and Genetics

The accuracy of estimating Greater Sage-Grouse populations has increased. This is because of improved sampling procedures used to complete count surveys at leks and the development of correction factors for potential bias in lek count data. In addition, techniques have improved to map Greater Sage-Grouse genetic structure at multiple spatial scales. These genetic data are used in statistical models to increase understanding of how landscape features and configuration affect gene flow. This understanding emphasizes the importance of maintaining connectivity between populations to ensure genetic diversity and distribution (Hanser et al. 2018, p. 3).

New information continues to reaffirm the BLM's understanding that Greater Sage-Grouse is a species that selects for large, intact landscapes and habitat patches.

3.2 RESOURCES AFFECTED

In accordance with **Chapter 1, Section 1.5**, Issues and Related Resource Topics Identified Through Scoping, the following resources may have potential impacts based on the Proposed RMPA presented in **Chapter 2**.

Table 3-1, below, provides the location of baseline information in the 2015 Final EIS; the Final EISs for Lander, Buffalo, and the Bighorn Basin (Cody and Worland Field Offices); and the 2016 Draft EIS for SFA Withdrawal.

Table 3-1
Affected Environment Incorporated by Reference

Resource Topic		Location of Baseline Information
Greater Sage-Grouse	ARMPA	Chapter 3, Section 3.14.1 (Special Status Species), pages 3-238 to 3-243 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.4.9 (Special Status Species), pages 3-125 to 3-129 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.3 (Special Status Species), pages 507-512 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.3 (Special Status Species), pages 416-418 (BLM 2014)
	Additional information regarding Greater Sage-Grouse is included in Section 3.3 of this chapter.	
Livestock Grazing/Range Management	ARMPA	Chapter 3, Section 3.7.1, pages 3-74 to 3-83 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.7, pages 3-199 to 3-204 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.8, pages 588-594 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.5, pages 479-487 (BLM 2014)
Lands and Realty	ARMPA	Chapter 3, Section 3.5.1, pages 3-50 to 3-63 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.1, pages 3-161 to 3-169 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.2, pages 561-567 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.1, pages 457-465 (BLM 2014)
Renewable Energy	ARMPA	Chapter 3, Section 3.5.1, pages 3-50 to 3-63 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.2, pages 3-170 to 3-174 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.3, pages 568-569 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.2, pages 465-469 (BLM 2014)

Table 3-1
Affected Environment Incorporated by Reference

Resource Topic		Location of Baseline Information
Leasable Minerals (Oil and Gas, Nonenergy Leasable Minerals, and Coal)	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP	Chapter 3, Section 3.2.2 (coal), page 3-50 (BLM 2015b)
	Revision	Chapter 3, Section 3.2.5 (oil and gas), pages 3-53 to 3-69 (BLM 2015b)
		Chapter 3, Section 3.2.6 (Other Leasable Solid Minerals), page 3-69 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.2 (coal), pages 398-410 (BLM 2015c) Chapter 3, Section 3.2.3 (fluids), pages 410-415 (BLM 2015c) Chapter 3, Section 3.2.4 (Other Leasable Solid Minerals), page 416 (BLM 2015c)
Locatable Minerals	Lander RMP Revision	Chapter 3, Section 3.2.2 (coal), page 332 (BLM 2014) Chapter 3, Section 3.2.4 (oil and gas), pages 334–350 (BLM 2014) Chapter 3, Section 3.2.6 (Other Leasable Solid Minerals), pages 350-352 (BLM 2014)
	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.2.1, pages 3-47 to 3-49 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.1, pages 383-398 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.2.1, pages 322-332 (BLM 2014)
Salable Minerals	SFA Withdrawal EIS	Chapter 3, Section 3.4 (Geology and Mineral Resources), page 3-7; and Chapter 2, Section 2.3.1 (No Action Alternative), page 2-4 (BLM 2016)
	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.2.7, pages 3-70 to 3-74 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.5, pages 417-423 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.2.7, pages 352-356 (BLM 2014)
Social and Economic Conditions	ARMPA	Chapter 3, Section 3.11 (Social and Economic Conditions [Including Environmental Justice]), pages 3-170 to 3-179 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 3-232 to 3-289 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 607-638 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 527-584 (BLM 2014)

3.3 GREATER SAGE-GROUSE

The existing condition of Greater Sage-Grouse in the planning area is described in the 2015 ARMPA Final EIS in Section 3.14.1 and in the Buffalo, Bighorn, and Lander RMP Revisions in Section 3.4.9, as well as in the 2016 SFA Withdrawal Draft EIS Section 3.7.1. This section identifies additions or changes in State management, research, and data, specific to the planning area, within the last 3 years.

Since 2015, the State of Wyoming has issued Governor's EOs 2015-4 and 2017-2, replacing the previous EO 2011-5 and EO 2013-3. The Sage-Grouse Implementation Team (SGIT) was established in 2007 and was designated to serve as the oversight team in implementing the EOs and is composed of

representatives from the State of Wyoming, federal agencies, and members of the public representing industry and environmental interests. In 2016, the Wyoming legislature established the SGIT as a statutory body (W.S. § 9-19-101) to provide recommendations regarding regulatory actions necessary to maintain and enhance Greater Sage-Grouse populations and habitats in Wyoming.

The following provisions in EO 2015-4 were carried forward from prior EOs:

- All State agencies shall strive to maintain consistency by following the procedures outlined in the EO, while recognizing that adjustments to the stipulations may be necessary based on local conditions, opportunities, and limitations. The goal is to minimize future disturbance by collocating proposed disturbances within areas that are already disturbed or naturally unsuitable.
- Consider incentivizing and prioritizing projects outside of core areas and streamlining permitting processes.
- Direction for the State of Wyoming to work with federal, state, county, private, and nongovernmental organization partners to collect data to determine the condition of each core population area in relationship to the goals of the Wyoming Greater Sage-Grouse core area protection strategy.
- The State of Wyoming commits to continue to monitor and document Greater Sage-Grouse populations and development activities to ensure that permitted activities under this authority do not result in negative impacts on Greater Sage-Grouse outside cyclical trends.

The following changes were incorporated into EO 2015-4:

- The State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework was added as Appendix H.
- The WGFD's Core Areas were updated from Version 3 to Version 4.

EO 2017-2 supplemented EO 2015-4, Attachment F:

- Definition of suitable habitat for "riparian, wet meadow (native or introduced) or areas of alfalfa or other suitable forbs (brood rearing habitat) within 275 meters of sagebrush habitat with 5% or greater sagebrush canopy cover (for roosting/loafing)" to include areas of these habitats farther than 275 meters from sagebrush, where it has been proven through pellet counts, documented sightings, or other defensible proof that Greater Sage-Grouse use the area.
- Inclusion of the following definition for wetlands and irrigated riparian meadows: Wetlands and irrigated riparian meadows are natural and man-made wetlands and historically (pre-August 1, 2008) irrigated areas in stream and river valleys. Wetlands and irrigated riparian meadows are considered suitable habitat for the density/disturbance calculation tool purposes. Wetlands and irrigated riparian meadows may be considered suitable habitat for conservation credit purposes if they meet the definition of suitable habitat in Attachment F of EO 2015-4, as supplemented above.

3.3.1 Changes to Greater Sage-Grouse Habitat Based on Threats

Wildland Fire

The wildland fire threat was discussed in the 2015 ARMPA Final EIS (Section 3.20.1) and in the Buffalo, Bighorn Basin (Cody and Worland Field Offices), and Lander RMP Final EISs (Section 3.3.1). From 2015 to 2017 there have been 422 wildfires that were 10 acres or greater within the analysis area. These wildfires burned approximately 137,085 acres of Greater Sage-Grouse habitat (approximately 51,577 acres in core/PHMA and approximately 85,508 in non-core/GHMA, as calculated by the BLM's fire and vegetation mapping databases in 2018). Since that time, approximately 96,309 acres of Greater Sage-Grouse habitat management areas (about 38,709 acres in PHMA and about 57,600 acres of GHMA) have been treated to improve habitat for the species.

Loss and Fragmentation of Sagebrush Habitats

The habitat loss and fragmentation threat was discussed in the 2015 ARMPA Final EIS (Section 3.14.1) and in the Buffalo, Bighorn, and Lander RMP Revisions (Section 3.4.9). Due to the State of Wyoming redefining suitable habitat as outlined in EO 2017-2 (see above), approximately 70,000 acres of previously designated unsuitable habitat is now considered suitable for the State of Wyoming's density and disturbance calculation tool. Loss of habitat and subsequent fragmentation still remains a threat to the Greater Sage-Grouse in Wyoming.

Adaptive Management Triggers

Due to a large wildfire in the summer of 2017, the Buffalo Connectivity Area experienced habitat loss outside the normal trends in a given year. This fire bisected the connectivity area. It is unknown at this time if this fire will strain the genetic connectivity between the Buffalo Core Population of Greater Sage-Grouse and the populations in southern Montana. The BLM, in coordination with the AMWG, will implement an appropriate response strategy to address the causal factor, as directed by the adaptive management frameworks in the respective RMPs.

Greater Sage-Grouse Habitat Management Area Adjustment

Wyoming's Core Area boundaries were reevaluated by the State of Wyoming in late 2015, and they now differ from the habitat management areas analyzed in the 2015 Final EIS for the ROD/ARMPA and the Final EISs for the Lander, Buffalo, and Bighorn Basin areas.

Wyoming's 2011 core population areas were analyzed in the 2015 Final EIS for the ROD/ARMPA and the Lander RMP, Buffalo RMPA Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions. These amendments and revisions, except Lander, incorporated these 2011 core population areas as PHMA; the Lander RMP revision incorporated them as core areas.

In early 2015, the State of Wyoming used a similar process as when the core population areas were initially designated to update the core population area boundaries (EO 2015-4, Attachment A). The 2015 effort centered around making modifications to reassess areas that may not support habitats essential for Greater Sage-Grouse, areas that were considered disturbed but may be transitional or non-habitat, and areas that have experienced a decline in human activity and are being reoccupied by Greater Sage-Grouse. The SGIT then used these data, along with public input, to delineate the current core population areas.

The resulting net changes were adopted by the Wyoming Governor in EO 2015-4. BLM Wyoming incorporated these changes into the 2015 Final EIS for the ROD/ARMPA and the Lander RMP Revision, Buffalo RMP Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions with Maintenance Action DOI-BLM-WY-0000-2018-0001-CX. The changes resulted in a net addition of 143,892 acres of PHMA.

State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework

The State of Wyoming added a Greater Sage-Grouse Compensatory Mitigation Framework (framework) as an attachment to EO 2015-4. In this framework, the State recognized compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect core population area Greater Sage-Grouse and/or occupied non-core area leks, as well as connectivity areas and winter concentration areas.

The primary emphasis of the State of Wyoming Greater Sage-Grouse core area population strategy is to avoid and minimize impacts on the species first. Since the inception of Wyoming's strategy, those efforts have been employed across the state and have been effective in avoiding and reducing impacts on and threats to the species; however, there are cases when avoidance and minimization still do not meet the EO 2015-4 thresholds, primarily due to preexisting disturbance. In those cases, where projects cannot be denied due to valid existing rights and where avoidance and minimization do not adequately address impacts on Greater Sage-Grouse and Greater Sage-Grouse habitat, the State of Wyoming has determined that compensatory mitigation may be an appropriate method to ensure maintenance and enhancement of the species and its required habitats. The State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework is based on biological, legal, and policy requirements for mitigation, including the debit and/or credit principles of replacement, landscape support and vulnerability, durability of mitigation measures, indirect effects from activities, additionality, and timeliness.

3.4 VEGETATION

The existing condition of vegetation in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Various land uses have continued to be authorized across the planning area in conformance with the decisions in the 2014 and 2015 RMPs and RMPAs.

3.5 LANDS, REALTY, AND RENEWABLE ENERGY

The existing condition of lands and realty in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Applications for land use are dependent on the demand; within the planning area, most authorizations are for oil and gas ROWs, transmission lines, communication sites, and other roads. The BLM is currently analyzing one large-scale pipeline project, the Riley Ridge to Natrona pipeline, and recently authorized the development of a large-scale solar utility project within the Rock Springs Field Office. The BLM continues to manage for lands and realty following the management direction in the 2014 and 2015 decisions.

3.6 MINERALS

The existing condition of minerals (including fluid, salable, locatable, and other leasable minerals) in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. The BLM continues to authorize the development of mineral resources following the decisions established in the 2014 and 2015 decisions. Although the BLM has continued to permit the development of additional

natural gas and oil wells, the authorizations for these wells have been in conformance with the 2014 and 2015 RMPs. The BLM is currently analyzing two large-scale natural gas development projects (the Normally Pressured Lance and the Converse County Natural Gas Projects) and one uranium mine (Lost Creek expansion).

Existing areas open or closed to fluid mineral leasing were identified in the decisions associated with the affected RMPs. For example, the 2014 and 2015 RMPs identified certain areas as being available or not available (i.e. closed) to fluid mineral leasing, as did the RMPs that were finalized (and subsequently amended for Greater Sage-Grouse) in 2007 and 2008. The fluid mineral leasing decisions have not changed either in the 2015 Amendment process or in this current planning process. Please refer to the individual RMPs for information regarding mineral potential and areas that were designated open or closed to fluid mineral leasing.

3.7 LIVESTOCK GRAZING

The existing condition of livestock grazing management in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Since 2015, the BLM has continued to manage livestock according to the decisions in the 2014 and 2015 RODs and the grazing regulations. In general, the existing conditions of livestock grazing in Wyoming remain the same as those described in the 2014 and 2015 Final EISs; the BLM has continued to issue grazing permits in conformance with the 2014 and 2015 decisions.

3.8 SOCIOECONOMICS

The existing condition of socioeconomics in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. BLM-administered lands provide and support a range of goods and services such as minerals, livestock grazing, recreation, and other uses. Some of these goods and services have a readily observed economic value; others have a less clear connection although society does derive benefits from them. The socioeconomic conditions in the planning area are essentially the same as those described in the 2014 and 2015 Final EISs.

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Chapter 4. Environmental Consequences

4.1 INTRODUCTION

This chapter presents the anticipated direct, indirect, and cumulative impacts on the human and natural environment from implementing the Proposed RMPA detailed in **Chapter 2**. The purpose of this chapter is to describe to the decision-maker and the public how the environment could change if the amendment were to be implemented. It is meant to aid in the decision of which RMPA, if any, to adopt.

This chapter is organized by topic, based on the affected resources identified in **Chapters 1** and **3**. Only those issues listed in **Table 1-2** were carried forward for analysis.

Impact analysis is a cause-and-effect process. The detailed impact analyses and conclusions are based on the following:

- The BLM planning team's knowledge of resources and the project area
- Literature reviews
- Information provided by experts in the BLM, cooperating and other agencies, interest groups, and concerned citizens
- Comments received on the Draft EIS

The baseline used for the impact analysis is the current condition or situation, as described in **Chapter 3**. Impacts on resources and resource uses are analyzed and discussed in detail, commensurate with resource issues and concerns identified through the process. At times, impacts are described in qualitative terms or using ranges of potential impacts.

4.2 ANALYTICAL ASSUMPTIONS

Several overarching assumptions have been made in order to facilitate the analysis of the project impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for the RMP Amendment, as described in **Chapter 2**.

The following general assumptions apply to all resource categories; any specific resource assumptions are provided in the methods of analysis section for that resource:

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementation-level actions necessary to execute the LUP-level decisions proposed in this RMPA/EIS would be subject to further environmental review, including that under NEPA.
- Direct and indirect impacts of implementing the RMPA/EIS would primarily occur on public lands administered by the BLM in the planning area.
- The BLM would carry out appropriate maintenance for the functional capability of all developments.

- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate.

4.3 GENERAL METHOD FOR ANALYZING IMPACTS

Potential impacts are described in terms of type, context, duration, and intensity, which are generally defined below.

Type of impact—Impacts are characterized using the indicators described at the beginning of each resource impact section. The presentation of impacts for key planning issues is intended to provide the BLM decision-maker and reader with an understanding of the multiple-use trade-offs associated with each alternative.

Context—This describes the area or site-specific, local, planning area-wide, or regional location where the impact would occur. Site-specific impacts would occur at the location of the action; local impacts would occur in the general vicinity of the action area; planning area-wide impacts would affect a greater portion of decision area lands in Wyoming; and regional impacts would extend beyond the planning area boundaries.

Duration—This describes the duration of an impact, either short term or long term. Unless otherwise noted, short term is defined as anticipated to begin and end within the first 5 years after the action is implemented; long term is defined as lasting beyond 5 years to the end of or beyond the life of this RMPA/EIS.

Intensity—Rather than categorize impacts by intensity (e.g., major, moderate, or minor), this analysis discusses impacts using quantitative data wherever possible.

Direct and indirect impacts—Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place; indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

For ease of reading, the impacts of the management actions of the Proposed RMPA on a specific resource are generally compared with the status quo or baseline for that resource.

Irreversible and irretrievable commitment of resources are discussed in **Section 4.6**. Irreversible commitments of resources result from actions in which resources are considered permanently changed; irretrievable commitments of resources result from actions in which resources are considered permanently lost.

4.4 SUMMARY OF ENVIRONMENTAL IMPACTS OF THE NO-ACTION ALTERNATIVE

The impacts of the No-Action Alternative, or current management, of this RMPA were analyzed as Alternative E in the 2015 Final EIS and Alternative D in each of the Final EISs for the Lander, Buffalo, and Bighorn Basin (Cody and Worland Field Offices) RMPs. The BLM has reviewed new information to

verify that the analysis in the 2015 Final EIS remains sound; therefore, impacts from implementing the No-Action Alternative are substantially the same as those analyzed in the 2015 Final EIS for Greater Sage-Grouse Amendments and each of the Lander RMP, Buffalo RMPA, and Bighorn (Cody and Worland Field Offices) RMP Revisions. Impacts on Greater Sage-Grouse under the No-Action Alternative would be the same as those identified in the 2015 Final EIS for the ROD/ARMPA (Proposed LUPAs) and EISs for the Revisions. Implementing mitigation, utilization of best management practices, and off-site compensatory mitigation would help maintain or improve Greater Sage-Grouse habitat. The application of seasonal restrictions and other stipulations and requirements for seasonal habitats in PHMA could prevent impacts on Greater Sage-Grouse during sensitive life phases and within important habitat.

In general, the impacts of the No-Action Alternative on Greater Sage-Grouse would be beneficial and would result in the long-term conservation of the habitat. The 2015 ARMPA was built on the foundation for Greater Sage-Grouse management established by and complementary to the Wyoming Governor's EO 2011-05 by establishing similar conservation measures and focusing restoration efforts in the same key areas most valuable to the Greater Sage-Grouse. The 2015 ARMPA was developed to reduce habitat disturbance and fragmentation through limitations on surface-disturbing activities, while addressing changes in resource condition and through monitoring and adaptive management.

Table 4-1, below, shows where analysis of impacts of the No-Action Alternative can be found for those resources carried forward for further analysis.

Table 4-1
Environmental Consequences for the No-Action Alternative Incorporated by Reference

Issue	Related Resource Topic	Location in 2015 Final EIS
Modifying Habitat Management Area Boundaries	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), pages 4-340 to 4-346
		Bighorn: Chapter 4, Special Status Species – Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-292
		Buffalo: Chapter 4, Special Status Species – Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
		Lander: Chapter 4, Special Status Species – Wildlife Section 4.4.9.6 (Detailed Analysis of Alternatives), pages 924–971
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.4.7 (Forestry), page 4-70 and Section 4.16.7 (Vegetation), pages 4-362 to 4-364
		Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-159, 4-175 to 4-176, 4-191, and 4-208
		Buffalo: Chapter 4, Vegetation Section 4.4. (Alternative D) pages 1006, 1045, and 1081
		Lander: Chapter 4, Vegetation Section 4.4, pages 779–780, 797–798, 816–817, and 834
	Lands and Realty	ARMPA: Chapter 4, Lands and Realty Section 4.5.7 (Proposed LUPAs), pages 4-78 to 4-80
		Bighorn: Chapter 4, Lands and Realty Section 4.6.1.3 (Detailed Analysis of Alternatives), pages 4-417 to 4-418
		Buffalo: Chapter 4, Lands and Realty Resources Section 4.6.2.6 (Alternative D), page 1428
		Lander: Chapter 4, Lands and Realty Section 4.6.1.3. (Detailed Analysis of Alternatives), page 1026

Table 4-1
Environmental Consequences for the No-Action Alternative Incorporated by Reference

Issue	Related Resource Topic	Location in 2015 Final EIS
Modifying Habitat Management Area Boundaries (cont'd)	Renewable Energy	ARMPA: Chapter 4, Minerals and Energy Section 4.7.6 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Renewable Energy Section 4.6.2.3 (Detailed Analysis of Alternatives), page 4-424
		Bighorn: Chapter 4, Renewable Energy Section 4.6.2.3 (Detailed Analysis of Alternatives), page 4-424
		Lander: Chapter 4, Renewable Energy Section 4.6.2.3.5.2 (Alternative D, Resources), page 1036
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 pages 4-115 to 4-116
		Bighorn: Chapter 4, Leasable Minerals Section 4.2, pages 4-78 to 4-79, 4-103 to 4-104, and 4-110
		Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869
		Lander: Chapter 4, Leasable Minerals Section 4.2, pages 711–715 and 727
	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Leasable Minerals Section 4.2 pages 4-78 to 4-79, 4-103 to 4-104 and 4-110
		Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869
		Lander: Chapter 4, Leasable Minerals Section 4.2, pages 711–715 and 727
	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-117
		Bighorn: Chapter 4, Salable Minerals Section 4.2.7.3 (Detailed Analysis of Alternatives), page 4-118
		Buffalo: Chapter 4, Salable Minerals Section 4.2.5.6 (Alternative D), pages 900–901
		Lander: Chapter 4, Salable Minerals Section 4.2.7.3.5.2 (Alternative D, Resources), page 740
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11, pages 4-207 to 4-211 and 4-217 to 4-218
		Bighorn: Chapter 4, Socioeconomic Impacts Section 4.8, pages 4-618 to 4-632, and 4-638 to 4-640
		Buffalo: Chapter 4, Socioeconomic Impacts Section 4.8, pages 1636–1637, 1649–1657, and 1659.
		Lander: Chapter 4, Socioeconomics Section 4.8, pages 1250–1251, 1262–1265, and 1267
Sagebrush Focal Areas	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-343
		SFA Withdrawal EIS: Chapter 4, Section 4.5 (Wildlife, Including Special Status Species and Greater Sage-Grouse), page 4-82
	Vegetation	ARMPA: Chapter 4, Vegetation Sections 4.16.7, page 4-363 and Section 4.18.7, page 4-393
		SFA Withdrawal EIS: Chapter 4, Section 4.4 (Vegetation, Including Special Status Plants), page 4-68
	Lands and Realty	ARMPA: Chapter 4, Lands and Realty Section 4.5.7 (Proposed LUPAs), page 4-78
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116

Table 4-1
Environmental Consequences for the No-Action Alternative Incorporated by Reference

Issue	Related Resource Topic	Location in 2015 Final EIS
Sagebrush Focal Areas (<i>cont'd</i>)	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy, Section 4.8.7 (Proposed LUPAs), page 4-116 SFA Withdrawal EIS: Chapter 4, Section 4.2 (Geology and Mineral Resources), page 4-7
	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11 pages 4-209 and 4-217 to 4-218
Habitat Objectives	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-341 Bighorn: Chapter 4, Special Status Species – Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-334 Buffalo: Chapter 4, Special Status Species – Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
		ARMPA: Chapter 4, Vegetation Section 4.16, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4. (Alternative D), pages 1006, 1045, and 1081
		ARMPA: Chapter 4, Livestock Grazing Section 4.7.7 (Proposed LUPAs), page 4-101 Bighorn: Chapter 4 Livestock Grazing Section 4.6.7.3 (Detailed Analysis of Alternatives), pages 4-493 to 4-512 Buffalo: Chapter 4, Livestock Grazing Management Section 4.4 (Alternative D), pages 1570–1576
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081
		ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081
		ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081
Livestock Management	Greater Sage-Grouse	ARMPA: Chapter 4, Livestock Grazing Section 4.7.7, (proposed land use plan amendments), page 4-101 Bighorn: Chapter 4, Livestock Grazing Management Section 4.6.7.3, page 4-493 Buffalo: Chapter 4, Livestock Grazing Management Section 4.4, pages 1570-1576
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081
Noise	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-346 Bighorn: Chapter 4, Special Status Species – Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-338 Buffalo: Chapter 4, Special Status Species – Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
		Lander: Chapter 4, Special Status Species – Wildlife Section 4.4.9.6 (Detailed Analysis of Alternatives), pages 924–971
		ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116 Bighorn: Chapter 4, Mineral Resources Section 4.2, pages 4-78 to 4-110 Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869 Lander: Chapter 4, Leasable Minerals Section 4.2. pages 711–715 and 727
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116 Bighorn: Chapter 4, Mineral Resources Section 4.2, pages 4-78 to 4-110 Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869 Lander: Chapter 4, Leasable Minerals Section 4.2. pages 711–715 and 727
		ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116 Bighorn: Chapter 4, Mineral Resources Section 4.2, pages 4-78 to 4-110 Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869 Lander: Chapter 4, Leasable Minerals Section 4.2. pages 711–715 and 727

Table 4-1
Environmental Consequences for the No-Action Alternative Incorporated by Reference

Issue	Related Resource Topic	Location in 2015 Final EIS
Noise (<i>cont'd</i>)	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Locatable Minerals Section 4.2.1.3 (Detailed Analysis of Alternatives), pages 4-71 to 4-78
		Buffalo: Chapter 4, Locatable Minerals Section 4.2.1.6 (Alternative D), pages 814–815
		Lander: Chapter 4, Locatable Minerals Section 4.2.1.3.5.2 (Alternative D, Resources), pages 687–688
	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Salable Minerals Section 4.2.7.3 (Detailed Analysis of Alternatives), pages 4-113 to 4-120
		Buffalo: Chapter 4, Salable Minerals Section 4.2.5.6 (Alternative D), pages 900-901
		Lander: Chapter 4, Salable Minerals Section 4.2.7.3.5.2 (Alternative D, Resources), page 740
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11, pages 4-207 to 4-211 and 4-217 to 4-219
		Bighorn: Chapter 4, Socioeconomic Resources Section 4.8, pages 4-609 to 4-610, 4-625 to 4-634, 4-636 to 4-638, and 4-639 to 4-640
		Buffalo: Chapter 4, Socioeconomic Impacts Section 4.8, pages 1636–1637, 1649–1657 and 1659.
		Lander: Chapter 4, Socioeconomics Section 4.8, pages 1250–1251, 1262–1265, and 1267
Adaptive Management	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-346
		Bighorn: Chapter 4, Special Status Species – Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), pages 4-337 to 4-338
		Buffalo: Chapter 4, Special Status Species – Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
Compensatory Mitigation	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-345
		Bighorn: Chapter 4, Special Status Species – Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), pages 4-335 to 4-338
		Buffalo: Chapter 4, Special Status Species – Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283

4.5 ENVIRONMENTAL IMPACTS OF THE MANAGEMENT ALIGNMENT ALTERNATIVE AND THE PROPOSED RMP AMENDMENT

The section below identifies potential impacts identified with the implementation of both the Management Alignment Alternative and the Proposed RMP Amendment. Due to the minor differences between the two, impacts identified for the Management Alignment Alternative would be the same as those identified for the Proposed RMP Amendment. Please refer to **Table 2-1** for detailed information regarding the proposed management actions, as well as the identification of which RMPs would be affected by the Proposed RMPA. Some components of the Proposed RMPA do not apply to all RMPs, as identified in **Table 2-1** and explained in **Section 2-1**.

4.5.1 Modifying Habitat Management Area Designations

Impacts on Greater Sage-Grouse

The existing ARMPA and revisions identified that as new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the BLM would incorporate, through appropriate processes and analyses, these areas into the GHMA category and manage them as such, until the earliest review occurs by the SGIT. At that time, they will be considered for PHMA status or continue to be managed as GHMA and will be added to the statewide map. The BLM would continue to work with the State of Wyoming in the identification of new core and connectivity areas (PHMA) or the removal of areas from core and connectivity (PHMA) habitat, as well as identification of additional winter concentration areas. Depending on the magnitude of the proposed change, the BLM would update its Greater Sage-Grouse management areas in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries.

Updating the BLM's PHMA to match the State of Wyoming's core area boundaries has the potential to affect Greater Sage-Grouse and other resources through additional or fewer restrictions imposed on development and other types of land use activities. This would ensure that current and future renditions of habitat management area boundaries accurately reflect Greater Sage-Grouse habitat on the ground and guide management actions appropriately. As the boundaries are updated, the land use plan allocations associated with each habitat management area would be adjusted to match the newest habitat management area boundaries. This would help to conserve the species by ensuring allocations and any of their associated restrictions are applied in the appropriate areas, while allowing infrastructure and economic development to occur in areas that would not affect the species.

There would likely be beneficial impacts on Greater Sage-Grouse conservation where additional PHMA are added and the potential for local adverse effects in areas where PHMA are reduced, depending on the value and quantity of the respective habitats being added or removed. The State of Wyoming established the core area boundaries based on Greater Sage-Grouse lek location and attendance data, as identified through modeling of bird populations and habitat, overlaid with areas of valid existing rights.

A series of reviews conducted by the Local Working Groups (LWGs) and others with thorough understanding of local Greater Sage-Grouse use occurred in order to ensure that areas included as core habitat were a true representation of actual conditions on the ground. Similar processes will continue to be used to refine the core population area mapping, which resulted in the core area boundaries identified in the Governor's EO 2015-4.

Consistent application of management actions across the state's core areas and the BLM's PHMA would result in beneficial impacts on the species in Wyoming, but it may result in locally adverse impacts on areas previously located in core areas but then removed to non-core; however, this is not anticipated to affect Greater Sage-Grouse conservation in Wyoming. It is likely to improve consistent management of the habitat across the state, thus benefiting Greater Sage-Grouse conservation in Wyoming.

The BLM has existing plan maintenance authority to correct minor errors in administrative boundaries or update habitat information, such as aligning big game crucial winter range habitats to those delineated by the State or incorporating a new lek and providing appropriate lease stipulations to those areas. The analysis presented below is predicated on the assumption that only minor changes would occur and

therefore the use of a maintenance action would be appropriate. If major changes to the habitat management area boundaries are proposed, the BLM would be required to consider the changes under its requirements of NEPA. Impacts would be further assessed at the time a change to the habitat management areas is proposed; however, the BLM anticipates that any impact resulting from a change in core area boundaries, and therefore PHMA, would be similar to those described in the 2015 Final EISs.

Impacts on Vegetation

Impacts on vegetation have been disclosed in detail in the Vegetation sections of the 2014 and 2015 Final EISs. The Proposed RMP Amendment would update the habitat management area boundaries for PHMA and GHMA to reflect the best available science. Unless major changes were to occur to the size and location of PHMA and GHMA, updating habitat management area boundaries would not substantially affect vegetation resources, as they would continue to be managed according to their underlying habitat management area and associated allocations and management decisions. As described in the 2014 and 2015 Final EISs, disturbance to vegetation as a result of increased surface disturbance in new areas of GHMA could include removal of vegetation, with a resulting compaction of soil and increased runoff and erosion. Plant community health could be reduced, and increased habitat fragmentation could occur.

Increased surface disturbance in new areas of GHMA could contribute to modification of the composition and structure of vegetation communities within development areas and increase proliferation of noxious weeds; however, new areas of PHMA would likely offset these negative impacts to vegetation by requiring additional restrictions on development. Avoiding and/or heavily restricting surface-disturbing activities in areas of new PHMA would reduce impacts on vegetation and would likely result in improved structure of vegetation communities and vegetation health.

There may be local, adverse impacts that would result to vegetation in areas that were previously identified as PHMA and were redesignated as GHMA, but impacts on vegetation on a landscape scale would be negligible.

Impacts on Lands, Realty, and Renewable Energy

Impacts on the lands and realty programs as a result of changes to habitat management areas would likely be minor over the landscape, with site-specific impacts potentially occurring when new restrictions are applied in areas that previously did not have those restrictions (i.e., new PHMA in what was previously GHMA). This would require some projects to have additional restrictions, and projects in other areas that were PHMA and are now GHMA would have fewer restrictions. Depending on the magnitude of the change in acreage, impacts on lands and realty would likely be negligible.

As described in the 2015 Final EISs, ROWs proposed in newly identified areas of PHMA would be required to comply with the additional restrictions and requirements of PHMA. It is likely that additional relocations, delays, and potentially longer routes could result based on the additional requirements and stipulations necessary in PHMA. In areas that are redesignated as GHMA, however, operators would benefit from fewer restrictions and incentives for developing outside of PHMA.

Wind development in PHMA would continue to be managed under the 2014 and 2015 decisions. If additional PHMA were identified in areas that were previously GHMA, then it could become more challenging for wind energy development to occur in those newly identified PHMA due to the restrictions on wind energy development in PHMA. However, if any areas were identified as GHMA

(that were previously PHMA), those areas would then be available and open to wind energy development.

There would be no impact on solar energy development, as the 2014 and 2015 plans did not identify management actions for solar energy beyond what was identified in the previous RMPs.

Impacts on Minerals

Impacts on minerals as a result of changes to habitat management areas would likely be minor over the landscape, with site-specific impacts potentially occurring when new restrictions are applied in areas that previously did not have those restrictions (i.e., new PHMA in what was previously GHMA). This would require some projects to have additional restrictions, and projects in other areas that were PHMA and are now GHMA would have fewer restrictions. Depending on the magnitude of the change in acreage, impacts on minerals would likely be negligible. Restrictions in PHMA would likely shorten the drilling season and limit an operator's ability to complete activities (especially on multi-well pads). They could result in a need for a phased development approach and a potential for decreased drilling efficiency in PHMA. Areas that are newly identified as GHMA, however, would have fewer restrictions, and, depending on other resource conflicts, could result in increased drilling efficiencies and fewer conflicts, delays, and relocations.

Impacts on Vegetation and Livestock

As identified in the 2015 Final EISs, changes in habitat management areas could result in impacts on livestock. Areas newly identified as GHMA may result in loss of forage, loss of forage production, increase in noxious weed proliferation, and decreased vegetation as a result of increased surface disturbance potential; however, areas identified as PHMA would have increased protections. They would, therefore, result in reduced disturbance and would decrease the potential for vegetation loss. Within PHMA, livestock management would be implemented that would improve rangeland health over time, which would be beneficial to livestock and increase forage availability in PHMA.

Impacts on Socioeconomics

Changes in habitat management areas have the potential to affect costs of exploration and development of multiple types of energy, mineral, and other land use resources, including solid, fluid, locatable, saleable, and leasable minerals. These costs could either be increased in areas with new restrictions or decreased in areas when restrictions are removed. On the landscape scale, however, if only minor changes in the acreage occur, the impacts on socioeconomics would likely be negligible. As identified in the 2015 Final EISs, increased costs in PHMA could occur as a result of the need for additional planning, potential relocations, and accommodating additional restrictions. Areas designated as GHMA would likely have the potential for reduced costs as a result of fewer restrictions.

4.5.2 Sagebrush Focal Areas and Withdrawal

Under the Management Alignment Alternative and Proposed RMP Amendment, there would be no designation of SFAs. The environmental impacts of not designating SFAs were analyzed in the Final EIS for the ARMPA under Alternative A (Chapter 4, page 4-108) as well as Alternative A in the Draft EIS for the SFA Withdrawal. No other RMPs in Wyoming considered designating SFAs. Because management of Greater Sage-Grouse in SFAs was identified as the same as management of Greater Sage-Grouse in Wyoming PHMA, there are no additional impacts associated with not identifying Wyoming SFAs in the Proposed RMP Amendment.

Under the Management Alignment Alternative and Proposed RMP Amendment, the BLM would continue to not pursue withdrawal of 252,160 acres of SFA from location and entry under the General Mining Act of 1872. The impacts associated with not pursuing withdrawal were discussed in the 2015 Final EIS for the ARMPA, under Alternative A, beginning on page 4-108. In addition, impacts associated with not pursuing withdrawal are also discussed under the No-Action Alternative in Chapter 4 of the Draft EIS for SFA Withdrawal (BLM 2016). Impacts on Greater Sage-Grouse, vegetation, realty, minerals, livestock grazing, and socioeconomics would be as discussed in the 2015 Final EISs for the 2015 Proposed LUPAs.

While there is no way to foresee where locatable mineral development would likely occur on the landscape, impacts on resources as a result of mining activity could include surface disturbance with resulting disturbance to vegetation and habitat. Habitat fragmentation and disturbance to leks could occur as a result of locatable mineral development; however, the development may or may not occur in areas sensitive to Greater Sage-Grouse.

There would likely be little to no impacts on livestock as a result of not pursuing the withdrawal, with the exception of disturbance to vegetation as a result of mineral development and the potential for reduced forage. There would be increased revenue potential in areas where mineral development is occurring; the magnitude of this would depend on where the proposed mining was occurring and what commodity was being developed. If no mines are proposed in the areas previously recommended for withdrawal, then there would be no impacts on any resources. There is the potential for increased applications and subsequent authorizations of ROWs and other realty actions, but these would be dependent on the location of the mineral development area and potential.

Although the BLM did identify in the 2015 Final EIS/Proposed RMPA that the designation of SFAs and the recommend withdrawal would result in increased conservation benefits for Greater Sage-Grouse, the BLM later (in the Draft EIS for the SFA Withdrawal; BLM 2016) determined that those conservation benefits would likely be limited.

4.5.3 Habitat Objectives

Impacts on Greater Sage-Grouse

Proposed changes to Management Objective #6 from the ARMPA would have minimal impacts on Greater Sage-Grouse habitat and would be similar to those identified in the 2015 Final EISs. The Proposed RMP Amendment would include clarifying language for the intent of the habitat objectives tables. It also would modify the value of a greater than or equal to 7 inches for perennial grass and forb height indicator to reflect ESD site potential or best available science in consideration of local variability. Impacts associated with this alternative would be similar to those identified in the No-Action Alternative.

Because the Management Alignment Alternative and the Proposed RMP Amendment continue to stress the importance of providing nesting cover, local impacts on Greater Sage-Grouse would be minor, and changes to this management objective could result in improved vegetation, which would have beneficial impacts on Greater Sage-Grouse. As identified in the 2015 Final EISs, relying on site ESD and potential could balance the impacts of grazing while sustaining wildlife and Greater Sage-Grouse habitat. Adjustments to grazing management as a result of monitoring, ESD, and site potential could provide

overall improvements in landscape health, reduce or prevent the spread of invasive plants, and allow for greater cover habitat.

Impacts on Vegetation and Livestock Grazing Management

Impacts on livestock grazing management would be similar to those described in the Final EIS for the 2015 RMP Amendments; however, there would be increased flexibility regarding completion of site-scale assessments for Greater Sage-Grouse, which would be informed via ESD site potential and local variability. In addition, this would allow for the development of local desired conditions and ecological site capability of sagebrush communities, thus potentially improving the management of vegetation, livestock, and sagebrush habitat based on local conditions. Using site potential could enhance vegetation production, age class, structural diversity, and plant community vigor, which would benefit livestock grazing by increasing forage availability. Grazing operations could be affected by requiring additional requirements for monitoring.

4.5.4 Livestock Management—Permit Renewals

Impacts on Greater Sage-Grouse

The Management Alignment Alternative and the Proposed RMPA do not include a requirement for incorporation of terms and conditions for achieving the habitat objectives identified in **Table 2-2**; rather, they require achievement of Land Health Standard #4 (Wildlife/special status species). The Proposed RMP Amendment would not have an explicit requirement for analysis of thresholds and responses during permit renewal or modification; however, it would require analysis of one alternative that would allow for adaptive management to meet or make progress toward meeting the wildlife/Special Status Species standard.

Allotments in PHMA would not be prioritized for field checks under the Proposed RMP Amendment; however, there would be more discretion to identify the allotments with the highest needs at the local level for monitoring actual use, utilization, use supervision, etc., which may already be those allotments in PHMA.

The Management Alignment Alternative and the Proposed RMP Amendment clarify the process for appropriately setting, applying, and measuring Greater Sage-Grouse habitat objectives in grazing allotments and measuring effects of the authorized use.

Under the Management Alignment Alternative and the Proposed RMP Amendment, permit renewals in PHMA where the wildlife/special status species standard is not being met would include actions necessary to achieve or make progress toward achieving the standard in accordance with 43 CFR 4180. If current livestock grazing is a significant causal factor in the failure to achieve the wildlife/special status species standard and Greater Sage-Grouse are affected, livestock grazing management would be adjusted to achieve or make progress toward achieving the standard, including action to improve or maintain Greater Sage-Grouse habitat as needed.

The Proposed RMP Amendment would emphasize balanced grazing between riparian areas/wet meadows and uplands to promote beneficial grass and forb abundance during the brood-rearing season for Greater Sage-Grouse in PHMA. If implemented, these actions could result in beneficial effects on Greater Sage-Grouse habitat. As identified in the 2015 Final EISs, making adjustments to permit renewals, if necessary, based on monitoring would likely benefit overall landscape health. The impacts of

implementing the Proposed RMP Amendment for livestock grazing/permit renewals would be similar to those for the No-Action Alternative. Localized, adverse impacts on Greater Sage-Grouse in GHMA may occur, but conservation of Greater Sage-Grouse in Wyoming would not be affected.

Impacts on Vegetation and Livestock

Impacts on vegetation and livestock would be similar to those identified in the No-Action Alternative in the Draft EIS and the Proposed LUPAs in the 2015 Final EIS. Vegetation would be managed to achieve not only Greater Sage-Grouse objectives but also other resource objectives, which could reduce negative effects on vegetation. Prioritization of grazing permits and leases in areas not meeting standards within PHMA would benefit vegetation and livestock by addressing those identified issues first, before they get worse, and thus providing an overall benefit to vegetation in PHMA. However, areas in GHMA that are not meeting standards may be detrimentally affected if the areas in PHMA take priority over them, which could result in longer-term impacts on vegetation, wildlife, and habitat in those areas until they are addressed.

4.5.5 Livestock Management—Existing Range Improvement Structures

Impacts on Greater Sage-Grouse

The impacts associated with the proposed change to MD LG 8 from the ARMPA would be minimal. The only change between the existing management decision and the Management Alignment Alternative and Proposed RMP Amendment is to remove the requirement for the BLM to assess the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements. The potential for modification of those improvements identified as posing a risk would be evaluated, and the requirement in GHMA would be removed. Maintenance of existing improvements would help to disperse use and reduce localized impacts; evaluation of existing range improvements would likely prevent vegetation from degradation and would result in benefits to habitat and to Greater Sage-Grouse.

There would likely be less of a priority to evaluate existing range improvements in GHMA, which could result in localized impacts on areas surrounding range improvements in need of maintenance. This could result in increased damage to vegetation and habitat, which could result in localized adverse impacts on Greater Sage-Grouse. However, the BLM would still be required to evaluate and modify existing range improvements in PHMA; therefore, this would be unlikely to affect Greater Sage-Grouse conservation in Wyoming. Supplements and supplemental feeding would continue to be authorized where appropriate, which would prevent damage to riparian areas thus protecting late season brood-rearing habitat and preventing overall habitat loss.

Impacts on Vegetation and Livestock

As identified in the 2015 Final EISs, impacts on vegetation and livestock would include dispersal of use and reducing localized impacts in PHMA, but with the potential to detrimentally affect vegetation and riparian areas near improvements (i.e., ones in GHMA) that would not get evaluated as often or as timely as those improvements in PHMA.

The BLM would be required to analyze the impact of modifying range improvements, regardless of habitat type, and the impacts on Greater Sage-Grouse and other resources would need to be evaluated in any case. Because of this, there would be minimal differences between the impacts of these alternatives; however, there is the potential for increased risk of exposure to West Nile virus or other risks to Greater Sage-Grouse if some structural range improvements go unevaluated for long periods;

therefore, there is the potential for a local adverse impact on Greater Sage-Grouse if existing range improvements are not periodically evaluated for risks to Greater Sage-Grouse. This, however, would be unlikely to affect Greater Sage-Grouse conservation in Wyoming.

4.5.6 Livestock Management—Riparian Area Management

Impacts on Greater Sage-Grouse

The impacts associated with the Management Alignment Alternative and the Proposed RMP Amendment for riparian area management would be similar to those identified in the No-Action Alternative.

Livestock grazing management would be adjusted if needed to promote the production and availability of beneficial grasses and forbs for use during brood-rearing in PHMA riparian areas and/or wet meadows, as opposed to also including nesting, late brood-rearing in meadows/mesic habitats/riparian pastures, and GHMA (as identified in the No-Action Alternative). Because of this, there may be impacts on the nesting and brood-rearing habitats. This would likely result in local adverse impacts on Greater Sage-Grouse. This would be the case in areas where livestock grazing is not managed to promote beneficial forbs and grasses in nesting and brood-rearing habitats; however, it would not be likely to affect the conservation of Greater Sage-Grouse in Wyoming.

In PHMA, riparian areas and wetlands could be improved as a result of this management action; managing livestock to achieve an abundance of beneficial grasses and forbs would benefit Greater Sage-Grouse during brood-rearing.

Impacts on Vegetation and Livestock

As identified in the 2015 Final EISs, managing livestock to achieve an abundance of beneficial grasses and forbs would be an overall benefit to vegetation and livestock. There may be additional requirements on livestock operators in terms of timing of grazing, rotations, and other management changes.

4.5.7 Noise

The impacts associated with clarifying that the noise measurement and monitoring condition of approval (COA) would apply only to leks within Greater Sage-Grouse PHMA would have similar impacts as those described under the No-Action Alternative for the RMPAs and for the RMP revisions.

Impacts of noise on Greater Sage-Grouse are discussed in the following locations:

- Final EIS for the RMPAs—Chapter 4, page 4-249
- Final EIS for the Bighorn Basin RMP—Chapter 4, Section 4.4.9.3, page 4-338
- Final EIS for the Buffalo RMP—Chapter 4, Section 4.4.9.4, page 1252
- Final EIS for the Lander RMP—Chapter 4, page 963

The need for the application of a noise measurement and monitoring COA to a project would be identified at the time of site-specific and/or project-level environmental review.

Noise restrictions in PHMA (core only) would benefit Greater Sage-Grouse, as impacts of noise on Greater Sage-Grouse have been shown to include temporary displacement of the birds from breeding and nesting habitat, increased stress, and reduced reproductive success. In addition, adverse effects on communication abilities of strutting males and reduced lek attendance may be a result of noise. Limits to

noise in PHMA (core only) would allow males to continue to use leks near drilling operations and would limit displacement of birds from nesting and breeding areas. The removal of noise restrictions in GHMA would likely result in localized, adverse impacts on Greater Sage-Grouse but would not affect Greater Sage-Grouse conservation in Wyoming.

Impacts on Minerals, Lands, and Realty

When a noise restriction is imposed on a site-specific authorization, operators would be required to apply the noise restriction at the project level. This could lead to the need for additional preplanning, relocation, or other potential delays on projects in PHMA; however, projects in GHMA would no longer consider the noise restriction and therefore could result in increased project efficiency and reduced burdens on operators for projects in GHMA.

4.5.8 Adaptive Management

Impacts associated with identifying that management of Greater Sage-Grouse would return to previous management actions once adaptive management action objectives in the interim response strategy have been met would be similar to those identified in Alternative E of the 2015 Final EIS for the RMPA and Revisions. There would be no change as to the identification of triggers, nor to the application of adaptive management. The only change for adaptive management would be at the implementation level, when the AMWG identifies a process for returning to previous management. The impacts associated with returning to previous management would be the same as those identified in the final EISs for the 2014 and 2015 proposed land use plan amendments and revisions. The AMWG was established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority and includes representatives from the BLM, the USFWS, and the State of Wyoming. More detailed information regarding the AMWG and the adaptive management process established in the 2015 ARMPA and ARMPs is available in Appendix D, Section 6 of the ARMPA.

Compensatory Mitigation

Impacts on Greater Sage-Grouse

The BLM has determined that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands. Consistent with that determination and with BLM IM 2018-093, *Compensatory Mitigation*, the Proposed RMP Amendment clarifies how voluntary compensatory mitigation or a state-imposed mitigation requirement should be considered in the management of Greater Sage-Grouse habitat. This clarification simply aligns the Proposed RMP Amendment with BLM policy and the scope of compensatory mitigation authority expressly provided by FLPMA. Any analysis of compensatory mitigation relating to future projects is speculative at this level of land use planning; therefore, analysis of compensatory mitigation is more appropriate for future project-specific NEPA. In other words, it is speculative to assume the impacts from voluntary compensatory mitigation at the planning level without knowing the frequency with which project proponents would offer voluntary actions. The applicability and overall effectiveness of voluntary actions cannot be fully assessed until the project level when the specific location, design and impacts are known.

However, the effects of the changes to compensatory mitigation in the Proposed Plan would be nominal, in part, because the BLM would continue to ensure consistency of its actions and authorizations with the land use planning level goals and objectives of the Proposed Plans. Additionally, the BLM is deferring

to the State of Wyoming's mitigation framework, which, due to its provisions for durability and additionality, would still provide conservation gains and benefits consistent with the goals of this RMPA and the 2015 Plans. The implementation of compensatory mitigation actions would be directed by MOAs that describe how the BLM would align with State authorities and incorporated in the appropriate NEPA analysis subsequent to the Proposed RMP Amendment. While the conservation benefit of compensatory mitigation may be limited when weighed against the threats to Greater Sage-Grouse, particularly in the Great Basin region where wildland fire remains a key threat, the BLM is committed to implementing state-imposed mitigation requirements to help minimize the impacts of anthropogenic disturbance and habitat fragmentation throughout the range of Greater Sage-Grouse.

Further, the BLM is committed to implementing beneficial habitat management actions to reduce the threats of fire and invasive species to Greater Sage-Grouse. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat range-wide over the past 5 years. In the federal government's fiscal year 2018 specifically, the BLM funded approximately \$29 million in Greater Sage-Grouse management actions resulting in approximately 500,000 acres of treated habitat. The BLM expects to invest nearly \$17 million in fiscal year 2019 through the implementation of habitat management projects.

Since the signing of the ARMPA in September of 2015, BLM Wyoming has committed over \$15 million to complete more than 230 Greater Sage-grouse habitat improvement projects. This work includes a wide variety of invasive species and fuels reduction treatments, riparian improvements, energy reclamation, habitat monitoring, and leading research identifying impacts associated with land use proposals. This funding also helped leverage state partner funding contributions and state-wide initiatives such as the Wyoming Landscape Conservation Initiative and the Powder River Basin Restoration Initiative that adopts an "all hands, all lands" approach to engaging stakeholder involvement.

In 2015, the USFWS determined Greater Sage-Grouse was "not warranted" for listing under the Endangered Species Act. The USFWS found that BLM's 2015 land use plans were adequate regulatory mechanisms and that the species no longer warranted listing under the Act. At the time of that decision, FWS acknowledged the RMP requirements that compensatory mitigation achieve a net gain standard. The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM's reliance on voluntary compensatory mitigation consistent with federal law.

Anecdotally, the existing conservation credit systems, banks, and exchanges designed to offset impacts to Greater Sage-Grouse or its habitat have had mixed success. The BLM is aware of three mitigation banks (one commercial bank agreement in Wyoming and two single-user bank agreements with mining companies in Nevada) and one exchange system in Colorado specific to Greater Sage-Grouse currently in operation. However, the BLM does not have access to data or information that would further assess the relative benefit provided by these systems.

In all designated Greater Sage-Grouse habitat, the BLM would ensure both mitigation and management actions that achieve the planning-level management goals and objectives identified in this RMPA. The BLM has a variety of tools available to effectively achieve those management goals such as restoration projects and habitat improvements.

The BLM would continue plan effectiveness monitoring to provide the data needed to evaluate BLM actions toward reaching the goals and objectives set forth in the RMPAs. Effectiveness monitoring methods would encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this RMPA. Effectiveness data used for these larger-scale evaluations would include all lands in the area of interest, regardless of surface management, and would help inform where finer-scale evaluations are needed.

Impacts on Minerals, Lands, and Realty

Impacts on third-party land users as a result of the removal of the net conservation gain standard would likely be negligible, as the net conservation gain standard associated with compensatory mitigation would be replaced by the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework. It would be speculative, however, to assume impacts from site-specific implementation projects at the land use planning-level, especially when the potential for the application of compensatory mitigation is unknown.

4.5.9 Prioritization of Fluid Mineral Leasing

This action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in unsuitable Greater Sage-Grouse habitat in GHMA and other areas outside the current range of Greater Sage-Grouse habitat. Implementation of this prioritization would be subject to valid existing rights and any applicable law or regulation. Impacts associated with prioritizing leasing outside PHMA would be beneficial to Greater Sage-Grouse conservation in Wyoming, with the potential for locally adverse impacts on habitat in GHMA. This would be a result of potentially concentrating development in the GHMA or non-core areas; however, locally adverse impacts would not be likely to affect the conservation of Greater Sage-Grouse in Wyoming.

Impacts on vegetation in GHMA would be similar to those identified in the proposed land use plan amendments and revisions from the 2014 and 2015 Final EISs, and could include increased disturbance and removal of vegetation in GHMA as more area in GHMA is leased relative to PHMA. This action, however, could beneficially affect vegetation in PHMA as less vegetation may be disturbed a result of potentially leasing fewer areas in PHMA.

Impacts on fluid minerals may occur, as more emphasis would be placed on leasing outside of PHMA rather than both PHMA and GHMA, and would likely result in additional planning and placement of development within GHMA as opposed to PHMA.

4.6 INCOMPLETE OR UNAVAILABLE INFORMATION

The CEQ established implementing regulations for NEPA, requiring that a federal agency identify relevant information that may be incomplete or unavailable for evaluating reasonably foreseeable significant adverse impacts in an EIS (40 CFR 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included or addressed in an EIS, unless the cost of obtaining such information is exorbitant. Knowledge and information is, and would always be, incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information pertinent to the decisions to be made was used in developing the RMPA. Some of the major types of data that are incomplete or unavailable are the following:

- Comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition
- GIS data used for disturbance calculations on private lands
- Site-specific surveys of cultural and paleontological resources

For these resources, estimates were made concerning their number, type, and significance, based on previous surveys and existing knowledge.

In addition, some impacts could not be quantified, given the proposed management actions. Where there was this gap, impacts were projected in qualitative terms or, in some instances, were described as unknown. Subsequent site-specific, project-level analyses would provide the opportunity to collect and examine site-specific inventory data to determine appropriate application of LUP-level guidance. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

4.7 CUMULATIVE EFFECTS ANALYSIS

This section presents the anticipated cumulative impacts on the environment that could occur from implementing the alternatives presented in **Chapter 2**. 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 actions, regardless of what agency (federal or nonfederal) or person undertakes such actions.

Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. The cumulative impacts resulting from the implementation of the alternatives in this RMPA/EIS may be influenced by other actions, as well as activities and conditions on other public and private lands, including those beyond the planning area boundary. These include the concurrent Forest Service planning effort to amend land management plans for National Forests in Idaho, Montana, Nevada, Utah, Colorado, and Wyoming, which were previously amended in September 2015 to incorporate conservation measures to support the continued existence of the Greater Sage-Grouse. As a result, the sum of the effects of these incremental impacts involves determinations that often are complex, limited by the availability of information, and, to some degree, subjective.

This RMPA/EIS incorporates by reference the analysis in the 2015 Final EISs and the 2016 SFA Withdrawal Draft EIS, which comprehensively analyzed the cumulative impacts associated with these planning decisions under consideration in that process. The 2015 Final EISs, and to some degree the 2016 SFA Draft EIS, evaluated the cumulative impacts associated with the No Action Alternative in this RMPA/EIS. The Management Alignment Alternative's effects are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EISs are quite recent, and we have determined that conditions in the Wyoming planning area have not changed significantly based, in part, on the USGS science review (see **Chapter 3**), as well as the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Conditions on public land have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EISs regarding reasonably

foreseeable actions and effects. Additionally, changes that have occurred on a smaller level, like wildfires, received prompt responses. Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort.

While the cumulative impacts analysis in the 2015 Final EISs thus offers a comprehensive foundation for this planning effort, the BLM is improving upon that analysis by integrating additional quantitative analysis specific to this planning effort. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No Action and Management Alignment alternatives at scales beyond the individual planning areas associated with the 2018 amendment process. Our analysis focuses on the relevant changes in habitat delineations and allocation decisions each BLM state office is proposing and how those changes may impact our understanding of cumulative effects at the Management Zone (MZ) scale.

Conservation and management partners sought to work in advance of the 2015 USFWS listing decision to develop conservation objectives for the Greater Sage-Grouse that could help direct conservation and management actions for the species. Upon further review of the best available science and commercial information, the USFWS concluded in 2010 that the Greater Sage-Grouse warranted protection under the ESA. Two factors leading to the decision to list the species as "warranted but precluded" were threats to habitat and the inadequacy of existing regulatory mechanisms. In 2012, at the request of the SGTF, state and federal representatives produced a report that identified the most significant areas for Greater Sage-Grouse conservation, the principal threats within those areas, and the degree to which such threats need to be reduced or ameliorated to conserve the Greater Sage-Grouse so that it would not be in danger of extinction or likely to become so in the foreseeable future.

A principal component of the BLM's Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts on sage grouse and its habitats. In 2015, the USFWS determined Greater Sage-Grouse was "not warranted" for listing under the ESA. The USFWS found that BLM's 2015 LUPAs were adequate regulatory mechanisms and that the species no longer warranted listing under the ESA. At the time of that decision, the USFWS acknowledged the RMP requirements that compensatory mitigation achieve a net gain standard. The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM's reliance on voluntary compensatory mitigation consistent with federal law.

While the BLM has more than 90 RMPs, 9 strategies, and 45 agreements in active use that contain or address compensatory mitigation, the BLM has identified only limited implementation of compensatory mitigation consistent with the 2015 Greater Sage-Grouse Plans. Using data gathered in 2017, the BLM identified 13 Greater Sage-Grouse projects across 5 BLM states with a mandatory compensatory mitigation component or net gain standard implemented between October 2008 and June 2017. The most common compensatory actions used by the BLM in those cases were habitat restoration, habitat improvements, rangeland improvements, and invasive species control – actions consistent with the BLM's own investment in management action described previously. In many cases, it is still too soon in the implementation of these mitigation actions to measure the effectiveness or degree of benefit each action provides.

Currently the BLM has six state-specific RMPA efforts that are all aligning compensatory mitigation with their relevant State authorities. All of the Proposed RMP Amendments modify the existing standard for compensatory mitigation, but maintain that the BLM would pursue conservation efforts as a broader planning goal and objective. Cumulatively, if the BLM is implementing planning decisions across the broader range, such actions would preclude any cumulative impacts from modifying the net conservation gain standard at the project level.

The BLM will continue plan effectiveness monitoring, which will provide the data needed to evaluate BLM actions and the associated mitigation toward reaching the goals and objectives set forth in the RMPAs. Effectiveness monitoring methods will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this RMPA. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface ownership/management, and will help inform where finer-scale evaluations are needed, such as population areas smaller than an RMPA.

The BLM has updated certain data that it collected and evaluated in the 2015 Final EIS concerning the 2015 plan allocation decisions to reflect maintenance-related changes, adaptive management responses, and refined source data. The BLM used these data to represent the No Action alternative for the current plan analysis. The BLM also identified 2015 data which are not subject to change in any alternatives associated with the 2018 planning process. These data were carried forward as the alternative allocation decision data. The BLM was also able to provide allocation decision data representing changes included in the 2018 Draft EIS alternatives, which were then used in the comparative analysis.

4.7.1 Range-wide Cumulative Effects Analysis - Greater Sage-Grouse

The cumulative impacts anticipated from the Management Alignment Alternative and the Proposed RMP Amendment presented in this RMPA/EIS are entirely within the range of effects analyzed by the 2015 Final EIS for Greater Sage-Grouse Amendments and each of the Lander RMP, Buffalo RMPA, and Bighorn (Cody and Worland Field Offices) RMP Revisions. While the analysis for the 2015 Final EISs are quite recent, the BLM has reviewed conditions in Colorado to verify that they have not changed significantly. Conditions on BLM-administered lands have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EISs regarding reasonably foreseeable future actions and effects.

The BLM's assessment that conditions and cumulative impacts have not changed significantly is based, in part, on the USGS science review (see **Chapter 3**) and the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Since the nature and context of the cumulative effects scenario have not appreciably changed since 2015, and the 2015 plans included analysis by WAFWA MZ across the entire range of the Greater Sage-Grouse, the cumulative effects analysis in the 2015 Final EIS applies to this planning effort and provides a foundation for the BLM to identify any additional cumulative impacts.

The remainder of this chapter and related appendices includes additional quantitative analysis using the existing cumulative impacts across the range and integrating additional quantitative analysis specific to this planning effort to provide a comprehensive range-wide view of cumulative impacts. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No-Action and

Management Alignment (Proposed RMP Amendment) Alternatives at scales beyond the individual planning areas associated with the 2018 amendment process. The analysis focuses on the relevant changes in habitat delineations and allocation decisions each BLM state office is proposing and how those changes may affect the understanding of cumulative effects at the WAFWA MZ scale across the Greater Sage-Grouse's range.

Under the Management Alignment Alternative, the recommendation to withdraw SFA from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the proposed withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres rangewide of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds possibly affected per year. The other action alternatives evaluated in the 2016 SFA Withdrawal Draft EIS similarly demonstrated negligible benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.¹

The cumulative effects of implementing the Management Alignment Alternative are as described in the 2016 SFA Withdrawal Draft EIS, under the No-Action Alternative, in which SFAs are not carried forward for withdrawal. Greater Sage-Grouse would not be affected as a result of the removal of the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872, as the recommendation itself does not have any on-the-ground effects. Conservation benefits of a future withdrawal would be minimal, as documented in the 2016 SFA Withdrawal Draft EIS and as explained above; therefore, there would be negligible cumulative impacts associated with the decision to remove the SFA designation. The direct and indirect impact analysis specifically enumerates how each BLM allocation decision to apply NSO stipulations and waivers, exceptions, or modifications overlaps with the SFA designation.

4.7.2 Why Use WAFWA Management Zones?

The WAFWA represents state and provincial fish and wildlife agencies. It supports sound resource management and building partnerships to conserve wildlife for the use and benefit of all citizens, now and in the future. The BLM is analyzing habitats and allocation decisions at the scale of the six WAFWA-delineated Greater Sage-Grouse MZs within the plan amendments to enable the decision-maker to understand the impacts on Greater Sage-Grouse at a biologically meaningful scale. The MZs were delineated based on floristic provinces (identified by Connelly et al. 2004), within which the vegetation communities comprising Greater Sage-Grouse habitat and the Greater Sage-Grouse populations are responding similarly to environmental factors and management decisions (Stiver et al. 2006). The cumulative effects analysis area for Greater Sage-Grouse extends beyond a state, political, or planning area boundary to reflect the WAFWA MZs because they encompass areas with similar issues, threats, and vegetation conditions important to Greater Sage-Grouse habitat management. Each suite of threats

¹ Importantly, mining operations that do occur are subject to regulation under the BLM's surface management regulations at 43 CFR 3809. These regulations ensure that operators comply with environmental standards in conducting exploration, mining, and reclamation. For example, the BLM must approve a plan of operations for locatable mining operations on public lands, which includes compliance with the NEPA, National Historic Preservation Act, and ESA. Plans of operation must also include those measures to meet specific performance standards and to prevent unnecessary or undue degradation of the lands (43 CFR 3809.411).

to specific Greater Sage-Grouse populations have been identified in the COT Report, 2015 Regional RODs, and the Listing Decision. The 2015 regional RODs identify how planning-level allocation decisions address the identified threats to populations, which are aggregated in this analysis by management zones. The threats vary geographically and may have more or less impact on Greater Sage-Grouse and its habitat in some parts of the MZs, depending on such factors as climate, land use patterns, and topography. The map below identifies the WAFWA management zones and Greater Sage-Grouse population areas.

Table 4-2 shows the resource and location of applicable cumulative effects analysis from the 2015 Final EIS. Unless otherwise addressed in this chapter, the cumulative effects of the alternatives analyzed in this Draft RMPA/EIS are covered by the 2015 Final EIS and the 2016 SFA Withdrawal Draft EIS. This includes the incremental impacts across the range of BLM- and Forest Service-administered lands being amended in concurrent plan amendment efforts. See the 2015 Final EIS for additional information.

Table 4-2
Cumulative Effects Analysis Incorporated by Reference

Resource Topic	Location of Cumulative Effects Analysis and Updated Impacts Analysis
Greater Sage-Grouse	Proposed LUPA/Final EIS: Sections 4.23.6 & 4.23.7 Buffalo Proposed RMP/Final EIS: Section 4.4.9.7 Bighorn Basin Proposed RMP/Final EIS: Section 7.1.6 Lander Proposed RMP/Final EIS: Section 4.10.1 SFA Withdrawal Draft EIS: Section 4.5.9
Vegetation	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Sections 4.4.1.7, 4.4.2.7, 4.4.3.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS: Section 4.4.9
Land Use and Realty	Proposed LUPA/Final EIS: 4.22.3 Buffalo Proposed RMP/Final EIS: 4.6.2.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: 4.10
Fluid Minerals	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.2.3.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.7 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS: Section 4.2.9
Solid Minerals	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.2.1.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10
Socioeconomics	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Sections 4.8.1.7, 4.8.2.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS, Section 4.3.13
Livestock Grazing	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.6.8.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10

The sum of past, present, and reasonably foreseeable actions listed in **Appendix D** represent cumulative effects across the range of Greater Sage-Grouse habitat and management areas. These effects are important to consider for future management of the species as a whole and are not solely being analyzed at the local or state level.

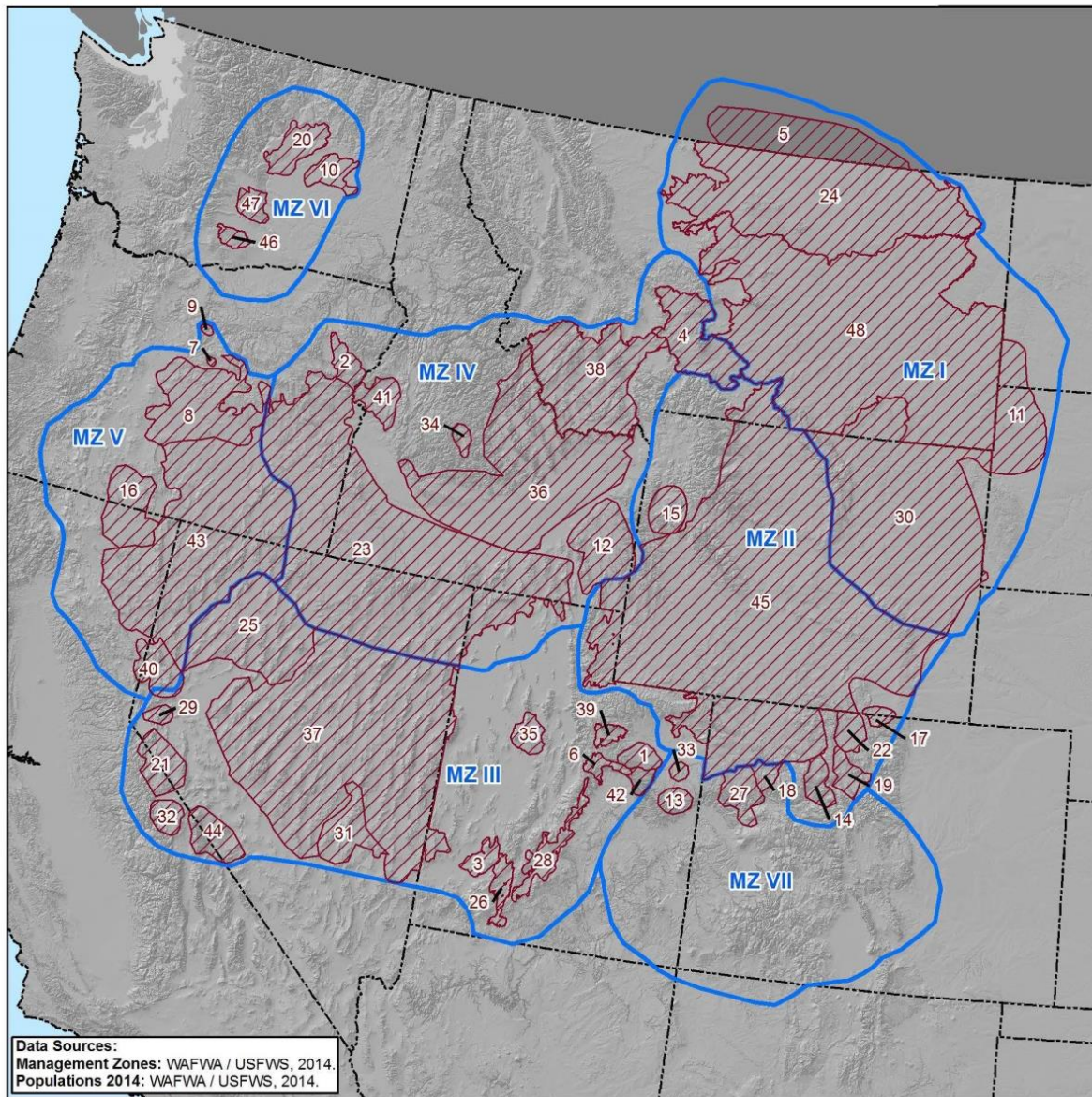
Other management actions contained in the proposed plans are described in more detail in **Chapter 2**. This section also briefly describes the threats to Greater Sage-Grouse and its habitat. The magnitude of change between the No Action Alternative and Proposed RMPAs, by decision, is represented in pie charts and tables within this section and in **Appendix D**. Those effects, in addition to synthesizing the plan decisions and comparing the current condition to the condition that will be in effect when the proposed plans are finalized, allow for a comparison of the change in management direction within management zones and across planning regions.

Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Wildfire threat also remains a concern in the area and is the greatest threat to Greater Sage-Grouse in the Great Basin region. Between 2008 and 2018, wildfires burned an average of 900,000 acres per year in Greater Sage-Grouse habitat management areas rangewide;² this is within the range of projected wildland fire analyzed in the 2015 Final EIS. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat rangewide over the past 5 years. The interagency (including the BLM) WAFWA-led Wildfire and Invasive Species Working Group reviewed recent information for their May 2018 Gap Report Update to the Wildfire and Invasive Plant Species in the Sagebrush Biome: Challenges that hinder current and future management and protection report. They found that all of the original challenges related to control and reduction of the invasive annual grass/fire cycle were still relevant (policy, fiscal, and science challenges), and they pointed to three new gaps involving program capacity, resource specialists, and developing guidelines on drought and climate adaption to manage sagebrush ecosystems.

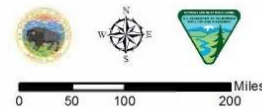
The increased flexibility proposed in these amendments can allow for responsible development of other uses in Greater Sage-Grouse habitat and may reduce costs to proponents. But it is not expected to result in a large increase in development proposals on public land. Similarly, the increased protections from the 2015 Final EIS have not resulted in a large decrease in ROW applications or an increase in rejected applications; therefore, the changes proposed under the Management Alignment Alternative are not expected to result in large changes to the rate of development across the range, or in its economy.

Some 350 species of plants and wildlife rely on sagebrush steppe ecosystems and coexist with Greater Sage-Grouse. They may be similarly affected by development or disturbance; however, nothing in the considered alternatives would lessen the BLM's authority or responsibility to provide for the needs of special status species, as described in BLM LUPs, Policies, and Laws, including Manual 6840; the ESA; and FLPMA. Increased flexibility for other uses within Greater Sage-Grouse habitat does not necessarily increase potential impacts on other wildlife or plant species. Site-specific NEPA analysis, including an evaluation of impacts on special status species, is required for on-the-ground projects within the planning area.

² Removing 2012 and 2017, which were above-average wildland fire years, the 8-year average is approximately 500,000 acres burned per year.

Figure 4-1 Sage-Grouse Management Zones and Greater Sage-Grouse Populations**Map 4-1: Sage-Grouse Management Zones and Greater Sage-Grouse Populations**

- WAFWA Sage-grouse Management Zones
- WAFWA Revised Sage-Grouse Populations 2014



- | | | | |
|-------------------|--------------------------|--------------------------------|---------------------------|
| 1 Anthro Mountain | 13 E Tavaputs Plateau UT | 25 NW-Interior NV | 37 Southern Great Basin |
| 2 Baker | 14 Eagle/S Routt CO | 26 Panguitch | 38 Southwest Montana |
| 3 Bald Hills | 15 Jackson Hole WY | 27 Parachute Piceance Roan | 39 Strawberry |
| 4 Belt Mountains | 16 Klamath OR/CA | 28 Parker Mountain-Emery | 40 Warm Springs Valley NV |
| 5 Canada | 17 Laramie WY | 29 Pine Nut NV | 41 Weiser ID |
| 6 Carbon | 18 Meeker - White River | 30 Powder River Basin | 42 West Tavaputs |
| 7 Central | 19 Middle Park CO | 31 Quinn Canyon Range NV | 43 Western Great Basin |
| 8 Central | 20 Moses Coulee | 32 S Mono Lake CA | 44 White Mountains NV/CA |
| 9 Central | 21 N Mono Lake CA/NV | 33 S White River UT | 45 Wyoming Basin |
| 10 Crab Creek | 22 North Park | 34 Sawtooth ID | 46 Yakama Indian Nation |
| 11 Dakotas | 23 Northern Great Basin | 35 Sheeprock Mountains | 47 Yakima Training Center |
| 12 E-Central ID | 24 Northern Montana | 36 Snake, Salmon, & Beaverhead | 48 Yellowstone Watershed |

4.7.3 Cumulative Effects on Greater Sage-Grouse: Management Zone I

In addition to the analysis in the 2015 Final EIS in **Table 4-2**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this RMPA/EIS.

MZ I encompasses portions of Wyoming, Montana, North Dakota, and South Dakota. Montana is currently not undergoing a plan amendment process; therefore, none of the proposed changes described in this section apply to Greater Sage-Grouse in Montana. Under the Proposed RMPAs in WAFWA MZ I, PHMA and GHMA designations would not change from those identified in the No-Action Alternative. In addition, no changes in allocations are proposed in either of the planning areas in this MZ. Approximately 16 percent of the planning area across MZ I is designated as PHMA, and 38 percent is GHMA. Future adjustments to PHMA and GHMA in MZ I would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat.

Wyoming's current planning effort, and Montana's existing plans, incorporate management flexibility to allow for site-specific adjustments to land use plan authorizations for adaptive management strategies, livestock grazing management, and other proposed land uses. The use and application of compensatory mitigation in the planning area would follow the respective State plans, resulting in greater consistency across the MZ. For these actions, cumulative impacts on Greater Sage-Grouse habitat and populations across MZ I would be consistent with those impacts described in the 2015 Final EISs for the then Proposed LUPAs. The currently Proposed RMPA changes from the No-Action Alternative are minor and still maintain prescriptive management for Greater Sage-Grouse habitat across the MZ for surface-disturbing activities. Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Because the land use prescriptions and allocations are not proposed for change in Wyoming's land use plan amendment, there would be no additional cumulative impact on Greater Sage-Grouse populations or habitat within MZ I.

A summary of potential cumulative impacts by the proposed management action is presented below.

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance are more intense and in areas where development overlaps sensitive habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across MZ I would not result in any additive impacts on Greater Sage-Grouse and could result in beneficial impacts as a result of consistent management across the zone. Any future modifications of habitat management areas would be documented using the appropriate level of NEPA that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying habitat management areas allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

Approximately 99 percent of GHMA and PHMA habitat in MZ I is open to livestock grazing, and this is not proposed for change in Wyoming's proposed land use plan amendment. Montana is also not

proposing any changes to livestock management at this time; therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. As a result, livestock grazing could cause changes in habitat. Changes in plant composition could occur in varying degrees and could change vegetation structure, affecting cover for nesting birds; however, grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses.

Much of the landscape in MZ I is adapted to withstand grazing disturbance, having been grazed by bison before the West was settled. In addition, the BLM has applied Standards for Rangeland Health since 1997 in order to enhance sustainable livestock grazing and wildlife habitat while protecting watersheds and riparian ecosystems. Under proposed management in MZ I, the BLM would be able to adjust forage levels to meet rangeland health standards based on site-specific information that would inform livestock management decisions. While the Proposed RMPA in Wyoming would remove the Greater Sage-Grouse-specific language, in Management Action 4 (see **Table 2-1**, Permit Renewals), the wildlife/special status species standards are emphasized. As Greater Sage-Grouse would continue to be considered at the implementation level with site-specific analysis, following management prescriptions analyzed in the 2014 and 2015 Final EISs, no additive impact of this change is anticipated.

Adaptive Management, Mitigation, and Prioritization of Leasing

Similarly, no appreciable additive impacts are anticipated from Wyoming establishing a process whereby adaptive management actions are reviewed and reversed once the identified causal factor is resolved. This process would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and habitat. It would ensure that once causal factors are resolved, management reverts to pre-adaptive management actions. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable. As Montana is not proposing to change any part of its adaptive management process, and Wyoming did not identify any additional direct or indirect impacts as a result of this proposed change, there are no additional cumulative impacts associated with the proposed changes to adaptive management implementation.

Under the Proposed RMPA in Wyoming, language would be added to clarify how implementation-level decisions would be guided regarding mitigation and prioritization of fluid mineral leasing to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others, but they would not affect Greater Sage-Grouse conservation. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across MZ I.

The BLM's Proposed RMPAs in MZ I are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and an associated decline in Greater Sage-

Grouse habitat quality; however, the Proposed RMP Amendments retain conservation measures that would be applied consistent with State management plans. They would continue proactive habitat restoration efforts being completed by private, local, state, and federal partners across the management zone, to adequately conserve and manage Greater Sage-Grouse habitat.

4.7.4 Cumulative Effects on Greater Sage-Grouse: Management Zone II/VII

In addition to the analysis in the 2015 Final EIS in **Table 4-2**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this RMPA/EIS.

MZs II/VII encompass portions of Wyoming, Colorado, Utah, Montana, and Idaho. Under the Proposed RMPAs in this MZ, PHMA would decrease by 1 percent and GHMA would decrease by 1 percent, compared with the acreage values in the No-Action Alternative. The proposed change in habitat management area acres reflects changes in Utah, where PHMA would be reduced by approximately 35,000 acres, and GHMA (826,000 acres) would be removed in an effort to align with the Greater Sage-Grouse Management Areas identified by the State of Utah. In Idaho, approximately 50,000 acres would change from PHMA to Important Habitat Management Area (IHMA) for population monitoring purposes as a result of a tripped adaptive management trigger; however, the habitat would continue to be managed as PHMA, which results in no net change to overall acreages included in the habitat management area. Across this management zone, no other modifications to habitat management area are currently proposed. Montana is currently not undergoing a plan amendment process; therefore, none of the proposed changes described in this section apply to Greater Sage-Grouse in Montana.

In Colorado, in the No-Action Alternative, PHMA within 1 mile of active leks is closed to leasing. The Proposed Action would open 1 mile of active leks to leasing, subject to NSO stipulations with restrictive criteria for waivers, exceptions, and modifications. Although that allocation change would make additional acres available to leasing, the impact on Greater Sage-Grouse is likely to be minimal because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance. Additionally, better coordination with the State provides more of an all-lands approach that, due to multiple jurisdictions with regulatory authority over land and mineral ownership, may result in better landscape-scale protections for Greater Sage-Grouse and Greater Sage-Grouse habitat.

For the remainder of the planning areas within MZs II and VII, land use plan allocations tied to habitat management area did not change between the No-Action Alternative and the Proposed RMPA.

The decrease in PHMA and GHMA as a result of better alignment with the State of Utah's Greater Sage-Grouse management plan between the No-Action Alternative and the Proposed RMPA would have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. The reduction of PHMA was associated with timbered mountains that do not include Greater Sage-Grouse habitat. The removal of GHMA in MZs II and VII affects populations where the BLM has very little decision space (surface or mineral estates) or areas with very small populations that are already heavily affected by existing oil and gas development resulting in infrastructure at a density above what science has indicated that Greater Sage-Grouse need to persist. Additionally, the relevant distribution of land use plan allocations associated with these habitat management area changes would not significantly change (0–3 percent, see **Appendix D**).

The planning efforts being undertaken in these MZs would incorporate management flexibility in Colorado, Utah, and Idaho plans that would allow exceptions to allocation decisions similar to flexibility already in the Wyoming and Montana plans. These changes would allow for site-specific adjustments for land use authorizations based on site conditions. In addition, there would be adjustments to existing adaptive management strategies for all plans in these MZs. Within these MZs, all plans would remove the recommendation to withdraw SFAs from mineral development, and they would make slight adjustments to habitat objectives. Colorado and Idaho plans would identify new exceptions to seasonal timing restrictions to provide for consideration of site-specific conditions already present in the Utah, Wyoming and Montana plans.

Despite these actions, cumulative impacts on Greater Sage-Grouse populations and habitat across MZs II/VII would be consistent with those impacts identified in the 2015 Final EISs for the then Proposed LUPAs. The currently Proposed RMPA changes from the No-Action Alternative would be minor. Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Because the land use prescriptions within designated habitat management areas and the allocations associated with those habitat management areas are not being proposed for change in any plan in MZ II/VII, there would be no additional cumulative impacts on Greater Sage-Grouse across these MZs.

A summary of potential cumulative impacts by the proposed management action is presented below.

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance are more intense and in areas where development overlaps sensitive habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across MZs II/VII would not result in any additive impacts on Greater Sage-Grouse and could result in beneficial impacts as a result of consistent management across the zone. Future modifications of habitat management areas would be documented using the appropriate level of NEPA analysis that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying habitat management area allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

The allocation exception process would be updated in Colorado, Utah, and Idaho to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; benefit Greater Sage-Grouse or its habitat; or can be offset, with the exception of those needed for public health and safety. There would be no appreciable additive impact, therefore, from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Proposed RMPAs, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal Draft EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds affected per year. The other action alternatives evaluated in the 2016 SFA Withdrawal Draft EIS similarly demonstrated minimal benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.³ The cumulative effects of implementing the Management Alignment Alternative are as described in the 2016 SFA Withdrawal Draft EIS, under the No-Action Alternative, in which SFAs are not carried forward for withdrawal.

In MZs II/VII, approximately 216,000 acres of PHMA in Wyoming and 164,000 acres of PHMA in Utah were recommended for withdrawal from location and entry under the 1872 Mining Law in the current RMPs. This recommendation, if implemented through a future separate withdrawal action supported by its own NEPA, would apply to approximately 3 percent of the MZs. The proposed change to the withdrawal recommendation itself would not have any on-the-ground effects; the conservation benefits of a future withdrawal would be minimal, as documented in the 2016 SFA Withdrawal Draft EIS and as explained above.

Approximately 99 percent of GHMA and PHMA in MZs II/VII is open to livestock grazing; this is not proposed for change in any state's land use plan amendments; therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. Improper livestock grazing could cause changes in habitat. Changes in plant composition could occur in varying degrees and could change the vegetation structure, affecting cover for nesting birds; however, proper grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses. Specific impacts on Greater Sage-Grouse habitat from livestock grazing are incorporated by reference from the 2015 Final EIS. All ongoing planning efforts in MZ II/VII would make slight adjustments to habitat objectives. In Wyoming and Utah, they would provide for more flexibility for making site-specific adjustments to livestock grazing management if the site-specific monitoring indicated adjustments were necessary.

Under the Proposed RMPA, language would be added to clarify how some implementation-level decisions, including mitigation, prioritization of fluid mineral leasing, disturbance caps, and clarification of RDFs, would be guided to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others. They, however, would not cumulatively compromise Greater Sage-Grouse conservation efforts throughout the individual states. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across this MZ.

³ See footnote 2

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process, as described in the Proposed RMPAs. In Wyoming and Utah, this process would be updated at the implementation level to ensure that adaptive management actions are reviewed and reversed once the identified causal factor is resolved. In all states in this MZ, this update would ensure that the BLM is using the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative and not reasonably foreseeable.

In Idaho, removal of the project disturbance cap would not result in any changes to allocation decisions; rather, it would allow the BLM to cluster development in PHMA and IHMA only after meeting the anthropogenic disturbance screening criteria and the disturbance development criteria. Lek buffer modifications would also not result in any allocation changes. Some lek buffers would be increased as a result of the Proposed RMPA, but, in some cases, the lek buffers may be smaller than those identified in the No-Action Alternative. The existing disturbance screening criteria and the disturbance development criteria, however, would highly restrict development activities in both PHMA and IHMA; therefore, the changes in lek buffers sizes would have no additive effect.

The BLM's Proposed RMPAs in MZ II/VII are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and an associated decline in Greater Sage-Grouse habitat quality. The Proposed RMPAs, however, retain conservation measures that would be applied consistent with State management plans. They continue proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ, to adequately conserve and maintain Greater Sage-Grouse habitat.

4.7.5 Cumulative Effects on Greater Sage-Grouse: Management Zone III

In addition to the analysis in the 2015 Final EIS in **Table 4-2**, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

This area encompasses portions of California, Nevada, and Utah. Under the Proposed RMPAs in Nevada and Northeastern California and Utah, PHMA would decrease by 1 percent, GHMA would decrease by 2 percent, and for Nevada and Northeastern California only, Occupied Habitat Management Area (OHMA) would decrease by 2 percent, as compared with the acreages identified in the No-Action Alternative. The proposed change in habitat management area acres between the No-Action and the Proposed RMP Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate habitat management areas and improve alignment with the State of Nevada's delineations for habitat management areas, which the State of Nevada adopted in December 2015. In Utah, GHMA (approximately 860,000 acres) was removed in the Proposed RMPA in an effort to align with the habitat management areas identified by the State of Utah. Following this habitat management area modification, planning-level allocation decisions have also been adjusted in the Proposed RMP Amendments to reflect the distribution of habitat in Nevada/Northeastern California.

In both planning areas within this MZ, land use plan allocations tied to habitat management areas did not change between the alternatives. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ III between the No-Action Alternative and the Proposed RMP Amendment would therefore have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. This is because the relevant distribution of land use plan allocations associated with these habitat management areas is not significantly changing (only an overall 0–3 percent decrease; see **Appendix D**).

Both planning efforts' Proposed RMP Amendments in MZ III incorporate management flexibility that would allow exceptions to allocation decisions within PHMA, GHMA, and OHMA in Nevada and Northeastern California. In both planning areas, it would allow for site specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. Under both sets of Proposed RMP Amendments, the BLM would remove the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872, make slight adjustments to habitat objectives, and identify new exceptions to seasonal timing restrictions. The cumulative impacts of these proposed changes to Greater Sage-Grouse populations across MZ III would be consistent with the cumulative impacts analyzed and disclosed in the 2015 Final EISs. Moreover, these proposed changes, which focus on anthropogenic disturbances, would have only a minor or limited effect on efforts to manage and conserve Greater Sage-Grouse in this MZ, where wildfire, invasive plants, and conifer encroachment are the greater threats to the Greater Sage-Grouse and its habitat.

The BLM's Proposed RMP Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to the reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality. The Proposed RMP Amendments, however, retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ to adequately conserve and maintain Greater Sage-Grouse habitat.

A summary of potential cumulative impacts by the proposed management action is presented below.

Under the Management Alignment Alternative, habitat management area boundaries in Nevada would be adopted or revised to incorporate the best available science (Coates et al. 2016). Because the underlying habitat management area allocations put in place to conserve Greater Sage-Grouse would not change, and these updates reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Management Alignment Alternative. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Management Alignment Alternative, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. There would be no appreciable additive impact, therefore, from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Management Alignment Alternative, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

4.7.6 Cumulative Effects on Greater Sage-Grouse: Management Zone IV

In addition to the analysis in the 2015 Final EIS in **Table 4-2**, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

MZ IV encompasses portions of Idaho, Nevada, Montana, Oregon, Utah, and a small portion of Wyoming. Under the Proposed RMP Amendment PHMA would decrease by 2 percent, IHMA would decrease by 0 percent, GHMA would decrease by 0 percent, and OHMA would decrease by 1 percent, compared with the acreage identified in the No-Action Alternative. The proposed change in habitat management area acres between the No Action and the Proposed RMP Amendment in Nevada is based on adjustments made to habitat modeling used to delineate habitat management areas and to improve alignment with the State of Nevada's delineations for habitat management areas. In Idaho, minor proposed changes in habitat management areas are based on cleaning up habitat mapping errors, removing non-Greater Sage-Grouse habitat that is being managed as PHMA as a result of SFA designation in the 2015 ROD/ARMPA, and reallocating an area of PHMA to IHMA because there was no historic lek routes in the PHMA polygon. This made it impossible to apply the adaptive management framework in that polygon. habitat management areas are not proposed to change in Wyoming, Utah, or Oregon in MZ IV.

The direct and indirect effects of proposed management changes in the Wyoming, Idaho, Utah, Nevada, and Oregon RMPAs are disclosed in each state's Final EIS. Change in allocation decisions is a better indicator to determine how changes across an MZ will affect Greater Sage-Grouse populations; therefore, this cumulative effects analysis relied on changes in planning allocations as the metric to measure cumulative effects in MZ IV.

In all planning areas within MZ IV, land use plan allocations tied to habitat management areas would not change between the No-Action Alternative and Proposed RMP Amendment. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ IV between the No-Action Alternative and the Proposed RMP Amendment would therefore have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. This is because the relevant distribution of land use plan allocations

associated with these habitat management areas is not significantly changing (0–2 percent, see **Appendix D**).

The BLM's Proposed RMP Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and an associated decline in Greater Sage-Grouse habitat quality; however, the Proposed RMP Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ to adequately conserve and manage Greater Sage-Grouse habitats.

A summary of potential cumulative impacts by the proposed management action is presented below.

The proposed plans vary from state to state as does each state's contribution to MZ IV. Montana is not engaging in an amendment process; therefore, Montana will not be contributing to any cumulative effects. Wyoming only has approximately 4,000 acres of PHMA and approximately 20,000 acres of GHMA within MZ IV, making its potential contribution to cumulative effects within the approximately 80 million-acre MZ IV negligible.

The portion of Utah that is within MZ IV is an isolated area with little or no development potential for fluid minerals and is predominantly used for livestock grazing. The RFDS for the area predicts zero wells. The changes proposed in Utah's proposed plan would have no additive effect on Greater Sage-Grouse habitats within MZ IV.

The Oregon RMPA would change access on 21,959 acres in all or portions of key Research Natural Areas from unavailable to grazing to available for grazing. No other states within MZ IV are proposing changes to grazing allocation decisions. This change would not add measurably to other actions occurring within the approximately 80 million-acre MZ IV.

The area of MZ IV that includes Utah is extremely isolated. The dominate use is grazing. Grazing management will follow rangeland health standards. Changes to Utah's Table 2-2 that incorporate local science will benefit Greater Sage-Grouse and ensure that grazing management is conducted properly and would not add cumulatively to Greater Sage-Grouse effects. The area continues to be a ROW avoidance area and is closed to wind energy development. The RFDS for the area predicts zero wells so the change to limited exceptions, waivers, and modifications are moot. The changes proposed in Utah's proposed plan would not add measurably to other actions occurring within the approximately 80 million-acre MZ IV.

Nevada and Northeastern California's proposed plan would revise the habitat management area boundaries to incorporate the best available science (Coates et al. 2016) but would not change the allocations associated with each habitat management area. Nevada and Northeastern California would also update its adaptive management process to ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale. These changes would not be measurably different compared to other actions occurring in MZ IV.

In Idaho, removal of the project disturbance cap would not result in any changes to allocation decisions; rather, it would allow the BLM to cluster development in PHMA and IHMA only after meeting the anthropogenic disturbance screening criteria and the disturbance development criteria. Lek buffer modifications would also not result in any allocation changes. Some lek buffers would be increased as a result of the Proposed RMPA, but, in some cases, the lek buffers may be smaller than those identified in the No-Action Alternative; however, the existing disturbance screening criteria and the disturbance development criteria would ensure that impacts from development activities in both PHMA and IHMA would not result in a net loss to Greater Sage-Grouse habitat.

Within MZ IV, Oregon would retain its SFA designations while Idaho and Nevada would remove SFA designations. Under the proposed plan in Idaho and Nevada the NSO without waivers, modifications, or exceptions would change to NSO stipulations with limited exceptions. The exception criteria could ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. There would be no appreciable additive impact, therefore, from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the proposed plan, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds affected per year. The other action alternatives evaluated in the 2016 SFA Withdrawal EIS similarly demonstrated minimal benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.⁴

The cumulative effects of implementing the proposed plan are as described in the 2016 SFA Withdrawal EIS, under the No-Action Alternative, in which SFAs are not carried forward. There would be negligible cumulative impacts, therefore, associated with the decision to remove the SFA designation. The direct and indirect impact analysis specifically enumerates how each BLM allocation decision to apply NSO stipulations and waivers, exceptions or modifications overlap with the SFA designation.

Under the proposed plan, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

4.7.7 Cumulative Effects on Greater Sage-Grouse: Management Zone V

In addition to the analysis in the 2015 Final EIS in **Table 4-2**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this RMPA/EIS. All changes in the extent of habitat management areas and areas recommended for withdrawal within the MZ occur under the

⁴ See footnote 2.

Nevada and Northeastern California amendment. The Oregon amendment did not propose any changes in the extent of PHMA and GHMA. Oregon removed the recommendation for a withdrawal in the SFA under a plan maintenance action in May 2018, prior to the start of this amendment process. That action resulted in no difference between the No-Action and the Management Alignment Alternatives in terms of withdrawals.

Under the Proposed RMP Amendments in Nevada and Northeastern California, PHMA would decrease by 1 percent, GHMA would decrease by 2 percent, and for Nevada and Northeastern California only, OHMA would decrease by 2 percent, as compared with the acreages identified in the No-Action Alternative. The proposed change in habitat management area acres between the No-Action and the Proposed RMP Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate habitat management areas and improve alignment with the State of Nevada's delineations for habitat management areas, which the State of Nevada adopted in December 2015. Following this habitat management area modification, planning level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California. Future adjustments to habitat management areas in Nevada/Northeastern California would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat.

In Oregon, the only proposed decision under the Management Alignment Alternative (Proposed RMP Amendment) would retain livestock grazing within key Research Natural Areas. The Management Alignment Alternative would result in allowing livestock grazing on 21,959 acres within the Oregon planning area. In the context of the entire MZ, this change would have negligible to no effects on Greater Sage-Grouse populations. Well-managed grazing practices are compatible with sagebrush ecosystems and Greater Sage-Grouse persistence.

A summary of potential cumulative impacts by the proposed management action is presented below.

Under the Nevada and Northeastern California amendment, the Management Alignment Alternative and Proposed RMP Amendment would increase PHMA by less than 1 percent, decrease GHMA by 1 percent and decrease OHMA by 2 percent. This change in habitat management area acres between the No-Action Alternative and Management Alignment Alternative would be the result of improved habitat modeling used to delineate habitat management areas (best available science) and to align with the State of Nevada's delineations for habitat management areas (adopted by the State of Nevada in December 2015). Following this habitat management area modification, planning-level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California.

The Management Alignment Alternative and Proposed RMP Amendment for Nevada/Northeastern California would also remove the recommendation for a withdrawal in the SFAs; allow exceptions to allocation decisions within PHMA, GHMA, and OHMA; modify the existing adaptive management strategy; make slight adjustments to habitat objectives; and identify new exceptions to seasonal timing restrictions. Removing the recommendation to withdraw SFAs from mineral development would result in a 3 percent decrease of acres recommended for withdrawal (see **Appendix D**). The largest percent allocation change between the alternatives within the MZ would be consistent with those impacts described in the 2015 Final EIS for the then Proposed LUPAs because the Management Alignment Alternatives (Proposed RMP Amendments) changes from the No-Action Alternative are minor and deal

largely with anthropogenic disturbances. The greatest threats to populations in this MZ would remain wildfire, invasive plants, and conifer encroachment.

The decreases in GHMA and OHMA within WAFWA MZ V between the No-Action Alternative and Management Alignment Alternative (Proposed RMP Amendment) would therefore have negligible to no effect on Greater Sage-Grouse populations and their habitat in the context of the entire MZ; the relevant distribution of land use plan allocations associated with these habitat management areas would result in an estimated 2.5 to 3 percent decrease, all from Nevada and Northeastern California (see **Appendix D**).

The BLM's Proposed RMP Amendments in MZ V are unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Overall, the Proposed RMP Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ; however, smaller populations, particularly those at the edge of the species range, would remain at highest risk of extirpation (Aldridge et al. 2008; Garton et al. 2011), which the reasonably foreseeable actions may exacerbate as unplanned events such as wildfires, drought, and other natural disturbances lead to declines in Greater Sage-Grouse habitat quality.

Under the Management Alignment Alternative, habitat management area boundaries in Nevada/Northeastern California would be adopted or revised to incorporate the best available science (Coates et al. 2016). Because the underlying habitat management area allocations put in place to conserve Greater Sage-Grouse would not change, and these updates reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Management Alignment Alternative. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Management Alignment Alternative, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. There would be no appreciable additive impact, therefore, from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Management Alignment Alternative, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat

objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

4.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)(C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources from an alternative, should it be implemented. An irreversible commitment of a resource is one that cannot be reversed, such as the extinction of a species or loss of a cultural resource site without proper documentation. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time, such as extraction of oil and gas.

Should oil and gas deposits underlying Greater Sage-Grouse habitat be extracted, that oil and gas resource would be lost.

4.9 UNAVOIDABLE ADVERSE IMPACTS

Section 102(C) of the NEPA requires disclosure of any adverse environmental impacts that could not be avoided should the proposal be implemented. Unavoidable adverse impacts are those that remain following the implementation of mitigation measures, or impacts for which there are no mitigation measures. Some unavoidable adverse impacts happen from implementing the RMPA/EIS; others are a result of public use of BLM-administered lands in the planning area.

This section summarizes major unavoidable impacts discussions of the impacts of each management action (in the discussion of alternatives) and provides greater information on specific unavoidable impacts.

Surface-disturbing activities would result in unavoidable adverse impacts. Although these impacts would be mitigated to the extent possible, unavoidable damage would be inevitable under both the No-Action Alternative and the Management Alignment Alternative.

Impacts from permanent conversion of areas to other uses, such as transportation and mineral and energy development or off-highway vehicle use, would be greater under the Management Alignment Alternative, but overall minimal for both alternatives. Both the No-Action Alternative and the Management Alignment Alternative would place restrictions on many types of development, which would most likely result in fewer visual intrusions and fewer instances of unavoidable wildlife habitat loss.

Wildlife, livestock, wild horses and burros, and other herbivores consume vegetation and affect soils through hoof action and possible compaction. When these impacts are kept at appropriate levels, natural processes such as plant growth and recovery, freeze-thaw periods, and microbial activity in the soil surface result in recovery from these impacts and maintain site stability and health. Vegetation treatments promoting recovery of Greater Sage-Grouse habitats would result in the destruction of the target species, be it annual grass, noxious weed, or encroachment of juniper. Some level of competition for forage between wildlife, livestock, and wild horses would occur. Instances of displacement, harassment, and injury to these species could also occur. Both the No-Action Alternative and the Management Alignment Alternative would place restrictions on development and surface-disturbing activities, which would minimize the likelihood of displacement, harassment, and/or injury.

Development of mineral resources and general use of the decision area would introduce additional ignition sources into the planning area, which would increase the probability of wildland fire and the need for its suppression. These activities, combined with continued fire suppression, would also affect the overall composition and structure of vegetation communities; this could increase the potential for high-intensity wildland fires. Restrictions on development under both alternatives would be expected to decrease the potential for ignitions in the decision area; however, impacts would be greater under the No-Action Alternative.

Numerous land use restrictions imposed throughout the decision area to protect Greater Sage-Grouse habitat and other important values, by their nature, affect the ability of operators, individuals, and groups who use the public lands to do so without limitations. Although attempts would be made to minimize these impacts, unavoidable adverse impacts could occur under the No-Action Alternative or the Management Alignment Alternative.

4.10 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of human environment and the maintenance and enhancement of long-term productivity of resources. As described in the introduction to this chapter, short term is defined as anticipated to occur within the first 5 years of implementation of the activity and long term as lasting beyond 5 years to the end of or beyond the life of this RMPA/EIS.

Surface-disturbing activities, including transportation and utility corridor construction, and mineral resource development would result in the greatest potential for impacts on long-term productivity. Management prescriptions and RDFs are intended to minimize the effect of short-term commitments and to reverse change over the long term. These prescriptions and the associated reduction of impacts would be greater under the No-Action Alternative for resources such as vegetation and wildlife habitat; however, some impacts on long-term productivity might occur, despite the prescriptions intended to reduce impacts on Greater Sage-Grouse and its habitat.

ROWs and short-term use of an area to foster energy and mineral development would result in long-term loss of soil productivity and vegetation diversity. Impacts would persist as long as surface disturbance and vegetation loss continue. In general, the loss of soil productivity would be directly at the point of disturbance; even so, long-term vegetation diversity and habitat value could be reduced due to fragmentation and the increased potential for invasive species to spread from the developments or disturbances. Both the No-Action Alternative and the Management Alignment Alternative would provide for long-term productivity through restrictive allocations that limit development in many areas and through the application of other restrictions on development, such as disturbance caps, RDFs, and other management prescriptions.

ROWs and the short-term use of Greater Sage-Grouse habitat for energy and mineral development could impair the long-term productivity of Greater Sage-Grouse and its habitat and that of other species. This would occur by displacing species from primary habitats and removing components of these habitats that might not be restored for 20 years or longer. These short-term uses could also affect the long-term sustainability of some special status species. The potential for these impacts, however, would be minimal under both the No-Action Alternative and the Management Alignment Alternative.

The short-term resource uses associated with mineral development (oil and gas seismic exploration, natural gas test well drilling, and the noise associated with these activities) would have adverse impacts on the long-term productivity of Greater Sage-Grouse and its habitat. This would be the case if these resource uses were to infringe on Greater Sage-Grouse seasonal habitats such as nesting, brood-rearing, and winter habitats. These activities, though short-term individually, could have collective long-term impacts on Greater Sage-Grouse and its habitat if they were to increase in the long term.

Chapter 5. Consultation and Coordination

The BLM decision-making process is conducted in accordance with the requirements of NEPA, Council on Environmental Quality (CEQ) regulations implementing NEPA, and the DOI and BLM policies and procedures implementing NEPA. The NEPA and associated regulatory and policy framework require that all federal agencies involve the interested public and potentially affected parties in their decision-making and prepare environmental documents that disclose the potential impacts of proposed actions and alternatives.

A Notice of Intent (NOI) was published in the *Federal Register* on October 11, 2017, which initiated a 45-day public scoping period for the potential amendment to BLM land use plans (LUPs) that were revised or amended in 2014 and 2015 regarding Greater Sage-Grouse conservation. The Notice of Availability (NOA) for the Draft RMPA/EIS was released on May 4, 2018 for a 90-day public comment period. The BLM Wyoming State Office solicited additional public involvement at multiple meetings, including public scoping meetings and two cooperating agency workshops, to help identify issues to be addressed in the planning process. **Table 5-1** lists the public involvement, coordination, and consultation events that occurred in Wyoming.

Table 5-1
Public Involvement, Coordination, and Consultation Events

Date	Location	Type
November 6, 2017	Cheyenne, Wyoming	Public Scoping Meeting
November 8, 2017	Pinedale, Wyoming	Public Scoping Meeting
March 27–28, 2018	Rock Springs, Wyoming	Cooperators Meeting
April 3–4, 2018	Casper, Wyoming	Cooperators Meeting
June 25, 2018	Cheyenne, Wyoming	Public Meeting
June 17, 2018	Pinedale, Wyoming	Public Meeting
August 29, 2018	Cheyenne, Wyoming	Cooperators Meeting

5.1 PUBLIC INVOLVEMENT

In accordance with CEQ scoping guidance, the BLM provided a public scoping period to identify potential issues and concerns associated with potentially amending LUPs regarding Greater Sage-Grouse conservation. The intent of the scoping process is to provide an opportunity for the public, interest groups, tribes, and other governmental agencies to learn about the project and provide input on planning issues, impacts, and potential alternatives that will be addressed in the RMPA/EIS. Generally, public involvement during scoping assists the agency through the following: broadening the information base for decision-making, informing the public about the planning and NEPA process, and ensuring that public needs and viewpoints are understood by the agencies. Information about scoping meetings, comments received, comment analysis, and issue development can be found in the scoping report available online here: <https://goo.gl/7wdKmM>.

5.1.1 Public Scoping

The scoping period began with the publication of the NOI in the *Federal Register* on October 11, 2017. The NOI was titled Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse

Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments. During the scoping period, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be considered, and whether the BLM should pursue a state-by-state amendment process or structure its planning effort differently, for example by completing a national programmatic process. Representatives of the BLM engaged with the Western Governors' Association Sage Grouse Task Force in October of 2017 and January of 2018 to discuss the progress of scoping efforts. In addition, the DOI Deputy Secretary has emphasized that input from state governors would weigh heavily when considering what changes should be made and ensuring consistency with the BLM's multiple-use mission.

The BLM held two public scoping meetings on November 6 and 8, 2017, respectively, in Cheyenne and Pinedale, Wyoming. **Table 5-1**, above, lists the scoping meeting locations and dates. The scoping meetings provided the public with an opportunity to learn and ask questions about the project and the planning process, and to submit their issues and concerns to the BLM. The BLM provided an open house format to encourage participation and dialogue, and to enable attendees to ask questions of BLM representatives in an informal one-on-one setting. The BLM also provided handouts, presented displays, and delivered a presentation at each meeting. The BLM encouraged attendees to comment by providing written or electronic submissions. Comment forms were available to attendees at each meeting.

5.1.2 Website

The national webpage for the NOI to amend the Greater Sage-Grouse RMP revisions and amendments is located at <https://goo.gl/7wdKmM> and includes scoping and other information relevant to all state-specific planning efforts in accordance with the NOI. The project website for the Wyoming Greater Sage-Grouse RMPA/EIS can be found at <https://goo.gl/FoqAn9>. The site serves as a repository for documents related to the development of the RMPA/EIS, including draft and final NEPA documents and other pertinent information. The website also provides the opportunity for the public to submit comments for consideration as part of the RMPA/EIS comment period.

5.1.3 Public Meetings

The NOA for the Draft RMPA/EIS was released on May 4, 2018, for a 90-day public comment period. This Proposed RMPA/Final EIS will respond to all substantive comments that the BLM receives during the 90-day comment period. An NOA will be published in the *Federal Register* to notify the public of the availability of the Proposed RMPA and Final EIS. The NOA will also outline protest procedures during the 30-day period. A 60-day Governor's consistency review will occur concurrent with this protest period. Such protests will be addressed in the ROD, and necessary adjustments may be made to the RMPA/EIS. A ROD will then be issued by the BLM after the release of the Proposed RMPA/Final EIS, the Governor's consistency review, and any resolution of protests received on the Proposed RMPA/Final EIS.

5.2 COOPERATING AGENCIES

Federal regulation directs the BLM to invite eligible federal agencies, state and local governments, and federally recognized Indian tribes to participate as cooperating agencies when amending RMPs (43 CFR 1610.3-1[b]). A cooperating agency is any such agency or tribe that enters into a formal agreement with the lead federal agency to help develop an environmental analysis. More specifically, cooperating agencies "work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks" (BLM Land Use Planning Handbook

H-1601-I). These agencies are invited to participate because they have jurisdiction by law or can offer special expertise. Cooperating agency status provides a formal framework for these government units to engage in active collaboration with a lead federal agency in the planning process.

The BLM Wyoming State Office extended cooperating agency status to government entities and agencies throughout the state. The following is a list of the government entities that have formally agreed to participate as cooperating agencies in the development of the RMPA/EIS (**Table 5-2**).

Table 5-2
Cooperating Agencies

• Bighorn County	• Sublette County
• Campbell County	• Sublette County Conservation District
• Campbell County Conservation District	• Sweetwater County
• Clear Creek Conservation District	• Sweetwater County Conservation District
• Converse County	• Teton County
• Fremont County	• Uinta County
• Hot Springs County	• Uinta County Conservation District
• Hot Springs Conservation District	• US Fish and Wildlife Service
• Johnson County	• US Office of Surface Mining and Reclamation Enforcement
• Lincoln County	• Washakie County
• Lincoln County Conservation District	• Washakie County Conservation District
• Lower Wind River Conservation District	• Weston County
• Medicine Bow Conservation District	• Wyoming Department of Agriculture
• Meeteetse Conservation District	• Wyoming Department of Environmental Quality – Industrial Siting Division
• Natrona County Conservation District	• Wyoming Game and Fish Department
• Park County	• Wyoming Office of the Governor
• Popo Agie Conservation District	• Wyoming Office of State Lands and Investments
• Saratoga-Encampment-Rawlins Conservation District	• Wyoming Oil and Gas Conservation Commission
• Sheridan County	

The cooperating agencies were invited to participate in the development of alternatives and to provide data and other information relative to their disciplines. The BLM held meetings with the cooperating agencies on March 27 and 28, 2018, and April 3 and 4, 2018, regarding the planning process and development of alternatives. A cooperating agency meeting was also held on August 29, 2018, to discuss changes between the Draft and Final EIS. Cooperating agencies have also provided comments on the Draft RMPA/EIS. **Table 5-1** lists the cooperating agency meeting locations and dates.

5.3 AMERICAN INDIAN TRIBAL CONSULTATION

Consultation with Native American tribes is a requirement of FLPMA and BLM guidance. In December 2017, the BLM Wyoming sent letters to tribal governments providing notification of the RMPA/EIS and inviting the tribes to participate as cooperating agencies in the planning process. Letters were sent to the following six tribes located in Wyoming and Nebraska:

- Eastern Shoshone
- Northern Arapaho
- Omaha Tribe of Nebraska
- Ponca Tribe of Nebraska
- Santee Sioux Nation of Nebraska
- Winnebago Tribe of Nebraska

The Draft RMPA/EIS was provided to the tribes concurrently with its release to the public. Government-to-government consultation will continue throughout the planning process to ensure that tribal groups' concerns are considered during development of the Proposed RMPA/Final EIS.

5.4 LIST OF PREPARERS

This RMPA/EIS was prepared and reviewed by an interdisciplinary team of staff from the BLM, in collaboration with Environmental Management and Planning Solutions, Inc.

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Chapter 6. References

- BLM (Bureau of Land Management). 2014. Record of Decision and Approved Resource Management Plan for the Lander Field Office Planning Area. Lander, Wyoming. June 2014
- _____. 2015a. Approved Resource Management Plan Amendment for Greater Sage-Grouse. Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices. Wyoming State Office. September, 2015.
- _____. 2015b. Bighorn Basin Resource Management Plan Revision Project Draft Resource Management Plan and Draft Environmental Impact Statement. Worland, Wyoming.
- _____. 2015c. Buffalo Field Office Approved Resource Management Plan. September 2015. BLM/WY/PL-15/022+1610.
- _____. 2016. Sagebrush Focal Areas Withdrawal Environmental Impact Statement Idaho, Montana, Nevada, Oregon, Utah, and Wyoming, Draft EIS. Washington, DC. December 2016.
- Carter, S. K., D. J. Manier, R. S. Arkle, A. N. Johnston, S. L. Phillips, S. E. Hanser, and Z. H. Bowen. 2018. Annotated Bibliography of Scientific Research on Greater Sage-Grouse Published Since January 2015. US Geological Survey Open-File Report 2018–1008. Internet website: <https://doi.org/10.3133/ofr20181008>.
- Hanser, S. E., P. A. Deibert, J. C. Tull, N. B. Carr, C. L. Aldridge, T. C. Bargsten, T. J. Christiansen, et al. 2018. Greater Sage-Grouse Science (2015–17)—Synthesis And Potential Management Implications. US Geological Survey Open-File Report 2018–1017. Internet website: <https://doi.org/10.3133/ofr20181017>.
- Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl, eds. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado. June 2015.

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Glossary

Adaptive management. A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

Amendment. The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

Avoidance/avoidance area. These terms usually address mitigation of some activity (i.e., resource use). Paraphrasing the CEQ Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore, the term “avoidance” does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it. Also see “right-of-way avoidance area” definition.

Best Management Practices (BMPs). A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

Biologically Significant Unit (BSU). A geographical/spatial area within Greater Sage-Grouse habitat that contains relevant and important habitats that is used as the basis for comparative calculations to support evaluation of changes to habitat.

Compensatory mitigation. Compensating for the residual impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Controlled Surface Used (CSU). CSU areas are open to fluid mineral leasing, but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

Connectivity Habitat. Connectivity habitats (as defined in Wyoming EO 2015-4) are state-designated areas identified as important for to maintain transmission of genetic material between core area populations. It may not include breeding, late brood-rearing, or winter habitats. Along with core habitat, connectivity habitat is one of two components of PHMA.

Cooperating agency. Assists the lead federal agency in developing an environmental assessment or environmental impact statement. These can be any agency with jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any tribe or Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Core Habitat. Core habitats (as defined in Wyoming EO **2015-4**) are state-designated areas identified as the most important for Greater Sage-Grouse and include breeding, late brood-rearing, and winter habitats. It does not include known migration or connectivity corridors or winter concentration areas. Along with connectivity habitat, core habitat is one of two components of PHMA.

Council on Environmental Quality (CEQ). An advisory council to the President of the US established by NEPA. It reviews federal programs to analyze and interpret environmental trends and information.

Cumulative effects. The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

Decision area. Public lands and mineral estate managed by the US DOI, BLM that are within the planning area and are encompassed by all designated habitat.

Direct impacts. Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place.

Environmental impact statement (EIS). A detailed statement prepared by the responsible official in which a major federal action that significantly affects the quality of the human environment is described, alternatives to the proposed action are provided, and effects are analyzed.

Fluid minerals. Oil, gas, coal bed natural gas, and geothermal resources.

General Habitat Management Area (GHMA). Areas of seasonal or year-round Greater Sage-Grouse habitat outside of priority habitat.

Geographic Information System (GIS). A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and display a potentially wide array of geospatial information.

Habitat. An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

Impact. The effect, influence, alteration, or imprint caused by an action.

Indirect impacts. Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

Leasable minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. These include energy-related mineral resources such as oil, natural gas, coal and geothermal, and some non-energy minerals, such as phosphate, sodium, potassium, and sulfur. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

Lease stipulation. A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek. An arena where male Greater Sage-Grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent.

Long-term effect. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

Management decision. A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Minimization mitigation. Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

Mitigation. Includes specific means, measures or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action, minimizing the impact by limiting the degree or magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitation, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and compensating for the impact by replacing or providing substitute resources or environments.

Modification. A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

No surface occupancy (NSO). A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

Planning area. The geographical area for which resource management plans are developed and maintained regardless of jurisdiction.

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 streamlines and simplifies the resource management planning actions.

Planning issues. Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses.

Policy. This is a statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Priority Habitat Management Areas (PHMA). Priority Habitat Management Areas (PHMA). Areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage-Grouse populations; they include breeding, late brood-rearing, and winter habitats. As defined in Wyoming EO 2015-4, core and connectivity habitats are PHMA.

Required Design Features (RDFs). Means, measures, or practices intended to reduce or avoid adverse environmental impacts. A suite of features that would establish the minimum specifications for certain activities (i.e., water developments, mineral development, and fire and fuels management) and mitigate adverse impacts. These design features would be required to provide a greater level of regulatory certainty than through implementation of Best Management Practices. In general, the design features are accepted practices that are known to be effective when implemented properly at the project level.

Resource management plan (RMP). A land use plan as prescribed by FLPMA that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Short-term effect. The effect occurs only during or immediately after implementation of the alternative.

Stipulation (general). A term or condition in an agreement or contract.

Stipulation (oil and gas). A provision that modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of the lease. Typical lease stipulations include NSO, Timing Limitations, and CSU. Lease stipulations are developed through the land use planning process.

Timing Limitation (TL). Areas identified for timing limitations, a moderate constraint, are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified timeframes. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive are not allowed. Intensive maintenance, such as workover wells, is not permitted. TLs can overlap spatially with no surface occupancy and controlled surface use, as well as with areas that have no other restrictions.

Winter Concentration Areas. Winter Concentration Areas are a habitat feature where biologically significant numbers of core habitat Greater Sage-Grouse persistently congregate in an area outside of PHMA between December 1 and March 14.

Index

- Core Habitat, 4-7
- Council on Environmental Quality (CEQ), ES-8, 2-18, 4-16, 5-1
- Federal Land Policy and Management Act (FLPMA), ES-2, ES-7, ES-8, 1-3, 4-14, 4-22, 5-3
- General Habitat Management Area (GHMA), ES-5, 1-3, 1-4, 1-11, 2-15, 2-22, 3-7, 4-7, 4-8, 4-9, 4-12, 4-13, 4-14, 4-16, 4-24, 4-26, 4-27, 4-28, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35
- Lease, ES-4, ES-5, ES-6, ES-7, ES-9, 1-10, 1-11, 2-4, 2-12, 2-14, 2-14, 2-22, 3-9, 4-7, 4-12, 4-16, 4-25, 4-26, 4-27, 4-28, 4-30, 4-35
- Lek, ES-6, 2-2, 2-16, 2-17, 2-16, 2-24, 3-3, 3-8, 4-7, 4-10, 4-13, 4-26, 4-29, 4-31, 4-32
- National Environmental Policy Act (NEPA), ES-4, 8, 1-7, 1-10, 2-2, 2-4, 2-8, 2-12, 2-12, 2-18, 2-20, 2-22, 4-1, 4-8, 4-14, 4-15, 4-16, 4-20, 4-22, 4-24, 4-27, 4-28, 4-36, 4-37, 5-1, 5-2, 5-4
- No Surface Occupancy (NSO), ES-5, 1-11, 4-20, 4-26, 4-33
- Priority Habitat Management Area (PHMA), ES-3, ES-4, ES-5, ES-6, ES-9, 1-3, 1-4, 1-6, 1-9, 1-10, 1-11, 2-2, 2-4, 2-5, 2-6, 2-5, 2-6, 2-11, 2-12, 2-11, 2-12, 2-13, 2-11, 2-12, 2-13, 2-14, 2-15, 2-13, 2-14, 2-13, 2-14, 2-15, 2-16, 2-18, 2-22, 3-1, 3-7, 3-8, 4-3, 4-7, 4-8, 4-9, 4-11, 4-12, 4-13, 4-14, 4-16, 4-24, 4-26, 4-27, 4-28, 4-29, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35
- Wyoming Game and Fish Department, ES-3, ES-5, 1-9, 1-11, 2-19, 2-20, 3-6, 5-3

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Appendix A

Proposed RMP Amendment with Management
Goals, Objectives, and Decisions

Appendix A. Proposed RMP Amendment with Management Goals, Objectives, and Decisions

This appendix presents the proposed changes and the existing, ongoing management goals, objectives, and decisions for Greater Sage-Grouse habitat on BLM-administered surface and federal mineral estate in Wyoming. The purpose of this appendix is to show the existing management decisions (which are not proposed for change) and the management decisions that are proposed for change in this Proposed RMP Amendment. The tables below take existing management decisions, identify the proposed changes via either ~~strikeout~~ or **bold** font, and also demonstrate the management decisions that will remain the same for each RMP affected by the Proposed RMP Amendment.

Table A-1
Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
Management Goal 1	Conserve, restore, and enhance Greater Sage-Grouse habitat on a landscape scale consistent with local, state, and federal management plans and policies, as practical, while providing for multiple use of BLM-administered lands.
Management Objective (MO) 1	In cooperation with the State of Wyoming and its agencies, local governments, private landowners, local Greater Sage-Grouse working groups, partners, and stakeholders, develop site-specific conservation strategies to maintain or enhance Greater Sage-Grouse habitats and habitat connectivity.
MO 2	Maintain and enhance quality/suitable habitat to support the expansion of Greater Sage-Grouse populations on federally administered lands within the planning area.
MO 3	Manage Greater Sage-Grouse seasonal habitats and maintain habitat connectivity to support population objectives set by the State of Wyoming in cooperation with the agencies.
MO 4	Identify and prioritize opportunities for habitat enhancement and conservation within Greater Sage-Grouse core habitat areas based on threats and the ability to manage Greater Sage-Grouse habitat.
MO 5	Restore native (or desirable) plants and create landscape patterns that most benefit Greater Sage-Grouse.
MO 6	Develop specific habitat objectives to protect, enhance, or restore Greater Sage-Grouse priority habitat based on ESDs and BLM land health evaluations (including within wetlands and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry, possibly altering the ESD. If an effective grazing system that meets sage-grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances sage-grouse habitat in the NEPA document prepared for grazing management (Doherty et al. 2011, Williams et al. 2011).
MO 7	Establish measurable objectives related to Greater Sage-Grouse habitat from baseline monitoring data, ESDs, or land health assessments/evaluations.
MO 8	Manage for vegetation composition and structure consistent with ecological site potential to achieve Greater Sage-Grouse seasonal habitat objectives.
MO 9	Incorporate available site information collected using the Sage-Grouse Habitat Assessment Framework or similar methods to evaluate existing resource conditions and to develop any necessary resource solutions in cooperation with the State of Wyoming and its agencies, the local governments, private landowners, project proponents, partners, and stakeholders.
MO 10	Incorporate management practices that will provide for maintenance and/or enhancement of Greater Sage-Grouse habitats, including specific attention to maintenance of desired understories of sagebrush plant communities. When developing objectives for residual cover and species diversity, identify the ecological site types within the planning area and refer to the appropriate ESDs.
MO 11	In determining appropriate management actions that will be considered, refer to the document, <i>Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat</i> (Cagney et al. 2010) for guidance.
MO 12	Identify PHMA and GHMA for each WAFWA MZ across the current geographic range of Greater Sage-Grouse that are large enough to stabilize populations in the short term and enhance populations over the long term. Greater Sage-Grouse habitat in this planning area overlaps two WAFWA MZs: (1) MZ I - Great Plains and (2) MZ II - Wyoming Basin.
MO 13	Protect PHMA and GHMA from anthropogenic disturbance that will reduce distribution or abundance of Greater Sage-Grouse.

Table A-1

Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPsChanges from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
MO 14	Leasing is allowed in PHMA. To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA. Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.
MO 15	In all SFAs and PHMA, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in <i>Interpreting Indicators of Rangeland Health</i> (BLM Tech Ref 1734-6).
MO 16	The habitat objectives (see Tables 2-2 and 2-3) will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations (see Monitoring Framework in Appendix D). These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination on whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in the table.
MO 17	Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Management Direction (MD) General Management Direction (GMD) 1	Continue to support the development of statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
MD GMD 2	Field offices will work with project proponents, partners, and stakeholders to avoid or minimize impacts and/or implement direct mitigation (e.g., relocating disturbance, timing restrictions, etc.), and utilize best management practices (BMPs).

Table A-1
Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

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Action #	2018 Proposed RMPA
MD GMD 3	Utilize the Wyoming SGIT and LWG plans or other state plans, analyses, and other sources of information to guide development of conservation objectives for local management of Greater Sage-Grouse habitats. The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under Governor EO 2015-4 , to: (1) develop appropriate conservation objectives; (2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and (3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework.
MD GMD 4	Include the collection of baseline data and outline post-project monitoring components in project planning, as appropriate and necessary.
MD GMD 5	The BLM will coordinate new recommendations, mitigation, habitat objectives, and management considerations applied for Greater Sage-Grouse with the WGFD and other appropriate agencies, local government cooperators, and the Wyoming SGIT. These measures will be analyzed in site-specific NEPA documents, and planning-level documents, as necessary.
MD GMD 6	Apply appropriate seasonal restrictions for implementing vegetation management treatments according to the type of seasonal habitats present within Greater Sage-Grouse habitat. Vegetation treatments must include monitoring to determine achievement of objectives and their long-term success.
MD GMD 7	Ensure site-specific, measurable conservation and mitigation objectives are included in project planning within Greater Sage-Grouse habitats.
MD GMD 8	Each BLM field office will develop landscape-scale restoration, conservation, and maintenance strategies, including special management of seasonal habitats and identified connectivity zones outside of PHMA, working with voluntary partners and cooperating agencies. These strategies and habitat designations must be coordinated and reconciled with Wyoming's Greater Sage-Grouse Core Area Protection strategy (EO 2015-4), and where possible, with adjoining management entities that share habitats or populations.
MD GMD 9	Design all projects in a manner that minimizes potential for invasive species establishment. Monitor and treat invasive species associated with all permitted activities consistent with BLM Handbook H-1740-2.
MD GMD 10	Apply all appropriate RDFs (Appendix B) as mandatory Stipulations/COA/Terms and Conditions within PHMA for all program areas as applicable.
MD GMD 11	Integrated vegetation management will be used to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H-1740-2. Manage weed treatments to maintain and improve Greater Sage-Grouse habitat. RDFs and BMPs will be applied to the permit as COA as determined through the site-specific analysis.

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Action #	2018 Proposed RMPA
MD GMD 12	<p>Existing notices and approved plans of operations under 43 CFR 3809: For projects that overlap PHMA, operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally affect PHMA (core only). The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area, which is defined in 43 CFR 3809.5). These suggested conservation measures include measures that support the overall goals and objectives of the priority/core population area strategy and may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or plans of operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices (or modifications thereto) and 30-day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation would take place will be reviewed for overlap of Greater Sage-Grouse PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA (core only) and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p>
MD GMD 13	As new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the BLM will incorporate, through appropriate processes and analyses, these areas into the GHMA category and manage them as such, until the earliest review occurs by the SGIT. At that time, they will be considered for PHMA status or continue to be managed as GHMA and will be added to the statewide map.
MD GMD 14	Contribute to actions that help to ground-truth the statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
MD GMD 15	Use the Sage-grouse Habitat Assessment Framework or best available assessment tool (approved by the AO) when assessing or evaluating Greater Sage-Grouse habitats at multiple scales.
MD GMD 16	The official Wyoming Greater Sage-Grouse lek database is maintained by the WGFD in accordance with Appendix 4B of the Umbrella MOU between the WGFD and BLM (WGFD and BLM 1990). The MOU states that agencies will meet at least annually to coordinate and review the accuracy of data, and incorporate the most up-to-date information.
MD GMD 17	Many Greater Sage-Grouse seasonal habitats within and outside of PHMA (core only) are encumbered by valid existing rights, such as mineral leases or existing rights-of-way. Fluid mineral leases often will include less stringent lease stipulations than the timing, distance, and density requirements identified for consideration in this plan. The BLM will work with proponents holding valid existing leases that include less stringent lease stipulations than the timing, distance, and density restrictions described within this plan to ensure that measurable Greater Sage-Grouse conservation objectives (such as, but not limited to, consolidation of infrastructure to reduce habitat fragmentation and loss, and effective conservation of seasonal habitats and habitat connectivity to support management objectives set by the WGFD) are included in all project proposals.

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Action #	2018 Proposed RMPA
MD GMD 18	PHMA will be designated as OHV Limited Areas. The OHV limitation will ultimately be to “Designated Routes” as determined through a subsequent implementation/activity-level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization.
MD GMD 19	Complete activity-level travel plans within 5 years of the record of decision (ROD) for this planning effort. During activity-level planning, where appropriate, designate routes in PHMA with current administrative/agency purpose or need to administrative access only. Existing plans shall be assessed for consistency with Greater Sage-Grouse conservation objectives.
MD GMD 20	Construct roads needed for production activities to minimum design standards within PHMA, in compliance with the Density and Disturbance Calculation Tool (DDCT) process.
MD GMD 21	Field office staff will work with project proponents (including those within the BLM) and the WGFD to site their projects in locations that meet the purpose and need for their project, utilize the DDCT, and have been determined to contain the least sensitive habitats.
MD GMD 22	Evaluate opportunities to coordinate management plans and strategies on multiple allotments where coordination under a single management plan/strategy will result in enhancing Greater Sage-Grouse populations or its habitat, as determined in coordination with the state wildlife agency and with project proponents, partners, and stakeholders.
MD GMD 23	Existing RMP decisions will be retained unless vacated or modified by decisions in this ARMPA. Where more restrictive land use allocations or decisions are made in existing RMPs, those more restrictive land use allocations or decisions will remain in effect and will not be amended by this ARMPA.
MD GMD 24	Fire and fuels management actions will be designed to contribute to the protection and enhancement of sagebrush habitat that support Greater Sage-Grouse populations (including large, contiguous blocks of sagebrush).
MD GMD 25	BLM planning units (Districts), in coordination with the USFWS and relevant state agencies, will complete and continue to update Greater Sage-Grouse Landscape Wildfire & Invasive Species Habitat Assessments to prioritize at-risk habitats, and identify fuels management, preparedness, suppression and restoration priorities necessary to maintain sagebrush habitat to support interconnecting Greater Sage-Grouse populations. These assessments and subsequent assessment updates will also be a coordinated effort with an interdisciplinary team to take into account other Greater Sage-Grouse priorities identified in this plan. Appendix L describes a minimal framework example and suggested approach for this assessment. Implementation actions will be tiered to the Local (District) Greater Sage-Grouse Landscape Wildfire & Invasive Species Assessment using the best available science related to the conservation of Greater Sage-Grouse. In coordination with the USFWS and relevant state agencies, the BLM planning units (Districts) will identify annual treatment needs for wildfire and invasive species management as identified in local unit-level Landscape Wildfire and Invasive Species Assessments. Annual treatment needs will be coordinated across state/regional scales and across jurisdictional boundaries for long-term conservation of Greater Sage-Grouse. These landscape assessment implementation efforts will be reviewed annually with appropriate USFWS and state agency personnel.
MD GMD 26	Implement a coordinated inter-agency approach to fire restrictions based on National Fire Danger Rating System thresholds (fuel conditions, drought conditions, and predicted weather patterns) for Greater Sage-Grouse habitat.
MD GMD 27	Within acceptable risk levels, utilize a full range of fire management strategies and tactics, including the management of wildfires, to achieve resource objectives across the range of Greater Sage-Grouse habitat consistent with land use plan direction.

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Action #	2018 Proposed RMPA
MD SSS 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: The BLM, in coordination with the State of Wyoming and its agencies, other local partners and stakeholders, will establish monitoring framework (Appendix C) for Greater Sage-Grouse populations and habitat that will be incorporated into individual project approvals, including small and in-house projects, as appropriate and necessary.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Bates Hole and Fish Creek/Willow Creek: The areas will have priority for vegetation treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.</p>
MD SSS 2	In PHMA (core only), the density of disturbance of an energy or mining facility (Appendix D) will be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights. The one location and cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process.
MD SSS 3	Inside PHMA (connectivity only), all suitable habitat disturbed (any program area) will not exceed 5 percent of suitable habitat within the DDCT area using the DDCT process.
MD SSS 4	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In Wyoming, the USFWS has found that “the core area strategy, if implemented by all landowners via regulatory mechanism, would provide adequate protection for Greater Sage Grouse and their habitats in the state.” The BLM will implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO2015-4) that includes “compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater sage grouse.” Adopt the State of Wyoming’s Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. The BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the CEQ mitigation hierarchy as appropriate at the site-specific project level and would defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation.</p> <p>In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the</p>

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Action #	2018 Proposed RMPA
	<p>status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.</p> <p>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015):</p> <ol style="list-style-type: none"> 1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization. 2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse. 3. Incorporate state required or recommended mitigation into the BLM’s NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRS habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation. 4. Analyze whether the compensatory mitigation: <ul style="list-style-type: none"> • achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming’s Executive Order 2015-4. • provides benefits that are in place for at least the duration of the impacts • accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact 5. Ensure mitigation outcomes are consistent with the State of Wyoming’s mitigation strategy and principles outlined in Appendix C, The Greater Sage-Grouse Habitat Management Strategy <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2018-093, <i>Compensatory Mitigation</i>, July 24, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent’s submission or based on a mitigation requirement from the State, the BLM’s NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.</p> <p>Remove the phrase “net conservation gain” from all management actions across all RMPs and appendices, including in reference to MD REC 2.</p>

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	<p>Outside of PHMA and/or for values other than Greater Sage Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Pinedale RMP:</u></p> <p>Off-site mitigation proposed by oil and gas or other operators shall be considered and analyzed in future environmental documents as possible mitigation for proposed activities within the planning area. Proposed off-site mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Planning for off-site mitigation will be performed in coordination with local government agencies. The need for off-site mitigation will be determined in conformance with current BLM policy, as updated.</p> <p>The order of use of mitigation methods from most to least preferred is as follows:</p> <p>On-site mitigation directly resolving impacts created by the action</p> <p>Off-site mitigation to the resources affected by the action that cannot be resolved on-site</p> <p>Off-site mitigation to similar or related resources affected by the action that cannot be resolved on-site. The following stipulations apply to off-site mitigation measures:</p> <p>Off-site mitigation will be used as a last choice when developing mitigation measures.</p> <p>Off-site mitigation proposals will describe the replacement or substitution activities or methods that are used to address potential impacts on specific resources or environments or both.</p> <p>Off-site mitigation must be as close to “in-kind” in replacement or substitution of resources, habitat function, or environments as practicable (e.g., elk habitat for elk habitat, historical properties for historical properties).</p> <p>Off-site mitigation practices must last as long as the impacts are expected to occur.</p> <p>Off-site mitigation practices are to be developed, conducted or performed, and funded by the project proponent.</p> <p>Off-site mitigation activities must be conducted subject to BLM review and approval that the mitigation will actually address the impacts occurring on the public lands.</p> <p>The priority order for mitigating resource impacts on-site or off-site is as follows:</p> <p>On-site Mitigation—On-site (avoid, minimize, rectify, or reduce in time).</p> <p>Off-site Mitigation—Local (unless greater resource benefits can be achieved through regional or interstate mitigation).</p> <p>Off-site Mitigation—Regional (unless greater resource benefits can be achieved through interstate mitigation).</p> <p>Off-site Mitigation—Interstate: The preferred area for conducting off-site mitigation is as near (local off-site mitigation) to the project or affected area as possible or as scientific information and impact analysis suggests.</p> <p>Off-site Mitigation—Interstate: The preferred area for conducting off-site mitigation is as near (local off-site mitigation) to the project or affected area as possible or as scientific information and impact analysis suggests.</p>

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Action #	2018 Proposed RMPA
MD SSS 5	Greater Sage-Grouse leks inside PHMA: Surface occupancy and surface-disturbing activities will be prohibited on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 2-8). The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming (see MD SSS 4). The AO may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse.
MD SSS 6	Greater Sage-Grouse leks outside PHMA: Surface occupancy and surface-disturbing activities will be prohibited on or within a 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 2-8). The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming (see MD SSS 4). The AO may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse.
MD SSS 7	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMA (core only): Surface-disturbing and/or disruptive activities will be prohibited from March 15–June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood rearing habitat. This timing limitation will be applied throughout the PHMA (core only). Activities in unsuitable habitats will be evaluated under the exception and modification criteria and shall be allowed on a case by case basis. Where credible data support different timeframes for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates, but not both.
MD SSS 8	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMA (connectivity only): Surface-disturbing and/or disruptive activities will be prohibited within PHMA (connectivity only) from March 15–June 30 to protect breeding, nesting, and early brood-rearing habitats within 4 miles of the lek or lek perimeter of any occupied Greater Sage-Grouse lek within identified PHMA (connectivity only). This timing limitation will be applied throughout the PHMA (connectivity only). Activities in unsuitable habitats will be evaluated under the exception and modification criteria and may be allowed on a case-by-case basis. Where credible data support different timeframes for this seasonal restriction, dates can be shifted by 14 days prior or subsequent to the above dates, but not both.
MD SSS 9	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside PHMA: Surface-disturbing and/or disruptive activities will be prohibited from March 15–June 30 to protect Greater Sage-Grouse breeding , nesting, and early brood rearing habitat within 2 miles of the lek or lek perimeter of an occupied lek located outside PHMA. Activities in unsuitable habitats will be evaluated under the exceptions and modification criteria and shall be allowed on a case by case basis. Where credible data support different timeframes for this seasonal restriction, dates may be expanded up to 14 days prior to or subsequent to the above dates but not both

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MD SSS 10	Greater Sage-Grouse Winter Concentration Areas: Surface-disturbing and/or disruptive activities in Greater Sage-Grouse winter concentration areas would be prohibited from December 1—March 14. Activities in unsuitable habitats within PHMA would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. Protection of additional mapped winter concentration areas in GHMA would be implemented where winter concentration areas are identified as supporting populations of Greater Sage-Grouse that attend leks within PHMA (core only) mapped and designated by the State of Wyoming . Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated on consultation with the WGFD in all identified winter concentration areas.
MD SSS 11	The BLM will support other agencies in their efforts to minimize impacts from predators. The BLM will implement strategies and techniques in land management decisions that address predators shown to pose a threat to Greater Sage-Grouse (2015 ARMPA Appendix N). The BLM will support and encourage other agencies in their efforts to minimize impacts from predators on Greater Sage-Grouse where needs have been documented.
MD SSS 12	Within PHMA (core only) , new project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1–May 15). In coordination with the State of Wyoming , specific noise protocols for measurement and implementation will be developed as additional research and information emerges.
MD SSS 13	<p>The Greater Sage-Grouse adaptive management plan (2015 ARMPA Appendix D) provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse, and its habitat will be addressed before consequences become severe or irreversible. The Wyoming Greater Sage-Grouse ARMPA will include the requirement for projects requiring an EIS to develop adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming. Wyoming ADPPs will include an adaptive management plan, as reviewed by the BLM WO, Solicitor's Office, and USFWS, which includes: Upon determination that a hard trigger is tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factors. The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).</p> <p>Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.</p> <p>In making amendments to this plan, the BLM will coordinate with the USFWS as the BLM continues to meet its objective of conserving, enhancing, and restoring Greater Sage-Grouse habitat by reducing, minimizing, or eliminating threats to that habitat. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.</p> <p><u>Soft Triggers:</u></p>

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	<p>Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local Greater Sage-Grouse working groups, will evaluate the metrics with the AMWG on an annual basis. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. The purpose of these strategies is to address localized Greater Sage-Grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.</p> <p><u>Hard Triggers:</u></p> <p>Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers will be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect. Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40 percent of normal variability for a 3-year time period within a 5-year range of analysis. A minimum of 3 consecutive years in a 5-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).</p>
MD SSS 14	<p>Designate SFAs as shown on Map 1-2 (1,915,990 acres). SFAs will be managed as PHMA, with the following additional management: Recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights, the lands shown in Map 2-3 (252,160 acres), and 2) Prioritized for vegetation management and conservation actions in these areas, including, but not limited to land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and habitat restoration (see specific management sections).</p>
MD Vegetation (VEG) 1	<p>Manage vegetation composition, diversity, and structure, as determined by ESD, or other methods that reference site potential, and WGFD protocols, to achieve Greater Sage-Grouse habitat management objectives, in cooperation with stakeholders.</p>
MD VEG 2	<p>Within PHMA in northeast Wyoming (as mapped in EO 2015-4), vegetation treatments in nesting and wintering habitat that will reduce sagebrush canopy to less than 15 percent will not be conducted.</p>
MD VEG 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: For vegetation treatments in sagebrush within PHMA, refer to Appendix H, WGFD Protocols for Treating Sagebrush to Benefit Sage-Grouse (WGFD 2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management). These recommended protocols will be used in determining whether proposed treatment constitutes a “disturbance” that will contribute toward the 5 percent threshold within PHMA maintenance. Additionally, these protocols will be used to determine whether the proposed treatment configuration is expected to have neutral or beneficial impacts for PHMA (core only) populations or if they represent additional habitat loss or fragmentation.</p> <p>Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse will be evaluated based on habitat quality and the functionality/use of treated habitats post-treatment.</p>

Table A-1
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Action #	2018 Proposed RMPA
	<p>The BLM will work collaboratively with partners at the state and local level to maintain and enhance Greater Sage-Grouse habitats. Seasonal restriction would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP:</u></p> <p>Prescribed burns generally will be conducted in areas having greater than 35 percent sagebrush composition, 20 percent desirable grass composition, and greater than 10 inches of precipitation. Other vegetation manipulation methods will be considered on a case-by-case basis depending on objectives and cost benefits.</p> <p><u>Casper RMP:</u></p> <p>Decision 4053: The areas (Bates Hole and Fish Creek/Willow Creek) will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.</p>
MD VEG 4	Within PHMA, grazing will be deferred on treated areas for two full growing seasons unless vegetation objectives or vegetation recovery indicates a shorter or longer rest period is necessary based on vegetation monitoring results.
MD VEG 5	Reclamation of surface disturbances in PHMA will be consistent with the Wyoming Reclamation Policy (BLM 2009a), vegetation objectives (Tables 2-2 and 2-3), and Appendix M. A monitoring plan will be developed for each restoration or reclamation project and will report progress and changes in resource condition.
MD VEG 6	<p>Areas for vegetation restoration and/or restoration criteria that include state Greater Sage-Grouse conservation plans and appropriate local information will be identified. The use of native plants and seeds for restoration will be required unless the probability for success is low (nonnative plants and seeds may be used as long as they meet Greater Sage-Grouse habitat objectives), and restoration management will be designed to obtain long-term persistence based on ESD.</p> <p>Reestablishment of sagebrush cover and desirable understory plants will be the highest priority for restoration efforts.</p> <p>Landscape patterns that most benefit Greater Sage-Grouse will be restored and created, considering potential changes in climate.</p>
MD VEG 7	Within PHMA, implementation of restoration projects will be prioritized based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse. Restoration will be prioritized in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance.

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MD VEG 8	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Where probability of success or native seed availability is low or where there is a specific identified purpose that cannot be met with natives, nonnative seeds can be used provided they meet Greater Sage-Grouse habitat conservation and vegetation (see Tables 2-2 and 2-3) objectives. The use of native seeds for fuels management treatment will be prioritized based on availability, adaptation (site potential), and probability of success. Where probability of success or native seed availability is low, non- native seeds may be used to meet Greater Sage-Grouse habitat objectives to trend toward restoring the fire regime. When reseeding, use fire resistant native and nonnative species, as appropriate, to provide for fuel breaks.</p> <p>Native seed allocation will be prioritized for use in Greater Sage-Grouse habitat.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Kemmerer RMP:</u></p> <p>Require the use of certified weed-free seed and mulch for rehabilitation projects. <u>Pinedale RMP:</u></p> <p>Disturbed areas will be reclaimed to native site plant composition. If reclamation of original plant composition is impossible or not desirable, reclamation will achieve a native plant community that meets the Wyoming Standards for Rangeland Health.</p>
MD VEG 9	<p>Post emergency stabilization and rehabilitation (ES&R) and burn area emergency rehabilitation (BAER) management will be designed to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse, and travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).</p>
MD VEG 10	<p>Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse habitat to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings provide value in conserving or enhancing Greater Sage-Grouse habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat during the land health assessments.</p>
MD VEG 11	<p>Priority will be given for implementing specific Greater Sage-Grouse habitat restoration projects in areas invaded by annual grasses first to sites that are adjacent to or surrounded by PHMA. Areas invaded by annual grasses will be second priority for restoration when the sites are not adjacent to PHMA, but are within 2 miles of PHMA. The third priority for areas invaded by annual grasses habitat restoration projects will be sites beyond 2 miles of PHMA. The intent will be to focus restoration outward from existing, intact habitat.</p>
MD VEG 12	<p>In fire prone areas where sagebrush seed is required for Greater Sage-Grouse habitat restoration, the BLM will consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.</p>
MD VEG 13	<p>Vegetation treatment proposals must include evaluation of soils, precipitation, invasive/exotic plants, as well as the current condition of PHMA. Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into nontarget areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.</p>
MD VEG 14	<p>Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species.</p>

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MD VEG 15	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The BLM can implement treatments within PHMA where outbreaks of grasshopper or Mormon cricket populations are expected to rise above economic levels. Treatments must be conducted only following reduced agent-area treatments protocols. The BLM will work collaboratively with partners at the federal, state, and local levels, including the Wyoming Weed and Pest Districts within the counties where the treatment is to occur, to maintain and enhance Greater Sage-Grouse habitats in a manner consistent with the core population area strategy for conservation.</p> <p>The BLM will be directed to utilize the Wyoming Grasshopper and Mormon Cricket Control website as a resource for updated information when conducting analysis of grasshopper and Mormon cricket control in Greater Sage-Grouse habitats.</p> <p>Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into nontarget areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Work with Animal and Plant Health Inspection Service to control outbreaks of grasshoppers and Mormon crickets on public lands in the planning area in accordance with the MOU between U.S. Department of the Interior and Animal and Plant Health Inspection Service.</p>
MD FIRE 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: For Wildland Fire Management, the protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. The goal is to restore, enhance, and maintain areas suitable for Greater Sage-Grouse. Greater Sage-Grouse habitat (GHMA) will be prioritized commensurate with local fire plans, property values and other important habitat to be protected, with the goal to restore, enhance, and maintain areas suitable for Greater Sage-Grouse.</p> <p>PHMA (and Priority Areas for Conservation, if so determined by individual RMP efforts) will be the highest priority for conservation and protection during fire operations and fuels management decision-making. The PHMA will be viewed as more valuable than GHMA when priorities are established. When suppression resources are widely available, maximum efforts will be placed on limiting fire growth in GHMA polygons as well. These priority areas will be further refined following completion of the Greater Sage-Grouse Landscape Wildfire and Invasive Species Habitat Assessments described in Appendix L.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Appropriate management response will be used on all wildfires in the planning area. Full protection strategies and tactics will be used in the following areas:</p> <p>Wildland Urban Interface (WUI)</p> <p>Wildland industrial interface</p> <p>Developed recreation sites</p>

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	<p>Developed electronics sites of all types.</p> <p>In all other areas appropriate management response (AMR) strategies and tactics will be determined by (but not limited to) the following:</p> <ul style="list-style-type: none"> Firefighter and public safety Resource values at risk Proximity to private land Firefighting resource availability. Tactical constraints follow: <p>The use of retardant within 300 feet of surface water (standing or running) is prohibited.</p> <p>No trees are to be cut during suppression activities within 200 yards of an identified bald eagle roost. No heavy equipment will be used within the following areas, except when human safety is at risk:</p> <ul style="list-style-type: none"> Areas of cultural resource sensitivity Riparian/wetland habitats Big game crucial winter range habitats Greater Sage-Grouse leks Areas of highly erosive soils. <p>In areas not identified as full protection, heavy equipment usage will be limited to existing roads and trails or immediately adjacent to them.</p> <p><u>Kemmerer RMP:</u></p> <p>In areas of high-density urban and (or) industrial interface with intermingled BLM-administered lands, suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while minimizing loss of property and threats to other surface owners. Generally, wildland fires are suppressed in these areas. In areas of low-density urban and (or) industrial interface where BLM-administered lands occur in large contiguous blocks, fire suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while allowing for achievement of resource objectives.</p> <p><u>Newcastle RMP:</u></p> <p>Full suppression will be used on fires endangering human life or that spread to within 0.25 miles of state or private lands, structures and facilities, oil and gas fields, important riparian habitat, or other sensitive resources. All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Pinedale RMP:</u></p> <p>Wildland fire mitigation and fuels activities will be managed to provide for firefighter and public safety as a first priority. Public lands within intermixed land ownership areas will be managed in association with the adjoining and nearby private and state lands.</p> <p>Areas of mixed land ownership, communities at risk as identified in the <i>Federal Register</i>, Volume 66, Number 160, 2001 (Antelope Run, Beaver Creek area, Boulder, Cottonwood Creek, Daniel, Forty Rod, Hoback Ranches, New Fork, Pinedale, Pocket Creek, and Upper Green); urban and industrial interface areas; and areas containing high-priority resource values have high priority for response to wildland</p>

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	<p>fires and/or for fuels reduction and mitigation. Wildland fire suppression activities will be based on the AMR.</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>Green River RMP:</u> Wildfire suppression will emphasize AMR. Immediate control actions will be used only in cases of arson, direct threat to public safety, or a strong potential threaten structural property. Fire suppression actions will be based on achieving the most efficient control and allowing historical acres burned to increase. Activity plans will be developed for designated fire management areas defining specific parameters for all fire occurrences.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied. Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area. Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire causes undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species sites, heritage sites, historic trails, and areas of critical environmental concern (ACECs), to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.</p>
MD FIRE 2	<p>In PHMA, fuels treatments will be designed and implemented with an emphasis on protecting existing sagebrush ecosystems and enhancing and protecting future sagebrush ecosystems (refer to WGFD Protocols for Treating Sagebrush to Benefit Sage-grouse [WGFD 2011, as updated]) and Appendix H.</p> <p>These recommended protocols will be used in determining whether proposed treatment constitutes a “disturbance” that will contribute toward the 5 percent threshold for habitat maintenance.</p> <p>Fuel treatments will be designed through an interdisciplinary process to expand, enhance, maintain, and protect Greater Sage-Grouse habitat. Green strips (using native fire resistant/resilient species) and/or fuel breaks will be used, where appropriate, to protect seeding efforts from subsequent fire events.</p> <p>In coordination with the USFWS and relevant state agencies, BLM planning units (Districts) with large blocks of Greater Sage-Grouse habitat will develop, using the assessment process described in Appendix L, a fuels management strategy which considers an up-to-date fuels profile, land use plan direction, current and potential habitat fragmentation, sagebrush and Greater Sage-Grouse ecological factors, and active vegetation management steps to provide critical breaks in fuel continuity, where appropriate. When developing this strategy, planning units will consider the risk of increased habitat fragmentation from a proposed action versus the risk of large scale fragmentation posed by wildfires if the action is not taken.</p>

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	<p>Utilizing an interdisciplinary approach, a full range of fuel reduction techniques will be available. Fuel reduction techniques such as grazing, prescribed fire, chemical, biological, and mechanical treatments will be acceptable.</p> <p>Upon project completion, fuels projects will be monitored and managed to ensure long-term success, including persistence of seeded species and/or other treatment components. Invasive vegetation post-treatment will be controlled.</p> <p>Wildfire prevention plans will be developed that explain the resource value of Greater Sage-Grouse habitat and include fire prevention messages and actions to reduce human-caused ignitions.</p>
MD FIRE 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>For fuels management, the BLM will consider multiple tools for fuels reduction and will analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMA.</p> <p>If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:</p> <p>Why alternative techniques were not selected as a viable options</p> <p>How Greater Sage-Grouse goals and objectives will be met by its use</p> <p>How the COT (Conservation Objectives Team) report objectives will be addressed and met</p> <p>A risk assessment to address how potential threats to Greater Sage-Grouse habitat will be minimized.</p> <p>Prescribed fire as a vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire can be used to meet specific fuels objectives that protect Greater Sage-Grouse habitat in PHMA (e.g., creation of fuel breaks that disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).</p> <p>Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat will need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality. Refer to Appendix H, WGFD Protocols for Treating Sagebrush to Benefit Sage-grouse (WGFD 2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128. If prescribed fire activities are not in compliance with these protocols, the treatment will be considered a PHMA disturbance.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems.</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Prescribed fire will generally be the preferred method of vegetation manipulation to convert decadent stands of brushland to grasslands and to stimulate sprouting of old, decadent aspen stands and/or shrub species. Prescribed burns are preferred in areas having greater than 35 percent sagebrush composition, 20 percent desirable grass composition, and greater than 10 inches of precipitation.</p>

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	<p><u>Rawlins RMP:</u> Fuel treatments, including prescribed fire, mechanical, chemical, and biological treatments will be used for fuels reduction and to meet other multiple-use resource objectives, including returning fire to its natural role in the ecosystem. WUIs and communities at risk will receive priority for fuels reduction.</p>
MD FIRE 4	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Remove conifers encroaching into sagebrush habitats in a manner that considers tribal cultural values. Prioritize treatments closest to occupied Greater Sage-Grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the FIAT (Fire and Invasive Species Assessment) report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated. Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: Casper RMP: Treat woodland encroachment in grassland, sagebrush, aspen, and other vegetative communities where it is determined to be detrimental to other resource values or uses. Manage 630,180 acres of sagebrush communities toward Desired Plant Community.</p>
MD FIRE 5	<p>The following RMP decisions remain in effect for both PHMA and GHMA: <u>Pinedale RMP:</u> In the WUI or industrial interface, fuels reduction methods best suited to the area will be used to reduce the risk of catastrophic fire to these areas. <u>Casper RMP:</u> Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems. Utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or resource values defined as, but not limited to the following: Urban and industrial interface areas Developed recreation areas Commercial timber areas Wildlife habitats Range-improvement facilities Communication sites Municipal watersheds. Decision 3008 Fuels Management. <u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area. <u>JMH CAP:</u></p>

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	<p>Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied.</p> <p>Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area.</p> <p>Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire can cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.</p>
MD FIRE 6	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Burned areas within PHMA will be restored to suitable habitat with consideration given to ESDs, reference sites, site potential, habitat objectives and local variability.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p>Kemmerer RMP:</p> <p>Implement BLM Emergency Stabilization and Rehabilitation standards located in the DOI Interagency Burned Area Emergency Response Guidebook and BLM Burned Area Emergency Stabilization and Rehabilitation Handbook on wildland fires to protect and sustain healthy ecosystems and protect life and property.</p> <p>Newcastle RMP:</p> <p>All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p>Rawlins RMP:</p> <p>Rehabilitation and restoration efforts specific to a fire event will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.</p>
MD FIRE 7	<p>Within PHMA, post fuels management projects will be designed to ensure long-term persistence of seeded or pre-treatment native plants (while controlling for erosion and treating infestation of invasive plant species), to return to suitable Greater Sage-Grouse habitat.</p>
MD LG 1	<p>The BLM policy in WO-IM-2009-007 and BLM Handbook H-4180-1 will be used to evaluate land health standards achievement in PHMA (core only) and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines, which through this process will identify appropriate actions to address nonachievement and nonconformance.</p> <p>When determining appropriate actions to address nonachievement of land health standards and nonconformance with the guidelines due to existing grazing management practices or levels of grazing use, management actions including but not limited to the following will be</p>

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	<p>considered singly or in combination: Season or timing of use Numbers of livestock (includes temporary nonuse or livestock removal) Distribution of livestock use Intensity of use Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats) Class of livestock (e.g., yearlings versus cow calf pairs) Range improvements. Refer to the document, "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat" (Cagney et al. 2010) for guidance when considering appropriate management actions to achieve conformance.</p>
MD LG 2	Within PHMA the BLM will work cooperatively with permittees, lessees, and other landowners to develop voluntary grazing management strategies that integrate both public and private lands into single management units to improve Greater Sage-Grouse habitat.
MD LG 3	<p>The following RMP decisions remain in effect:</p> <p><u>Casper RMP:</u> Grazing leases will be adjusted where an evaluation of monitoring, field observations, or other data indicate changes, and either increases or decreases, in forage allocation are needed or when necessary or required by other applicable law or regulation.</p> <p><u>Kemmerer RMP:</u> Vegetative communities will be managed in accordance with Wyoming Standards for Healthy Rangelands. Appropriate livestock grazing management actions will be developed and integrated to address rangeland health standards, improve forage for livestock, and enhance rangeland health.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use will be made as a result of monitoring and consultation with grazing permittees. Monitoring studies will be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Monitoring of the range and the vegetation resource will be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Monitoring will be tied to land health standards and indicators that help determine change in status and progress toward meeting objectives. Data will be used to direct and support grazing management decisions consistent with national policy.</p> <p><u>Rawlins RMP:</u> Livestock grazing will be managed to meet the Wyoming Standards for Healthy Rangelands. <u>Green River RMP/JMH CAP:</u> The kinds and seasons of livestock grazing use will continue to be licensed until monitoring, negotiation, consultation, or a change in resources conditions indicate that a modification is needed. Monitoring will be continued or initiated following adjustments in grazing use to assure that grazing and other management objectives are being met.</p>
MD LG 4	Within PHMA, all BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. if monitoring data show the wildlife/special status species standard habitat objectives has not been

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	<p>met nor progress being made toward meeting that standard then, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standards, the BLM would address the achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement. for healthy rangelands, the use will be adjusted by the response specified in the instrument that authorized the use.</p> <p>The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA will include specific management thresholds based on GRSG habitat objectives (Tables 2-2 and 2-3) and Land Health Standards (43 CFR 4180.2), and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.</p> <p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites that supports these habitats. Metrics used to monitor for objectives must be developed and inform the wildlife/SSS portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.</p>
MD LG 5	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to meet, maintain or make progress toward achieving the standards and conform with the guidelines, which through this process will identify appropriate actions to address nonachievement and nonconformance.</p> <p>Allotments within SFAs, followed by those within PHMA, and focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks include monitoring for actual use, utilization, and use supervision.</p> <p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFAs followed by PHMA outside of the SFAs. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting LHSs, with focus on those containing riparian areas, including wet</p>

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	<p>meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> Conversions in kinds of livestock and changes in season of use will be considered on a case-by-case basis through an environmental analysis. Such changes will be consistent with rangeland health objectives. Grazing leases will be adjusted to accurately reflect the kind of livestock use on public land in all allotments.</p> <p><u>Kemmerer RMP:</u> Current amounts, kinds, and seasons of livestock grazing uses will be authorized until rangeland health standards assessment results and (or) monitoring indicates a grazing use adjustment is necessary, or that a kind and (or) class of livestock or season of use modification can be accommodated.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use will be made as a result of monitoring and consultation with grazing permittees. Monitoring studies will be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Conversions from one type of livestock to another will be evaluated on a case-by-case basis, including an environmental analysis, and will be authorized in conformance with the goals and objectives of the RMP.</p> <p><u>Rawlins RMP:</u> The current amounts, kinds, and seasons of livestock grazing use will be authorized until monitoring, field observations, ecological site inventory, or other data acceptable to BLM indicates a grazing use adjustment is needed, as appropriate. Requests for changes in season-of use or kind-of-livestock will be considered on a case-by-case basis. Any decision regarding changes in grazing use will include cooperation, consultation, and coordination with the grazing permittees and the interested public.</p> <p><u>Green River RMP:</u> The Wyoming Standards for Healthy Rangelands (BLM 1997a) will apply to all resource uses on BLM- administered lands. These standards are the minimal acceptable conditions that address the health, productivity, and sustainability of the rangeland. The standards describe healthy rangelands rather than rangeland by-products.</p> <p>Achievement of a standard is determined through observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. The standards will direct the management of public lands and focus the implementation of this activity plan toward the maintenance or attainment of healthy rangelands.</p>

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MD LG 6	At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR 4110.2-3.
MD LG 7	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: When periods of drought occur, where appropriate, the AO will evaluate strategies to address drought through coordination with grazing permittee/lessee and annual billings processes. In cooperation with livestock grazing permittees/lessees, drought contingency plans will be developed at the appropriate landscape unit that provide for a consistent/appropriate BLM response. Contingency plans shall establish strategies for addressing ongoing drought and post-drought recovery.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Other management considerations for use of stock driveway withdrawals (SDW) will include providing emergency use for relief from fire, drought, or other natural causes or to meet management objectives in adjoining allotments that require rest. These other uses will be addressed on a case-by-case basis and may occur any time during the year provided the AO has determined adequate forage is available and it does not interfere with regular trail use. The decision determining there is adequate forage will be documented and filed in the appropriate SDW file. Consultation and coordination with livestock owners who regularly use the respective SDW will be made prior to authorizing this type of use. This use will be authorized in accordance with federal grazing regulations (also see MD LG 9).</p> <p>A drought contingency plan will be developed to maintain adequate habitat components for viable fish, wildlife, and SSS populations.</p>
MD LG 8	<p>In GHMA and PHMA, existing range improvements (e.g., fences, livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary.</p> <p>The potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements will be evaluated. The potential for modification of those structural range improvements identified as posing a risk will be addressed.</p> <p>Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p>Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Identified hazard fences will be modified and new fences will be constructed in accordance with the BLM Fencing Handbook 1741-I. Decision 4010.</p> <p>Placement of salt, mineral, or forage supplements for livestock will not be allowed within 0.25 miles of water, wetlands, and riparian areas, unless written analysis shows that watershed, riparian, wetland, wildlife, and vegetative values will not be adversely affected. Forage supplements will be required to be "certified weed- free."</p> <p><u>Kemmerer RMP:</u></p> <p>BLM fencing standards will be applied to newly constructed fences on BLM-administered lands within the planning area.</p>

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	<p>Existing fences will be eliminated or modified to reduce conflicts on a case-by-case basis.</p> <p>Livestock salt or mineral supplements will be located a minimum of 0.25 miles away from water sources, riparian areas, and aspen stands.</p> <p>Buffers will be based on resource concerns on a case-by-case basis.</p> <p><u>Newcastle RMP:</u></p> <p>Fence construction will be required to meet current BLM fence standards.</p> <p>Fences on BLM-administered land surface that cause documented wildlife conflicts will be removed, reconstructed, or modified, as appropriate or necessary, to eliminate or reduce the conflict.</p> <p>Construction of fences that interfere with movements of big game species in crucial big game winter range will not be allowed on BLM-administered land surface.</p> <p><u>Pinedale RMP:</u></p> <p>Mineral supplement blocks will be placed in locations that promote proper grazing distribution and prevent inappropriate livestock use on riparian habitat; for example, by locating supplements on ridgetops and/or approximately 0.25 miles from riparian habitat. Placement of supplements near water sources, such as wells and reservoirs, will consider rangeland objectives, such as grazing distribution, wildlife habitat requirements, and reclamation success. Mineral supplement blocks will not be placed within 0.25 miles of an occupied Greater Sage-Grouse lek. Mineral supplement blocks will not be placed within 0.25 miles of known Special Status Plant Species locations.</p> <p><u>Rawlins RMP:</u></p> <p>New fence construction will be authorized according to BLM standards unless modified following consultation with affected parties. Existing fences will be modified according to current BLM standards and according to wildlife and livestock management needs.</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Where documented wildlife conflicts with fencing on public lands occur, fences will be modified, reconstructed, or, if necessary, removed. Herding control of livestock will be encouraged as an alternative to fencing. Fence construction will be in accordance with BLM design standards and located so as not to overly impede wildlife movement. Consideration will also be given to SSS and wild horse movement.</p> <p><u>Green River RMP:</u></p> <p>Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p> <p>Salt or nutritional supplements will be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources will not be adversely affected. These supplements also will be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources will be encouraged to better distribute livestock.</p> <p><u>JMH CAP:</u></p> <p>Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements</p>

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Action #	2018 Proposed RMPA
	<p>proposed in sensitive areas will be considered only if wildlife habitat and resource conditions were maintained or improved and no significant or irreversible adverse effects will occur.</p> <p>Salt or nutritional supplements will be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources will not be adversely affected. These supplements also will be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources will be encouraged to better distribute livestock.</p>
MD LG 9	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Livestock trailing that is authorized will include a trailing plan to utilize non-habitat to the extent possible, include specific routes and timeframes for trailing, utilize existing trails, and avoid stopovers on occupied leks, as appropriate.</p> <p>The following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The revocation of withdrawals for those trails that are no longer active will be reviewed and recommended and these lands will be incorporated into adjacent allotments (46,050 acres). Grazing leases will be offered to the respective grazing lessees. All remaining SDW lands for trail use (55,680 acres) will be retained.</p> <p><u>Kemmerer RMP:</u></p> <p>Current livestock trails will be retained. Livestock trailing use will occur within 0.5 miles of the mapped centerline.</p> <p><u>Pinedale RMP:</u></p> <p>Adequate stock trails will be maintained to support livestock trailing needs.</p>
MD LG 10	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Grazing between In PHMA, for riparian habitats and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing would be managed and upland habitats will be balanced to promote the production and availability of beneficial forbs to GRSG for use during nesting and brood-rearing, while maintaining upland conditions and functions. Grazing in meadows, mesic habitats, and riparian pastures also will be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing within PHMA, while maintaining upland conditions and functions.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Lotic and lentic wetland/riparian areas will be managed toward Proper Functioning Condition (PFC).</p> <p>The BLM will manage toward PFC and identified Desired Plant Community on 350 miles of lotic and adjacent riparian habitat and 10,000 acres of lentic habitat to meet fish, wildlife, and SSS habitat requirements.</p> <p><u>Kemmerer RMP:</u></p> <p>Livestock conversions will be allowed in allotments with riparian concerns only when a plan is approved to address riparian issues. Management actions and range improvements proposed to address riparian issues will have to be implemented prior to authorizing the conversion. Livestock conversions may be approved only after completion of a suitability study for the conversion. The conversion may be</p>

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	<p>authorized if it is determined that riparian habitats will be maintained or improved by the conversion.</p> <p><u>Pinedale RMP:</u> Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve PFC. Grazing systems will be designed to maintain or improve watershed and range condition; for example, through changing seasons of use, implementing rotational or other grazing management systems, or developing infrastructure for livestock management. In allotments with riparian habitat, grazing management actions will be designed to maintain or achieve proper functioning condition.</p> <p><u>Green River RMP:</u> Range improvements will be directed at resolving or reducing resource concerns, improvement of wetland/riparian areas, and overall improvement of vegetation/ground cover. New range improvements may be implemented in "I" and "M" category allotments. Maintenance of range improvements will be required in accordance with the BLM Rangeland Improvement Policy.</p> <p><u>JMH CAP:</u> Implementation of grazing management systems will assist in improving or maintaining the desired range condition. Approved AMPs, or other activity plans intended to serve as the functional equivalent to an AMP, for each of the designated grazing allotments will provide the necessary guidance for achieving grazing management objectives. Appropriate actions for improving degraded rangeland and riparian habitat (i.e., meeting Wyoming Standards for Healthy Rangelands (BLM 1997a)) include, but will not be limited to, reduction of permitted animal unit months, modified turnout dates, livestock water developments, range improvements, modified grazing periods, growing season rest, riparian pastures, exclosures, implementation of forage utilization levels, and livestock conversions. These improvements will be considered individually using the method outlined in Appendix 2 of the JMH CAP ROD to ensure conformance with management objectives for the planning area and other resource values.</p>
MD LG 11	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Range improvement projects will be planned and authorized in a way that contributes to rangeland health and maintains and/or improves Greater Sage-Grouse and its habitat. Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP:</u> Water sources may be developed in crucial wildlife winter ranges only when consistent with wildlife habitat needs. Such sources will be designed to benefit livestock, wild horses, and wildlife. Alternative water supplies or facilities for livestock may be provided to relieve livestock grazing pressure along stream bottoms and improve livestock distribution.</p> <p><u>JMH CAP:</u> Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p>

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MD LG 12	Existing water developments associated with springs and seeps will be evaluated and associated pipelines/structures to those developments having a negative effect on PHMA will be modified.
MD Wild Horses and Burro (WHB) 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Manage herd management areas (HMAs) in Greater Sage-Grouse habitat within established appropriate management level range to achieve and maintain Greater Sage-Grouse habitat (see Tables 2-2 and 2-3).</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Specific habitat objectives for herd management areas will be developed. Consideration will be given to desired plant communities, wildlife, watershed, livestock grazing, and other resource needs.</p>
MD WHB 2	PHMA (core only) management objectives will be considered when evaluating appropriate management levels.
MD WHB 3	PHMA (core only) management objectives will be considered when conducting land health assessments in BLM HMAs.
MD WHB 4	When conducting NEPA analysis for wild horse management activities, water developments or other rangeland improvements for wild horses in PHMA, the direct and indirect effects on Greater Sage-Grouse populations and habitat will be addressed. Water developments or rangeland improvements will be implemented using the criteria identified for domestic livestock identified above in PHMA.
MD WHB 5	Coordinate with other resources (Range, Wildlife, and Riparian) to conduct land health assessments within all BLM HMAs.
MD Mineral Resources (MR) 1 Fluid Minerals (Unleased Estate)	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The BLM will allow oil and gas leasing consistent and subject to the leasing stipulations analyzed in the timing, distance, disturbance, and density restrictions sections (Map 2-2) (see MD SSS 5 through MD SSS 10, see also 2015 ARMPA Appendix B – Fluid Mineral Stipulations). Ensure that leasing activities in PHMA comply with Greater Sage-Grouse resource management plan decisions and remain in compliance with laws, regulations and policy.</p> <p>Fluid mineral leasing will be allowed in PHMA (core only), except in areas that are closed to leasing due to the need to protect other sensitive resources.</p>
MD MR 2 Fluid Minerals (Unleased Estate)	<p>Fluid Minerals (Unleased Estate)</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Geophysical exploration projects that are designed to minimize habitat fragmentation within PHMA will be allowed, except where prohibited or restricted by existing RMP decisions, and in conformance with timing and distances Management Decisions (see Decisions MD SSS 5 through MD SSS 10).</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The blocks of public land identified as mapped in the Casper Field Office GIS database will be managed to retain intact blocks of native vegetation (192,550 acres, of which 131,880 acres are BLM-administered surface). In these areas, the following restrictions apply:</p> <p>These blocks are (1) unavailable for oil and gas leasing, and (2) a geophysical operation on public surface for the life of the plan. Activities</p>

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	<p>for existing oil and gas leases are managed intensively (see Appendix U of the Casper RMP). Existing leases will be allowed to expire and not be renewed.</p> <p>Within these blocks, a withdrawal from the operation of the public land laws, including the mining laws will be pursued.</p> <p>These blocks are closed to mineral material disposal. Existing permits will be allowed to expire without renewal or expansion.</p> <p>These blocks are not open to wind/renewable energy development.</p> <p>These blocks remain open to livestock grazing.</p> <p>All allowed surface-disturbing activities within the designated blocks are subject to a Controlled Surface Use restriction, minimizing surface disturbance to meet management objectives. Decision 4024</p> <p>The North Platte River Special Recreation Management Area will continue to be open to oil and gas leasing and geophysical operations. Decision 7039</p> <p>The area is unavailable for oil and gas leasing and geophysical exploration is not allowed. Decision 7047</p> <p>The MA is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface.</p> <p>Activities on existing leases will be managed intensively to meet the objectives of the MA (see Appendix U of the Casper RMP – Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7059</p> <p>The Red Wall/Gray Wall complex is located entirely within the South Bighorns/Red Wall Management Area and is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface. Activities on existing leases will be intensively managed to meet the objectives of the MA (see Appendix U of the Casper RMP– Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7063</p> <p>Those lands currently open to oil and gas leasing will continue to be open to geophysical operations. Those lands open to oil and gas leasing, but subject to a NSO restriction, may be open to geophysical operations should site specific NEPA analysis disclose a finding of no significant impact. No geophysical operations are allowed in areas closed for oil and gas leasing. Decision 2019</p> <p><u>Kemmerer RMP:</u></p> <p>Allow for geophysical exploration on lands throughout the planning area subject to identified conditions of approval.</p> <p><u>Newcastle RMP:</u></p> <p>Surface-disturbing and disruptive activities associated with all types of minerals exploration and development and with geophysical exploration will be subject to appropriate mitigation measures determined through, but not limited to, use of the Wyoming BLM Mitigation Guidelines.</p> <p><u>Pinedale RMP:</u></p> <p>Vehicle-based geophysical activities will be assessed on a case-by-case basis.</p> <p>The use of surface and/or aboveground (Poulter shot) explosive charges for geophysical exploration will be assessed case by case.</p> <p>Geophysical projects, including projects proposed in areas with an NSO restriction, will be analyzed and mitigation developed on a case-by-case basis.</p> <p>Geophysical activities that are considered casual use actions are allowed within 0.25 miles of active Greater Sage-Grouse leks provided that:</p>

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	<p>Operations are conducted on designated roads and trails.</p> <p>Operations during the breeding season (March 1 through May 15) are conducted between the hours of 8:00 a.m. and 8:00 p.m.</p> <p>A 150-foot wide strip of undisturbed sagebrush is maintained around the perimeter of the lek for hiding and escape cover.</p> <p><u>Rawlins RMP:</u></p> <p>All lands open to oil and gas leasing consideration will also be open to geophysical exploration, subject to appropriate resource surveys, surface protection measures, adequate bonding, and adherence to State of Wyoming standards for geophysical operations.</p> <p>Vehicular use for “necessary tasks” (as defined in the glossary), such as geophysical exploration including project survey and layout, will be permitted except where specifically prohibited (e.g., some SD/MAs).</p> <p><u>Green River RMP:</u></p> <p>Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 miles of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, wilderness study areas (WSAs), and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p> <p><u>JMH CAP:</u></p> <p>Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 miles of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. ROW limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p>
MD MR 3 Fluid Minerals, Leased Estate	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>In cases where federal oil and gas leases have been issued with stipulations varying from those in Appendix B for the protection of Greater Sage-Grouse or their habitats, as provided in the applicable RMP decision, as revised or amended, their inclusion as APD COAs will be considered when approving exploration and development activities through completion of the environmental record of review (43 CFR 3162.5 and 36 CFR 228.108), including appropriate documentation of compliance with NEPA.</p> <p>Overall consideration shall be given to minimizing the impact on Greater Sage-Grouse through a project design that avoids, minimizes, reduces, rectifies, and/or adequately compensates for direct and indirect impacts on PHMA or use and includes applicable and technical COAs. Selection and application of these measures shall be based on current science and research on the effects on important breeding, nesting, brood-rearing, and wintering areas. For proposed operations in PHMA, the Surface Use Plan of Operations (see 43CFR 3162.3-</p>

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	<p>I(f)) shall address, at a minimum, the anticipated noise, density and amount of disturbance, mechanical movement (e.g., pump jacks), permanent and temporary facilities, traffic, phases of development over time, off-site mitigation, and expected periods of use associated with the proposed project. Seasonal habitats or project features related to potential Greater Sage-Grouse impacts that are not addressed in the Surface Use Plan of Operations based on site- specific or project-specific considerations shall be noted in the project file, along with a rationale for not including them.</p> <p>In this process the BLM will evaluate, among other things:</p> <p>Whether the conservation measure is “reasonable” (43 CFR 3101.1-2) and consistent with valid existing rights</p> <p>Whether the action is in conformance with the approved LUP; and the effectiveness of the proposed mitigation measures.</p> <p>The BLM will work with project proponents in these situations to promote measurable Greater Sage-Grouse conservation objectives such as, but not limited to, consolidation of project related infrastructure to reduce habitat fragmentation and loss and to promote effective conservation of seasonal habitats and PHMA (connectivity only) that support population management objectives set by the state.</p> <p>The BLM will continue to work with project proponents and the WGFD to site their projects in locations that meet the purpose and need for their project, but have been determined to contain the least sensitive habitats (based on vegetation, topography, or other habitat features) and resources whether inside or outside of PHMA (utilizing DDCT analysis process). Valid existing rights will be recognized and respected.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Kemmerer RMP:</u></p> <p>Choose and implement appropriate mitigation in a timely manner to minimize decreases in habitat function.</p> <p>Utilize appropriate voluntary off-site compensatory mitigation to reduce impacts. This will be necessary if (1) all on-site mitigation has been accomplished and adverse effects have not been mitigated; or (2) if on-site mitigation is not feasible.</p> <p><u>Pinedale RMP:</u></p> <p>Off-site mitigation proposed by oil and gas or other operators can be considered and analyzed in future environmental documents as mitigation for proposed activities within the planning area. Proposed off-site mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Off-site mitigation will conform to requirements in the Pinedale RMP regarding the order of use of mitigation methods, stipulations applied to off-site mitigation measures, and priority order for mitigating resource impacts on-site or off-site.</p> <p><u>Green River RMP:</u></p> <p>Development actions will be analyzed on a case-by-case basis to identify mitigation needs to meet RMP objectives, provide for resource protection, and provide for logical development. Limitations on the amount, sequence, timing, or level of development may occur. This may result in transportation planning and in limitations in the number of roads and drill pads, or deferring development in some areas until other areas have been restored to previous uses.</p> <p><u>JMH CAP:</u></p> <p>COAs attached to an APD will be based on site-specific NEPA or other analysis and will establish specific, necessary mitigation measures not covered by stipulations for resource and environmental protection. Some areas will need more intensive mitigation measures to protect</p>

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	sensitive resources and provide for public health and safety. These intensive mitigation measures or COAs will mostly apply to areas with overlapping sensitive resources (e.g., Areas 2 and 3). Examples of intensive mitigation that can apply to all activities based on site-specific analysis include off-site placement of facilities, remote control monitoring, restricted or prohibited surface use including road construction, multiple wells from a single pad, central tank batteries/facilities, and pipelines and power lines concentrated in specific areas. In addition, refer to <u>Section 3.12.3</u> for additional mitigation measures that may apply as part of the transportation plan.
MD MR 4	Within PHMA, field offices will work with project proponents (including those within BLM) to site their projects in locations that minimize impacts on sensitive resources.
MD MR 5	Master Development Plans will be considered and encouraged for projects involving multiple proposed disturbances within PHMA.
MD MR 6	Within PHMA, unitization will be encouraged as a means of minimizing adverse impacts on Greater Sage-Grouse to reduce fragmentation and surface-disturbing and disruptive activities.
MD MR 7	The BLM shall closely examine the applicability of categorical exclusions in PHMA and GHMA. If extraordinary circumstances review is applicable, the BLM shall determine whether those circumstances exist. For proposed actions in PHMA, determine whether a categorical exclusion is applicable and if so, closely examine the extraordinary circumstances, if applicable, to determine whether one or more exists that will require preparation of a NEPA analysis. If a categorical exclusion applies, and no extraordinary circumstances exist, determine whether preparing a NEPA analysis will help inform decision making.
MD MR 8	Federal Regulations, 43 CFR 3104.1 requires that a bond be furnished before any drilling or surface disturbance activities begin. The lessee, sublessee or the operator must furnish a surety or personal bond in the amount of at least \$10,000 to ensure compliance with all the lease terms, including protection of the environment. With the consent of the surety and principal, the operator may use the bond of another party, such as the lessee. Each time there is a new operator, that operator must notify the BLM that he/she is the responsible operator, giving the particulars of the bond under which he/she will operate. The BLM can require an increase in a bond amount any time conditions warrant such an increase. A reclamation bond will be required on all projects that is commensurate with the scope, scale, size of the project within PHMA. Partial bonding may be appropriate depending on these factors.
MD MR 9	Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Produced water from coalbed natural gas wells will be treated and disposed of in collaboration and consistent with the requirements of the state, and RDFs specified in Management Action 10 (see Appendix B). Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Pinedale RMP:</u> Produced water from coalbed natural gas wells will be treated and disposed of in collaboration and consistent with the requirements of the state.

Table A-1
Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

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Action #	2018 Proposed RMPA
MD MR 10	<p>Specific to management for Greater Sage-Grouse, within PHMA (core only), all RMPs are amended as follows: Where the federal government owns the mineral estate, and the surface is in nonfederal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner. Within PHMA (non-core only) and outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Pinedale RMP:</u> BLM-permitted actions on split estate lands are subject to the same stipulations as leased federal mineral estate on federal surface lands, provided the stipulations do not adversely affect the surface owner's land use or actions. Exceptions to surface development restrictions may be granted if requested or agreed to by the surface owner.</p>
MD MR 11	<p>Within PHMA where the federal government owns the surface and the mineral estate is in nonfederal ownership, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.</p>

Table A-1**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
MD MR 12	<p>Locatable Minerals</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>252,160 acres within SFAs (see MD SSS 14 for identification of SFAs) will be recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights. A total of approximately 21,251,690 acres are open to locatable mineral location and entry (Map 2-3). Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 CFR 3809.5 and 36 CFR 228.3). These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices [or modifications thereto] and 30-day completeness review of plans of operations [or modifications thereto], the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>1,785,230 acres are withdrawn from mineral entry for the protection of sensitive resources.</p>
MD MR 13	<p>Salable Minerals</p> <p>PHMA will be open to mineral material exploration, sales, and free use permits, except in areas that are unavailable due to the need to protect other resource values.</p> <p>All salable mineral activities within PHMA will be considered, provided they can be completed in compliance within surface occupancy, seasonal restrictions, and disturbance and density stipulations (Map 2-4 and MD SSS 2, 3, 5 through 10) analyzed through the DDCT process.</p>
MD MR 14	<p>Salable Minerals</p> <p>Within PHMA closure and restoration of salable mineral pits no longer in use will be considered to meet Greater Sage-Grouse habitat conservation objectives. Emphasis will be given to reclamation/restoration of PHMA as a viable long term goal to improve Greater Sage-Grouse habitat.</p>

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Action #	2018 Proposed RMPA
MD MR 15	<p>Nonenergy Leasable Minerals</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>All nonenergy leasable mineral activities will be considered in PHMA, provided that the activities can be completed in compliance with all occupancy, timing, density and disturbance restrictions (Map 2-5).</p> <p>Exploration licenses and prospecting permits will be considered with appropriate mitigating measures.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p>Portions of PHMA will be unavailable for leasing in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p> <p><u>Kemmerer RMP:</u></p> <p>Sodium: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for sodium leasing consideration. Exploration for sodium will be considered on a case-by-case basis. Limited surface occupancy criteria contained in the Sodium Mineral Development Environmental Assessment will be applied on a case-by-case basis. No new sodium leases or exploration licenses may be issued on lands within the Raymond Mountain WSA. No new sodium exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p>Phosphate: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for phosphate leasing consideration. Exploration for phosphate will be considered on a case-by-case basis. No new phosphate exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u></p> <p>Should interest in other leasable minerals materialize in the future, leasing will be considered on a case-by- case basis, and the RMP will be amended as appropriate and necessary. The same surface disturbance restrictions will be used in analyzing leasing proposals and determining the issuance of any leases (for example, geothermal steam, coal, sodium, oil shale, and phosphate).</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>The known sodium leasing area is open to exploration and consideration for leasing and developments, but is closed to prospecting permits.</p> <p>The remainder of the planning area is open to sodium prospecting except for areas that are closed to mineral leasing, surface mining, or mechanical prospecting type activities (areas closed to drilling, off road vehicle use, and explosive charges).</p> <p>Sodium (trona) leasing will be considered on a case-by-case basis, and is subject to the same conditional requirements as oil and gas and coal, and the general management direction applied in this RMP.</p>
MD MR 16	<p>Solid Leasable Minerals</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1). The BLM will also consider that USFWS has</p>

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	<p>found “the core area strategy...if implemented by all landowners via regulatory mechanisms, would provide adequate protection for Greater Sage-Grouse and their habitats in the state” when considering leasing coal in PHMA under the criteria set for at 43 CFR 3461.5(o)(1). Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the Coal Development Potential Area (CDPA) will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential. All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area or those lands that fall within PHMA. The coal unsuitability criteria are re- evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis will be required prior to leasing. Federal land within the proposed Haystack project area outside of the PHMA is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p>
MD MR 17	<p>Solid Leasable Minerals</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Upon receipt of a coal lease application proposing underground mining methods that include surface operations and impacts within PHMA, Criterion 15 will be applied and the area will be identified as suitable for further coal leasing consideration after consultation with the state and, where applicable, surface management agency to determine that all or certain stipulated methods of coal mining will not have a significant long-term impact on Greater Sage-Grouse. Stipulated methods may include, but not limited to, underground mining methods with</p>

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	<p>no placement of surface facilities except for purposes of health and human safety.</p> <p>Unsuitability is not applied to underground operations without surface impacts (43 CFR 3461.1) This will be consistent with IM WY-2012-019 says that the BLM will assess potential impacts on Greater Sage-Grouse through the NEPA process, and that the state regulatory agency will apply this mitigation, as well as protective measures consistent with the state policy for solid leasable mining action at the permitting stage.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>If coal development potential is shown to exist, all BLM-administered lands outside the CDPA will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential.</p> <p>All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re-evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u></p> <p>Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis will be required prior to leasing. Federal land within the proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u></p> <p>Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u></p> <p>Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p>
MD MR 18	Coal exploration activities will be allowed in PHMA if they can be completed in compliance to surface occupancy and disturbance and density stipulations analyzed through the DDCT process.

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MD MR 19	<p>Exceptions to lease stipulations, COA, and terms and conditions:</p> <p>Exceptions waivers, and modifications to lease stipulations, COAs, and terms and conditions, for Greater Sage-Grouse will continue to be considered on a case-by-case basis consistent with approved LUPs and other BLM policy and regulations as they relate to exceptions within PHMA and GHMA.</p>
MD Renewable Energy (RE) 1	<p>Within PHMA, all RMPs are amended as follows:</p> <p>Wind energy development would be avoided in PHMA (Map 2-6), and not allowed unless it can be sufficiently demonstrated that the development activity would not result in declines of PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>Areas that are currently unavailable due to the need to protect sensitive resources would remain unavailable to wind energy development.</p>
MD RE 2	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The use of guy wires for meteorological towers (MET) tower supports would be avoided within PHMA. All existing and any new unavoidable guy wires should be marked with recommended bird deterrent devices.</p> <p>The siting of new temporary MET towers within PHMA would be avoided within 2 miles of occupied Greater Sage-Grouse leks, unless they are out of the direct line of sight of the occupied lek.</p> <p>Outside of PHMA, the following RMP decisions remain in effect:</p> <p><u>Kemmerer RMP:</u></p> <p>New MET towers would be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed. MET towers relying on guy wires for support would be prohibited in these habitats. Exceptions could be made if NEPA analysis shows little or no impact on sagebrush obligate species.</p> <p><u>Rawlins RMP:</u></p> <p>MET towers would be authorized on a case-by-case basis from 0.25 miles to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.</p>
MD Lands and Realty (LR) 1	<p><i>Land Use Authorizations</i></p> <p>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>PHMA will be managed as ROW avoidance areas for new ROW or Special Use Authorization (SUA) permits (Map 2-7).</p> <p>Within PHMA where new ROWs/SUAs are necessary, new ROWs/SUAs will be located within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights including nonfederal land inholdings, required new ROWs/SUAs will be located adjacent to existing ROWs/SUAs or where it best minimizes Greater Sage-Grouse impacts. Consider the likelihood of development of not-yet-constructed surface-disturbing activities, as defined in Table 2 of the Monitoring Framework (Appendix D of the 2015 ROD/ARMPA) under valid existing rights.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>Portions of PHMA will be managed as ROW exclusion areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>

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Action #	2018 Proposed RMPA
MD LR 2	<p>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Within GHMA where new ROWs/SUAs are necessary, new ROWs/SUAs will be collocated within existing ROWs/SUAs where technically feasible.</p> <p>Appropriate Greater Sage-Grouse seasonal timing constraints will be applied.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>Portions of GHMA will be managed as ROW avoidance areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>
MD LR 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p><u>New Transmission Lines (greater than 115 kV):</u></p> <p>New transmission lines greater than 115 kV in PHMA (core only) will be allowed only (1) within the 2-mile wide transmission line route through PHMA (core only) population areas in south-central and southwestern Wyoming (Attachment I from EO 2015-4); (2) when located within 0.5 miles or less of an existing 115 kV or greater transmission line constructed prior to 2008; or (3) in designated RMP corridors authorized for aboveground transmission lines. Transmission lines routed using one or more of the three criteria listed above will not be counted against the DDCT 5 percent disturbance cap. New transmission lines greater than 115 kV proposed outside of these areas will be considered where it can be demonstrated that declines in Greater Sage-Grouse populations can be avoided through project design and/or mitigation. These projects will be subject to the density and disturbance restrictions for PHMA.</p> <p>Construction of new transmission lines will adhere to the restrictions associated with conducting activities within PHMA.</p> <p>Review of transmission line proposals will incorporate the Framework for Sage-grouse Impacts Analysis for Interstate Transmission Lines and other appropriate documents consistent with the three routing criteria described above.</p> <p>New projects within PHMA that may require future utility lines, including distribution and transmission lines or pipelines, will include the proposed utility lines in their DDCT as part of the proposed disturbance. Lines permitted but not located in the above mentioned routes or a designated corridor will be counted toward the 5 percent disturbance calculation (line disturbance is equal to the anticipated construction footprint or construction ROW width multiplied by length and includes all access roads, staging areas, and other surface disturbance associated with construction outside of the construction ROW).</p> <p><u>New Electric Distribution Lines (less than 115 kV):</u></p> <p>New electric distribution lines will be buried where feasible and economically feasible. If not economically feasible, distribution lines may be authorized when effectively designed/mitigated to protect Greater Sage-Grouse and the AO determines that overhead installation is the action alternative with the fewest adverse impacts while still meeting the project need. Agricultural and residential lines will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 miles from the lek perimeter with appropriate timing constraints and constructed to the latest APLIC guidance. These ROW authorizations will be subject to approval by the State Director.</p> <p><u>Priority Transmission Lines:</u></p> <p>PHMA are designated as avoidance areas for high voltage transmission line and pipeline ROWs, except for the transmission projects specifically identified below. All authorizations in these areas, other than the following identified projects, must comply with the conservation measures outlined in this proposed plan, including the RDF and avoidance criteria presented in Appendix B of this</p>

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	<p>document. The BLM is currently processing an application for Gateway South, Gateway West, and TransWest Express and the NEPA review for these projects is well underway. The BLM is analyzing Greater Sage-Grouse mitigation measures through the project's NEPA review process.</p> <p><u>Pipelines:</u></p> <p>New pipelines through PHMA will be allowed: (1) within an RMP corridor currently authorized for that use or designated through future RMP amendments; or (2) constructed in or adjacent to existing utilities (buried and aboveground) or roads. Pipelines constructed in RMP corridors or adjacent to existing utilities or roads will require completion of a DDCT analysis for baseline data collection but the project is not required to meet the threshold of 5 percent. However, within 6 months of the completion of construction, the project proponent will provide the AO with as-built drawings so that total disturbance within core area can be calculated annually.</p> <p>The following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>No new corridor designations will be made in Bates Hole. When placement of a major ROW facility within a designated corridor is not possible, and for smaller ROW and other linear facilities, placement will be adjacent to existing facilities or disturbances. Cross-country placement of ROW and other linear facilities will be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible. The extent of all surface disturbances will be minimized.</p> <p>No new corridors will be established in the Sand Hills Management Area; ROWs will be allowed when management objectives for the area can still be achieved.</p> <p>All currently designated corridors will be maintained. All special restrictions that apply to types of use/facilities on the corridors will be removed, except as noted for the Oregon Trail Road ROW Corridor, Segment A. The corridors include 351,020 acres, of which 94,580 acres are federal surface. The widths/size of designated corridors will not change. Special restrictions applying to types of use/facilities on the corridors will be removed on a case-by-case basis. Existing corridors include:</p> <ul style="list-style-type: none"> Oregon Trail Road Corridor, Segment A Oregon Trail Road Corridor, Segment B Oregon Trail Road Corridor, Segment C Poison Spider/Gas Hills Road Corridor Highway 20-26 Corridor Wyoming Highway 259/U.S. 87 Corridor Wyoming Highway 387 Corridor Lost Cabin-Arminto Road Corridor RMP Change No. 2012-03, including the West-Wide Energy Corridor Cabin Creek Corridor Existing Oregon Trail Road ROW Corridor, Segment A. <p>Oregon Trail Road ROW Corridor, Segment A allows additional ROW facilities provided they are subsurface, surface, or low profile developments. ROW facilities that introduce visual intrusions on the skyline along the corridor will not be allowed. Special restrictions</p>

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	<p>applying to types of use/facilities on the corridors will be removed on a case-by-case basis, and a new corridor, to be called the Cabin Creek Corridor, will be designated.</p> <p>Future Corridor Adjustments and New Corridor Designations:</p> <p>Future corridor adjustments and new corridor designations will be made only when facility placement within an existing designated corridor is incompatible, unfeasible, or impractical and when the environmental consequences can be adequately mitigated. Problems of technical compatibility between facilities and spacing of facilities in corridors will be solved on a case-by-case basis. Special restrictions applying to types of use/facilities on the corridors will be removed on a case-by-case basis.</p> <p>South Bighorns/Red Wall Management Area:</p> <p>No corridors will be designated; however, ROWs will be allowed on a case-by-case basis when management objectives for the area can still be achieved.</p> <p><u>Kemmerer RMP:</u></p> <p>Utility corridors will be designated, based on use (i.e., power lines, pipelines, and fiber optic lines).</p> <p>Preferred utility corridors will be 2 miles wide (width will be determined based on resource values) and designated as follows, but variances will be allowed based on application where conflicts with other resources were minimal or can be mitigated through resource-specific stipulations:</p> <p>High-voltage power line corridors will be established north of and parallel to I-80, and along Wyoming State Highway 89 from the junction of I-80 and the Wyoming state line.</p> <p>Fiber optic and low-voltage power line corridors will be located along currently established road systems (e.g., interstate or state highways and paved county roads).</p> <p><u>Newcastle RMP:</u></p> <p>Utility/transportation systems will be located adjacent to existing utility/transportation systems whenever practical. Areas to be avoided for new facility placement and routes will be identified on a case-by-case basis, rather than attempting to establish utility corridors.</p> <p><u>Pinedale RMP:</u></p> <p>Utility facilities will be restricted to existing routes and designated corridors where practicable, including environmental and socioeconomic considerations. Corridor routes include U.S. Highways 189 and 191 and State Highways 189, 191, 350, 351, 352, 353, and 354. New corridors may be established as oil and gas fields are developed.</p> <p><u>Rawlins RMP:</u></p> <p>All BLM-administered lands, except WSA and some SD/MAs (including ACEC/Special Interest Areas), will be open to consideration for placement of utility ROW systems. Each utility ROW will be located adjacent to existing facilities, when possible. Areas with important or sensitive resource values will be avoided.</p> <p>Existing major transportation and utility ROW routes will be designated corridors. However, major transportation routes within the planning area that are located east of the Carbon County-Albany County line will not be considered for ROW corridor designation because of the scattered public land ownership pattern in the area. All corridors will be designated for power lines (aboveground and buried), telephone lines, and fiber optic lines.</p>

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	<p>Specific proposals will require site-specific environmental analysis and compliance with established permitting processes. Activities generally excluded from ROW corridors include mineral materials disposal, range and wildlife habitat improvements involving surface disturbance and facility construction, campgrounds, and public recreation facilities and other facilities that will attract public use. ROW facilities will not be placed adjacent to each other if issues with safety or incompatibility or resource conflicts were identified. The designated width, allowable uses, and excluded uses for each corridor may be modified during implementation of the Approved RMP.</p> <p><u>Green River RMP:</u></p> <p>Areas designated as utility windows will be preferred locations for future grants. Five windows have been identified: 2 east-west, 3 north-south. Other areas will be considered for rights-of-way on a case-by-case basis. Windows 0.5 miles in width have been identified for the placement of utilities. The northern east-west window will be for underground facilities only, and the southern east-west window will be for both above and below ground facilities. A 0.5-mile wide north-south window on the west side of Flaming Gorge, a window south along Highway 430, and a north-south window along the east side of Flaming Gorge have been identified for above and below ground utilities.</p> <p><u>JMH CAP:</u></p> <p>The planning area, with the exception of defined exclusion and avoidance areas, will be open to considering grants of rights-of-way if area objectives can be met. Exclusion areas are closed to rights-of-way. Avoidance and special management areas not identified as exclusion areas will be open to consideration only after site-specific analysis demonstrates area objectives can be met (see glossary) in Greater Sage-Grouse potential nesting habitat.</p>
MD LR 4	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Maintenance/replacement of existing structures will be allowed subject to valid and existing rights. Upgrades will be considered, subject to mandatory RDFs (Appendix B).</p> <p>Existing guy wires shall be removed or appropriately marked with bird flight diverters to make them more visible to Greater Sage-Grouse in flight. Power lines (distribution and transmission) will be designed to minimize wildlife-related impacts and constructed to the latest APLIC standards.</p> <p>Outside of PHMA the following RMP decisions remain in effect:</p> <p><u>Kemmerer RMP:</u></p> <p>New utility lines will be buried or BLM-approved anti-perch devices will be installed on all new utility lines within sagebrush and/or semiarid shrub-dominated habitats, unless NEPA analysis shows little or no impact without burial or modification.</p>
MD LR 5	<p>Within PHMA where existing authorizations, ROWs, or SUAs have had some level of development (e.g., road, fence, and well) and are expired and are no longer in use, the site will be reclaimed by removing these features and restoring the habitat. Power lines (distribution and transmission) will be designed to minimize wildlife-related impacts and constructed to the latest APLIC standards.</p>
MD LR 6	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The use of guy wires for MET tower supports will be avoided within PHMA. All existing and any new unavoidable guy wires shall be marked with recommended bird deterrent devices.</p> <p>The siting of new temporary MET towers within PHMA will be avoided within 2 miles of occupied Greater Sage-Grouse leks, unless they are out of the direct line of sight of the occupied lek.</p>

Table A-1
Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
	<p>Outside of PHMA, the following RMP decisions remain in effect:</p> <p><u>Kemmerer RMP:</u> New MET towers will be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed. MET towers relying on guy wires for support will be prohibited in these habitats. Exceptions can be made if NEPA analysis shows little or no impact on sagebrush obligate species.</p> <p><u>Rawlins RMP:</u> MET towers will be authorized on a case-by-case basis from 0.25 miles to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.</p>
MD LR 7	<p>Within PHMA and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Lands classified as PHMA for Greater Sage-Grouse will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse.</p> <p>Exceptions will be considered where there is mixed ownership and land exchanges will allow for additional or more contiguous federal ownership patterns within PHMA.</p> <p>For PHMA with minority federal ownership, an additional, effective mitigation agreement will be included for any disposal of federal land. As a final preservation measure, consideration shall be given to pursuing a permanent conservation easement.</p> <p>For lands in GHMA that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the RMP goal to conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> 224,830 acres of public lands are identified as potentially suitable for disposal. At the implementation stage, site-specific analysis with public participation will be conducted. Based on the analysis and public comments received, a determination will be made on whether disposal of the parcel is in the public's best interest. If it is not in the public's best interest, the parcel will be retained in public ownership.</p> <p>Restricted Disposal – dispose of 5,450 acres on a restricted basis.</p> <p>Allow land-use authorizations under FLPMA Section 302(b) leases and permits to meet public demand.</p> <p>Evaluate on a case-by-case basis as proposals are presented. Potential lease and permit areas may include, but are not limited to the following:</p> <p>Areas where there are documented or existing trespass facilities that can be resolved by an authorization under this section</p> <p>Areas along major highways where developments may facilitate public needs</p> <p>Areas in or adjacent to residential, agricultural, commercial, or industrial developments. The BLM will pursue acquisition of lands and interest in lands in the South Bighorns/Red Wall area.</p>

Table A-1**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
MD LR 8	<p>Within PHMA and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Areas where acquisitions (including subsurface mineral rights) or conservation easements will benefit Greater Sage-Grouse habitat will be identified.</p> <p>Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The BLM will pursue acquisition of lands and interest in lands in the Bolton Creek Drainage and Bates Creek areas.</p>
MD LR 9	Greater Sage-Grouse habitat requirements will be utilized to prioritize parcels for exchange or acquisition within PHMA.
MD LR 10	Within PHMA, non-mineral withdrawals will be evaluated to determine if the withdrawal action is consistent with Greater Sage-Grouse conservation.
MD Recreation and Visitor Services (REC) I	<p>Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows:</p> <p>BLM Special Recreation Permits will be allowed in PHMA, unless negative impacts on Greater Sage-Grouse cannot be adequately mitigated.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The entire planning area will remain open to dispersed recreation. The camping limit on public lands is set by BLM policy and is currently limited to 14 days. Emphasis will be placed on providing interpretive and information signs and materials for public land visitors, maintaining existing facilities to a high standard consistent with the recreational setting, and limiting development of additional facilities to those areas where public recreational use of surrounding public lands requires. Work with state, local groups, and adjacent landowners will be conducted to identify and develop recreational trails, both motorized and nonmotorized, when the opportunities presents themselves. Special Recreation Permits will be allowed for commercial, noncommercial, and competitive events on a case-by-case basis. Cooperation will be maintained with a variety of user groups, especially in the local area, to provide diverse recreational opportunities for enjoyment of public lands. BLM will pursue acquisition of lands and interest in lands in the Rattlesnake Range and Pine Ridge areas, as well as promote and support recreation-based tourism.</p> <p><u>Kemmerer RMP:</u></p> <p>Allow dispersed recreation and permit special recreational activities (e.g., outfitting and guiding permits and OHV events permitted on an annual basis after evaluation).</p> <p><u>Green River RMP:</u></p> <p>Special recreation permits will be considered on a case-by-case basis. Appropriate mitigation will be included in special recreation permits, commercial recreation uses, and major competitive recreation events to provide resource protection and public safety.</p> <p><u>JMH CAP:</u></p> <p>Special recreation use permits for managed activities that occur in the JMH CAP planning area will be reviewed and subject to recommendations made by the Rock Springs Field Office. This will allow the Rock Springs Field Office to track the amount, location, and timing of organized activity occurring within the planning area to monitor resource pressure. The permit evaluation process will consider the</p>

Table A-1
Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
	nature of the event, potential impacts on resources, conflicts with other events, and impacts on the quality of other visitors' experiences. Mitigation measures necessary to protect the resources will be included in any permit issued. A plan of operation will be required for all commercial recreational operators and outfitters. The plan will describe the type, extent, and location of the recreation use and the mechanisms by which the operator/outfitter will prevent impacts on environmental resources. Any requests in special recreation use permit applications to remove natural resources will be evaluated on a case-by-case basis after an environmental analysis process.
MD REC 2	Construction of recreation facilities within PHMA must conform with the avoidance and minimization measures of this plan. If it is determined that these conservation measures are inadequate for the conservation of Greater Sage-Grouse, the BLM will require and ensure compensatory mitigation that provides a net conservation gain to the species.
MD Travel and Transportation (TTM) 1	Specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Within PHMA, designate the non-sand dune portions of the following OHV Open Areas as OHV Limited Area. The OHV limitation will ultimately be to "Designated Routes" as determined through a subsequent implementation/activity level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization: Rawlins Field Office: Dune Pond Cooperative Management Area. Rock Springs Field Office: Portion of the Greater Sand Dunes Recreation Area. The following RMP decisions remain in effect: The Casper Field Office Poison Spider OHV Park (290 acres) will remain as an "open" OHV area.
MD TTM 2	Within PHMA and GHMA, all motorized use (of which OHVs are a subset) will be limited to designated routes. Route designations will occur in subsequent implementation/activity level Travel Management Plans. In the interim motorized use on existing routes may occur; however, no new routes may be created without specific authorization. In PHMA and GHMA, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use). Temporary closure or restriction orders under these authorities are enacted at the discretion of the AO to resolve management conflicts and protect persons, property, and public lands and resources. Where an AO determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order shall be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders shall be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.
MD TTM 3	New local or collector roads (as defined in BLM Manual 9113) will be avoided within 1.9 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMA. All new roads will be prohibited within 0.6 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMA.
MD TTM 4	Within PHMA, no upgrading of existing routes that will change route category or capacity will be allowed unless the upgrading will have minimal impact on Greater Sage-Grouse in PHMA, was necessary for motorist safety, or eliminated the need to construct a new road.

Table A-1**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
MD TTM 5	In PHMA, existing roads or realignments will be used to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, any new road will be constructed to the absolute minimum standard necessary, and the surface disturbance will be added to the total disturbance in the PHMA.
MD TTM 6	<p>Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows:</p> <p>For roads, primitive roads and trails not designated in travel management plans within PHMA, natural reclamation of roads and trails will be allowed in appropriate situations where additional resource damage is not foreseeable.</p> <p>This will include primitive route/roads that were not designated in wilderness study areas and within lands with wilderness characteristics that have been selected to be managed to retain those characteristics for protection.</p> <p>In PHMA, locate new roads that will have relatively high levels of activity (accessing multiple wells, housing development) greater than 1.9 miles from the perimeter of occupied <u>Greater Sage-Grouse</u> leks. Locate new other roads used to provide facility site access and maintenance >0.6 miles from the perimeter of occupied <u>Greater Sage-Grouse</u> leks.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Kemmerer RMP:</u></p> <p>Roads and two-track routes determined to be unauthorized or redundant and unnecessary for resource management purposes will be reclaimed to achieve surrounding native conditions.</p> <p><u>Rawlins RMP:</u></p> <p>Roads or trails that are eroding beyond a reasonable level will be fixed or closed. <u>JMH CAP:</u></p> <p>Transportation planning will provide for access to achieve multiple-use goals while providing maximum protection for crucial habitats and sensitive resources and will consider:</p> <p>Closing and rehabilitating unused roads and trails and those causing resource damage. This will be subject to county review of existing rights-of-way needs.</p>
MD TTM 7	Within PHMA, when reseeding roads and trails, appropriate seed mixtures will be used and the use of transplanted sagebrush will be considered.
MD Special Designations and Other Management Areas I	New Greater Sage-Grouse conservation ACECs will not be designated.

Table A-1
Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Decision No.	Existing Language	Proposed RMP Amendment Language
Decisions from the Buffalo RMP:		
Modifying habitat management area designations	No existing decision.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)
Livestock Grazing – Permit Renewals Grazing 6017	The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives (Table 2-6) and LHSs (43 CFR 4180.2), and one or more defined responses that would allow the Authorizing Officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.	<p>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP: Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.</p> <p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets LHSs and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat</p>

Table A-1
Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Decision No.	Existing Language	Proposed RMP Amendment Language
		condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.
Noise SS WL-4025	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	Within PHMA (Core): New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges. These measures would be considered at the site-specific project level where and when appropriate.
Adaptive Management triggers SS WL-4010	The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.	The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).
Compensatory Mitigation	In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM would require and ensure mitigation that provides a net conservation gain to the species including any accounting for any uncertainty associated with the effectiveness of such mitigation. This would be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions...The BLM would implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO 2015-4) that includes “compensatory	Adopt the State of Wyoming’s Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. The BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the CEQ mitigation hierarchy as appropriate at the site-specific project level and would defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation. Remove the phrase “net conservation gain” from all management actions.

Table A-1
Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Decision No.	Existing Language	Proposed RMP Amendment Language
	mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater Sage-Grouse.”	
Cody and Worland Decisions:		
Modifying habitat management area designations	No existing decision.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming’s core areas, upon issuance of any Wyoming Governor’s EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)
Cody: Record # 6130 Worland: Record # 6202	<p>All BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made toward meeting then, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use would be adjusted by the response specified in the instrument that authorized the use.</p> <p>The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives (Table 2-7) and LHSs (43 CFR 4180.2), and one or more defined responses that would allow the AO to make adjustments to livestock grazing that have already been subjected to NEPA analysis.</p>	<p>Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.</p> <p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply</p>

Table A-1
Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Decision No.	Existing Language	Proposed RMP Amendment Language
		only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.
Permit renewals Cody: Record # 6126 Worland: Record # 6198	The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in areas not meeting LHSs, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations.	No change.
Noise Cody: Record # 4111 Worland: Record # 4110	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	Within PHMA (Core): New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges. These measures would be considered at the site-specific project level where and when appropriate.
Adaptive Management triggers Cody: Record # 4116 Worland: Record # 4115	The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.	The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).

Table A-1
Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs

Decision No.	Existing Language	Proposed RMP Amendment Language
Compensatory mitigation	No existing decision	
Lander Decisions:		
Modifying habitat management area designations	No existing decision	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)
Noise Record # 4117	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	Within PHMA (Core): New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges. These measures would be considered at the site-specific project level where and when appropriate.
Compensatory mitigation	No existing decision	

The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.

The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to establish indicator values in the habitat objectives tables were developed in disparate geographic regions and will not reflect local conditions. The BLM is required to use the best available information, and specific values should be developed locally or at the project level. Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6).

When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.

Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.

The values in the tables should be considered as initial references and do not preclude development of local, desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities.

Table A-2
Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion

Attribute	Indicators	Desired Condition ⁶	Reference
Breeding and Nesting (Seasonal Use Period March 1–June 15) (Doherty 2008; Holloran and Anderson 2005)			
Lek Security	Proximity of trees	Trees absent or uncommon shrub/grassland ecological sites within 1.8 miles (approximately 3 kilometers) of occupied leks	Baruch-Mordo et al. 2013; Stiver et al. 2015
	Proximity of sagebrush to leks	Adjacent protective sagebrush cover within 330 feet (approximately 100 meters) of an occupied lek	Stiver et al. 2015
Cover	% of seasonal habitat meeting desired conditions	>80% of the nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).	Connelly et al. 2000
	Sagebrush cover ²	5 to 25%	Connelly et al. 2000; Connelly et al. 2003; Hagen et al. 2007
	Sagebrush height	4–31 inches (10–80 centimeters)	Connelly et al. 2000
	Arid sites ³	12–31 inches (30–80 centimeters)	
	Mesic sites ⁴		
	Predominant sagebrush shape	Predominantly spreading shape ⁵	Stiver et al. 2015
	Perennial grass cover (such as native bunchgrass) ²	>10% >15% Cool-season bunchgrasses preferred	Connelly et al. 2000; Stiver et al. 2015; Cagney et al. 2010
	Arid sites ³		
	Mesic sites ⁴		
Cover	Perennial grass and forb height (including residual grasses)	Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.	Connelly et al. 2000; Connelly et al. 2003; Doherty et al. 2014; Hagen et al. 2007; Stiver et al. 2015
	Perennial forb cover ²	>5% >10%	Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun 2000.
	Arid sites ³		
	Mesic sites ⁴		
Brood-Rearing/Summer¹ (Seasonal Use Period June 16–October 31)			
Cover	% of seasonal habitat meeting desired condition	>40% of the summer/brood habitat meets recommended brood habitat characteristics where appropriate (relative to ecological site potential, etc.)	Connelly et al. 2000
	Sagebrush cover ²	5–25%	Connelly et al. 2000
	Sagebrush height	4–32 inches (20.3–80 centimeters)	Connelly et al. 2000
	Perennial grass cover and forbs ²	>5% arid sites >10% mesic sites	Connelly et al. 2000

Table A-2
Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion

Attribute	Indicators	Desired Condition ⁶	Reference
Cover (cont'd)	Riparian areas/mesic meadows ²	Proper functioning condition	Preferred forbs are listed in Stiver et al. 2015
	Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present	Stiver et al. 2015
Winter (Seasonal Use Period November 1–February 28)			
Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.).	Connelly et al. 2000
	Sagebrush cover above snow ²	>5%	Connelly et al. 2000; Stiver et al. 2015
	Sagebrush height above snow	>10 inches (>25 centimeters)	Connelly et al. 2000

Notes:

¹ Where credible data support different seasonal dates than those identified, dates may be shifted, but the amount of days cannot be shortened or lengthened by the local unit.

² Absolute cover is the actual recorded cover and can exceed 100% when recorded across all species and all layers. It is not relative cover, which is the proportions of each species, and equals 100%. Note that cover is reported for only those species (e.g., sagebrush and preferred forbs) that are sampled to determine suitability of habitat for Greater Sage-Grouse. Overall cover at the site will be greater than that sampled for Greater Sage-Grouse habitat, due to other species present.

³ Arid corresponds to the 10-12-inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

⁴ Mesic corresponds to the ≥12-inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

⁵ Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired condition range for nesting/early brood-rearing habitat characteristics, consistent with the breeding habitat suitability matrix identified in Stiver et al. 2015. Sagebrush plants that are more tree or columnar shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush) and a natural part of the plant community; however, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site-specific scales.

⁶ All desired conditions will be dependent upon site capability and local variation (e.g., weather patterns, localized drought, and ESD state).

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Appendix B

Required Design Features

Appendix B. Required Design Features

Proposed changes are indicated by either ~~strikeout~~ or **bold**.

INTRODUCTION

The following conservation measures have typically been referred to as best management practices (BMP) or recommended management practices. These conservation measures are treated in the Resource Management Plan (RMP) as required design features (RDFs) to ensure regulatory certainty and the conservation of Greater Sage-Grouse. The source of these conservation measures came from Washington Office Instruction Memorandum No. 2012-044, (12/27/2011) Bureau of Land Management (BLM) National Greater Sage-Grouse Land Use Planning Strategy (IM No. WO-2012-044).

RDFs are site-specific measures that can be applied, as necessary and when appropriate, to a site-specific project. Not all RDFs are recommended or advised for all projects. The list below should serve as a list of potential RDFs that may be applied to site-specific projects, based on the applicability and suitability of that particular project. It is not expected that all RDFs would be applied to all projects.

~~RDFs are required for certain activities in GRSG habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts.~~ However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the National Environmental Policy Act of 1969 (NEPA) analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. **A checklist as part of the project record would suffice for determination of RDF applicability to a particular project.**
- An alternative RDF, a state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat. A specific RDF will provide no additional protection to Greater Sage-Grouse or its habitat.
- Through the coal planning process it will be determined if areas are suitable for further coal leasing consideration. Greater Sage-Grouse will be protected from leasing using the coal screening process (unsuitability criteria #15 or multiple use conflict analysis (screen 3)). The coal planning process (see 43 CFR 3420.1- 4 and 43 CFR 3461) will identify areas where coal leasing is not suitable or acceptable and those areas will be removed from further coal consideration for coal leasing and development (i.e., they will not be leased, so no development and no further protection needed).

Mines (particularly large surface coal mines) do not have the flexibility to move operations, so it is assumed that if a lease is ultimately offered, sold, and issued, the federal coal lessee can use the entire

coal lease for mining operations once they receive their federal permit. The following measures would be applied as RDFs for all solid minerals. The measures would also apply to locatable minerals subject to valid existing rights and consistent with applicable law.

Required Design Features for Lands and Realty, Range Management, Fluid Minerals, Coal Exploration, Wild Horses, Travel Management, Vegetation Management, Wildfire and Fuels Management, Noise, and West Nile Virus

Priority Habitats—RDFs/BMPs are continuously improving as new science and technology become available and therefore are subject to change. Include from the following RDFs/BMPs those that are appropriate to mitigate effects from the approved action.

Evaluate and take advantage of opportunities to remove or modify existing power lines within priority Greater Sage-Grouse habitat areas. When possible, require perch deterrents on existing or new overhead facilities. Encourage installation of perch deterrents on existing facilities.

Where existing leases or rights-of-way (ROW) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

Locate man camps outside priority Greater Sage-Grouse habitats.

Work cooperatively with permittees, lessees, and other landowners to develop grazing management strategies that integrate both public and private lands into single management units.

Coordinate RDFs/BMPs and vegetative objectives with the Natural Resources Conservation Service (NRCS) for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit Greater Sage-Grouse, particularly as it applies to the NRCS's National Sage-Grouse Initiative (<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmbill/initiatives/andcid=steldevb1027671>).

Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority Greater Sage-Grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings are part of an Allotment Management Plan/Conservation Plan, or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat or as a component of a grazing system during land health assessments (Davies et al. 2011). For example, some introduced grass seedings are an integral part of a livestock management plan and reduce grazing pressure in important sagebrush habitats, or serve as a strategic fuels management area.

Where the federal government owns the surface, and the mineral estate is in nonfederal ownership, apply appropriate BMPs to surface development.

ROADS

Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose. Locate roads to avoid important areas and habitats.

Coordinate road construction and use among federal fluid mineral lessees and ROW or special use authorization (SUA) holders.

Construct road crossings of ephemeral, intermittent, and perennial streams to minimize impacts on the riparian habitat, such as by crossing at right angles to ephemeral drainages and stream crossings.

Establish slow speed limits on BLM-administered roads or design roads for slower vehicle speeds to reduce Greater Sage-Grouse mortality.

Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions including this document.

Designate all newly constructed routes for authorized use only (using signage, gates, etc.). Apply dust abatement on roads, well pads, and other surface disturbances.

Close and rehabilitate duplicate roads by restoring original landform and establishing desirable habitat conditions.

OPERATIONS

Conduct reclamation on unused roads as soon as possible using appropriate Greater Sage-Grouse seed mixes. Reclaim the permitted ROWs used in the construction of the running surface immediately.

Site and/or minimize linear ROWs or SUAs to reduce disturbance and fragmentation of sagebrush habitats.

Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

Bury distribution power lines to the extent technically feasible.

Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce Greater Sage-Grouse mortality.

Equip tanks and other aboveground facilities with structures or devices that discourage nesting and perching of raptors and corvids.

Control the spread and effects of invasive nonnative plant species (Evangelista et al. 2011), including treating weeds prior to surface disturbance and washing vehicles and equipment at designated wash stations when constructing in areas with weed infestations.

Require Greater Sage-Grouse-safe fences (Christiansen 2009; Stevens 2011). Clean up refuse (Bui et al. 2010).

Eliminate sumps; if the sump is absolutely necessary, then construct Greater Sage-Grouse-safe fences around the sump (Christiansen 2009; Stevens 2011).

Cluster disturbances, operations (hydraulic fracture stimulation, liquids gathering, etc.), and facilities. If the geology is exploratory and there is the potential that subsequent wells may not be drilled, do not disturb additional habitat until geology has proven additional wells can go on the pad and it is necessary to do so.

Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells.

Place infrastructure in already disturbed locations where the habitat has not been fully restored. Apply a phased development approach with concurrent reclamation.

Place liquid gathering facilities outside priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors, do not place tanks at well locations within priority habitat areas.

Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

Restrict the construction of tall facilities, distribution power lines, and fences to the minimum number and amount needed.

Design or site permanent structures to minimize impacts on Greater Sage-Grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of Greater Sage-Grouse or interference with habitat use.

Use only closed-loop systems for drilling operations, with no reserve pits.

Consider using oak (or other material) mats for drilling activities where topography permits to reduce vegetation disturbance and for temporary roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

WEST NILE VIRUS

Artificial water impoundments will be managed for the prevention and/or spread of West Nile virus where the virus poses a threat to Greater Sage-Grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low-lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation; and (i) restricting access of ponds to livestock and wildlife (Doherty 2007). This does not apply to naturally occurring waters.

Field offices should consider alternative means to manage produced waters that could present additional vectors for West Nile virus. Such remedies may include re-injection under an approved Underground Injection Control permit, transfer to single/centralized facility, etc.

Water impoundments will be managed to prevent the spread of West Nile virus where analysis shows the virus poses a threat to Greater Sage-Grouse and in consideration of potential negative impact on other species of concern.

Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

NOISE

Limit noise to less than 10 decibels above ambient measures (20–24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010; Blickley et al. 2012).

Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed toward priority habitat.

RECLAMATION

Include objectives for ensuring habitat restoration to meet Greater Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve Greater Sage-Grouse habitat needs.

Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling, and revegetating cut-and-fill slopes where practicable; material used for irrigation must be removed thereafter.

Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions.

Use mulching, soil amendments, and/or erosion blankets to expedite reclamation and to protect soils.

Identify and work with partners to increase native seed availability and work with plant material centers to develop new plant materials, especially the forbs needed to restore Greater Sage-Grouse habitat.

Consider potential changes in climate (Miller et al. 2011) when proposing seedlings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed (Kramer and Havens 2009).

Use Ecological Site Descriptions (ESD) or other protocols (e.g., Terrestrial Ecological Unit Inventory or Lands System Inventory) to identify the understory species and sagebrush subspecies needed to restore desirable habitat conditions.

VEGETATION TREATMENTS/FIRE AND FUELS MANAGEMENT

During vegetation management project design, consider the utility of using livestock to strategically reduce fine fuels (Diamond et al. 2009), and implement grazing management that will accomplish this objective (Davies et al. 2011; Launchbaugh et al. 2007). Consult with ecologists to minimize impacts on native perennial grasses.

Provide planning vegetation treatments information to personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.

Use vegetation treatment prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable plant species and reduce risk of hydrophobicity).

Ensure that treatments are configured in a manner (e.g., strips) that promotes use by Greater Sage-Grouse (see Connelly et al. 2000).

Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and the fire risk to Greater Sage-Grouse habitat. Additionally, develop maps for Greater Sage-Grouse habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

Restore prior perennial grass/shrub plant communities infested with invasive species to a species composition characterized by perennial grasses, forbs, and shrubs as outlined in ESDs.

Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.

Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species into Greater Sage-Grouse habitats. This could be minimized by planting perennial vegetation (e.g., green-strips) paralleling road ROWs. (This RDF could be applied to BLM linear ROW authorizations.)

Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire, should wildfire occur near key habitats or important restoration areas (such as where investments in restoration have already been made).

As appropriate, utilize existing fuel breaks, such as roads or discrete changes in fuel type, as control lines to minimize fire spread.

Design vegetation treatments in Greater Sage-Grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant serial stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design (Launchbaugh et al. 2007).

Design post-Emergency Stabilization and Rehabilitation (ES&R) and Burn Area Emergency Rehabilitation (BAER) management to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horses, travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Greater Sage-Grouse

(Eiswerth and Shonkwiler 2006). Include Greater Sage-Grouse habitat parameters as defined by Connelly et al. (2000), Hagen et al. (2007) or if available, state Greater Sage-Grouse conservation plans and appropriate local information in habitat restoration objectives. Maintain these objectives, within priority Greater Sage-Grouse habitat areas, as a high restoration priority.

Make reestablishment of sagebrush and desirable understory plant cover (relative to ecological site potential) a high priority for restoration efforts. Write specific vegetation objectives to reestablish sagebrush cover and desirable understory cover.

Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit Greater Sage-Grouse habitat.

Provide training to fuels treatment personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.

Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

Ensure proposed sagebrush treatments are planned with full interdisciplinary input from the BLM (pursuant to NEPA) and coordination with state fish and wildlife agencies, and that treatment acreage is conservative in the context of surrounding Greater Sage-Grouse seasonal habitats and landscape.

Power-wash all vehicles and equipment involved in vegetation treatment and fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

Give priority for implementing specific Greater Sage-Grouse habitat restoration projects in annual grasslands, first to sites which are adjacent to or surrounded by priority/core habitat or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to priority/core habitat but within 2 miles of priority/core habitat. The third priority for annual grassland habitat restoration projects is sites beyond 2 miles of priority/core habitat. The intent is to focus restoration outward from existing, intact habitat.

As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of those referenced in land use planning documentation.

Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.

Remove standing and encroaching trees within at least 110 yards of occupied Greater Sage-Grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

Design fuel treatments that would increase fire suppression efficiencies to protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas. Where applicable, incorporate roads and natural fuel breaks into fuel break design.

Develop state-specific Greater Sage-Grouse reference information and resource materials containing maps, a list of resource advisors, contact information, local guidance, and other information relevant to agency administrators and fire suppression resources.

During periods of multiple fires, ensure line officers are involved in setting priorities.

Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

Assign a resource advisor with Greater Sage-Grouse expertise or who has access to Greater Sage-Grouse expertise to all extended attack fires in or near Greater Sage-Grouse habitat. Prior to the fire season, provide training to Greater Sage-Grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through the following:

- Instructing resource advisors during preseason trainings
- Qualification as resource advisors
- Coordination with resource advisors during fire incidents
- Contributing to incident planning with information such as habitat features or other key data useful in fire decision-making

On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in Greater Sage-Grouse habitat areas.

Locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas and heli-bases) in areas where physical disturbance to Greater Sage-Grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails, or other areas where there is existing disturbance or minimal sagebrush cover.

Minimize unnecessary cross-country vehicle travel during fire operations in Greater Sage-Grouse habitat.

Minimize burnout operations in key Greater Sage-Grouse habitat areas by constructing a direct fire line whenever safe and practical to do so.

Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

Adequately document the fire operation activities in Greater Sage-Grouse habitat for potential follow-up coordination activities.

Compile the District-level information into state-wide Greater Sage-Grouse tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District, which will be aggregated into a state-wide document.

GENERAL GREATER SAGE-GROUSE HABITAT

Best Management Practices

Make applicable BMPs mandatory as Conditions of Approval within general Greater Sage-Grouse habitat. BMPs are continuously improving as new science and technology become available and therefore are subject to change. At a minimum include the following BMPs:

ROADS

- Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.
- Do not issue ROWs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

OPERATIONS

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce Greater Sage-Grouse mortality.
- Equip tanks and other aboveground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects from nonnative plant species. (e.g., by washing vehicles and equipment).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Dougherty 2007).

RECLAMATION

Include restoration objectives to meet Greater Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore Greater Sage-Grouse habitat.

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Appendix C

The Greater Sage-Grouse Habitat Management Strategy

Appendix C. The Greater Sage-Grouse Habitat Management Strategy

INTRODUCTION

The Wyoming Greater Sage-Grouse Approved Resource Management Plan Amendments (ARMPA) provides specific goals, objectives, management actions, and required design features for the conservation of Greater Sage-Grouse in Wyoming. These are the commitments made to meet the federal agencies' national policy and direction for the conservation of Greater Sage-Grouse in light of the 2010 US Fish and Wildlife Service (USFWS) listing decision as warranted but precluded from listing under the Endangered Species Act. Through the National Planning Strategy, Bureau of Land Management (BLM), in coordination with the USFWS have identified conservation measures to be included in the land use plans as the principal regulatory mechanisms to assure adequate conservation of the Greater Sage-Grouse and its habitat on public lands.

The measures identified in the ARMPA have been developed in coordination with not just the USFWS, but also the State of Wyoming, including the Wyoming Game and Fish Department (WGFD), and local cooperating agencies including conservation districts and counties.

Wyoming has established core population areas to help delineate landscape planning units by distinguishing areas of high biological value. These areas are based on the locations of breeding areas and are intended to help balance Greater Sage-Grouse habitat requirements with demand for energy development (Doherty et al. 2011). The ARMPA is consistent with the Core Area Strategy, but contains additional restrictions to protect other resources, which results in added protections to Greater Sage-Grouse habitat and achieving conservation objectives identified in the Conservation Objectives Team (COT) report on BLM-administered lands. The COT report indicates that the Core Area Strategy is a substantial regulatory mechanism that contributes to the conservation of Greater Sage-Grouse and balances the priorities of retaining a healthy Greater Sage-Grouse population on the landscape and energy development.

This appendix will introduce the framework for implementation of Greater Sage-Grouse conservation measures within BLM field offices. Implementation is a combination of permitting activities under the auspices of management direction provided in the ARMPA, undertaking specific activities in pursuit of the goals and objectives identified in the plan and monitoring of sagebrush habitat and populations.

The implementation framework outlined here is focused specifically toward Greater Sage-Grouse and is reflective of how the national strategy will be assimilated into the existing statewide implementation efforts currently in place in Wyoming. This framework has been developed mindful of the varying scales at which implementation will be evaluated at the local level to define successful conservation measures, at the state level to assess success of the statewide strategy, and across the species' range.

In 2013, the Director of the USFWS tasked staff with the development of range-wide conservation objectives for the Greater Sage-Grouse to define the degree to which threats need to be reduced or ameliorated to conserve Greater Sage-Grouse so that it is no longer in danger of extinction or likely to

become in danger of extinction in the foreseeable future. Recognizing that state wildlife agencies have management expertise and management authority for Greater Sage-Grouse, the USFWS created a COT of state and USFWS representatives to accomplish this task.

The COT conservation framework consisted of (1) identifying Greater Sage-Grouse population and habitat status and threats, (2) defining a broad conservation goal, (3) identifying priority areas for conservation, and (4) developing specific conservation objectives and measures. The COT used three parameters—population and habitat representation, redundancy, and resilience (Shaffer and Stein 2010; Redford *et al.* 2011)—as guiding concepts in developing the conservation goal, priority areas for conservation, conservation objectives, and measures.

The COT report identified priority areas for Greater Sage-Grouse population habitats as Priority Areas for Conservation (PACs). PACs are recognized as key areas across the landscape that are necessary to maintain redundant, representative, and resilient populations of the species. The COT Report describes maintaining the integrity of PACs as “the essential foundation for Greater Sage-Grouse conservation.” PACs cover nearly 73 million acres across the West; within Wyoming, more than 15 million acres are considered priority habitat. Fifty-two percent of the priority habitat is BLM-administered surface and 71 percent is BLM-administered minerals. Based upon 2007 through 2015 lek counts, PHMA in Wyoming contains an estimated 83 percent of the state-wide population of Greater Sage-Grouse.

Table C-1
Greater Sage-Grouse Habitat within Wyoming

Populations / Subpopulations: Wyoming Portion, Powder River and Wyoming Basins; Laramie; Jackson Hole; WAFWA Management Zones I & II			
Surface Estate	Priority Area Acres (%)	General Habitat Acres (%)	Non-Habitat Acres (%)
Private	5,655,716 (38)	14,028,015 (53)	7,004,437
State	1,119,078 (7)	1,766,279 (7)	754,053
BLM	7,823,055 (52)	9,296,487 (35)	328,750
Other ¹	483,710 (3)	1,104,942 (5)	10,363,760
Total	15,081,561	26,650,412	18,451,000
Fluid Mineral Estate	Priority Area Acres (%)	General Habitat Acres (%)	Non-Habitat Acres
Nonfederal	4,360,416 (29)	10,450,584 (40)	6,433,438
BLM Managed ²	10,721,145 (71)	15,745,138 (60)	12,017,562
Total	15,081,561	26,195,722	

¹ Excludes Wind River Indian Reservation Acreages

² BLM Managed Minerals includes 10,335,190 acres within National Parks, State Parks and Historic Sites, National Forests, National Wildlife Refuges and Department of Defense Reservations. Of this total, BLM has jurisdiction on only 1,682,372 acres.

The conservation objectives identified in the COT Report, targeted at maintaining redundant, representative, and resilient Greater Sage-Grouse habitats and populations, is the basis on which Wyoming's Greater Sage-Grouse Proposed RMP Amendments were developed. Due to the variability in ecological conditions and the nature of the threats across the range of the Greater Sage-Grouse, developing detailed, prescriptive species or habitat actions was not attainable at the range-wide scale. Specific strategies and actions necessary to achieve the conservation objectives have been developed by the BLM in cooperation with state and local governments to ensure implementation of activities to meet the objectives identified in the COT report.

COT Objective I: Stop Population Declines and Habitat Loss

“There is an urgent need to ‘stop the bleeding’ of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion. There are no populations within the range of sage-grouse that are immune to the threat of habitat loss and fragmentation (COT report 2013).”

The COT report identified a series of threats to Greater Sage-Grouse habitat and the extent of those threats at the population scale. The management actions identified in the ARMPA were specifically designed to reduce the threats, as they were identified. The Wyoming RMPs encompass lands within WAFWA Management Zones 1 and 2. To ensure that the threats are adequately addressed by the ARMPA, a strategy for reviewing activities and projects on public lands to determine the extent of their impact on Greater Sage-Grouse habitat has also been developed. The following outlines the process by which all activities on public lands will be reviewed.

The BLM will ensure that any activities or projects in Greater Sage-Grouse habitats would: 1) only occur in compliance with the Wyoming BLM’s Greater Sage-Grouse goals and objectives for priority management areas; and 2) maintain neutral or positive Greater Sage-Grouse population trends and habitat by avoiding, minimizing, and offsetting unavoidable impacts on assure a conservation gain at the scale of this land use plan and within Greater Sage-Grouse population areas, state boundaries, and WAFWA Management Zones through the application of mitigation for implementation-level decisions. The mitigation process will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy, while also following Secretary of the Interior Order 3330 and consulting BLM, USFWS and other current and appropriate mitigation guidance. If it is determined that residual impacts on Greater Sage-Grouse from implementation-level actions would remain after applying avoidance and minimization measures to the extent possible, compensatory mitigation projects will be used to offset residual impacts, or the project may be deferred or denied if necessary to achieve the goals and objectives for priority and general management areas in the Wyoming BLM RMPs.

To ensure that impacts from activities proposed in Greater Sage-Grouse Core Areas are appropriately approved and mitigated as necessary, the BLM will apply mitigation measures and conservation actions and potentially modify the location, design, construction, and/or operation of proposed land uses or activities to comply with statutory requirements for environmental protection. The mitigation measures and conservation actions for proposed projects or activities in these areas will be identified as part of the National Environmental Policy Act (NEPA) environmental review process, through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners or other surface management agencies. Those measures selected for implementation will be identified in the record of decision (ROD) or decision record for those authorizations and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered lands and minerals to mitigate, per the mitigation hierarchy referenced above, impacts from the activity or project such that Greater Sage-Grouse goals and objectives are met. Because these actions create a clear obligation for the BLM to ensure any proposed mitigation action adopted in the environmental review process is performed, there is assurance that mitigation will lead to a reduction of environmental impacts in the implementation stage and include binding mechanisms for enforcement (CEQ Memorandum for Heads of Federal Departments and Agencies 2011).

To achieve the goals and objectives for core areas in the ARMPA, the BLM will assess all proposed land uses or activities such as road, pipeline, communication tower, or power line construction, fluid and solid mineral development, range improvements, and recreational activities proposed for location in core areas in a step- wise manner. The following steps identify a screening process for review of proposed activities or projects in these areas. This process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with ARMPA goals and objectives for Greater Sage-Grouse. The following steps provide for a sequential screening of proposals.

Step 1 – Determine Proposal Adequacy

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM-administered lands. The actual documentation of the proposal would include at a minimum a description of the location, scale of the project and timing of the disturbance. The acceptance of the proposal(s) for review would be consistent with existing protocol and procedures for each type of use. Evaluating consistency with (at a minimum) state Greater Sage-Grouse regulations.

Step 2 – Evaluate Proposal Consistency with ARMPA

Step 2.1 –The proposal will be reviewed to determine whether it would be allowed as prescribed in the ARMPA. For example, some activities or types of development are prohibited in Greater Sage-Grouse habitat, such as wind developments in priority habitat. Evaluation of projects will also include an assessment of the current state of the adaptive management hard and soft triggers. If the proposal is for an activity that is specifically prohibited, the applicant should be informed that the application is being rejected since it would not be allowed, regardless of the design of the project.

Step 2.2 –The proposal will be reviewed to determine whether it conforms with the Density and Disturbance Limitations. If the proposed activity occurs within a priority habitat management area (PHMA), evaluate whether the disturbance from the activity exceeds the limit on the amount of disturbance allowed within the activity or project area (Density/Disturbance Calculation Tool [DDCT] process). If current disturbance within the activity area or the anticipated disturbance from the proposed activity exceeds this threshold, the project would be deferred until such time as the amount of disturbance within the area has been reduced below the threshold, redesigned so as to not result in any additional surface disturbance (collocation) or redesigned to move it outside of PHMA. Should the project be a result of a valid existing right, BLM will work to minimize the disturbance and determine any residual impacts that may require appropriate mitigation.

The maximum density of disruptive activities and surface disturbance allowed will be analyzed via the DDCT, and will be conducted by the Federal Land Management Agency on federal land and the project proponent on nonfederal (private and state) land based on the ARMPA.

State agency permit is needed, without a need for a federal permit

The first point of contact for addressing Greater Sage-Grouse issues for any state permit application should be the WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on Greater Sage-Grouse prior to submitting an application to the permitting agency. Project proponents should contact WGFD at least 45–60 days prior to submitting their application. More complex projects will require more time. It is understood that WGFD has a role of consultation, recommendation, and facilitation, and has no authority to either approve or deny the

project. The purpose of the initial consultation with the WGFD is to become familiar with the project proposal and ensure the project proponent understands the DDCT and recommended stipulations.

Federal agency permit is needed, with or without a state permit

When a project requires federal action prior to approval, the proponent should contact the federal agency responsible for reviewing the action. The federal agency and the proponent will determine the best process for completing the DDCT and receiving recommendations from WGFD. Project proponents (proponents) need to have a thorough description of their project and identify the potential effects on Greater Sage-Grouse prior to submitting an application to the permitting agency.

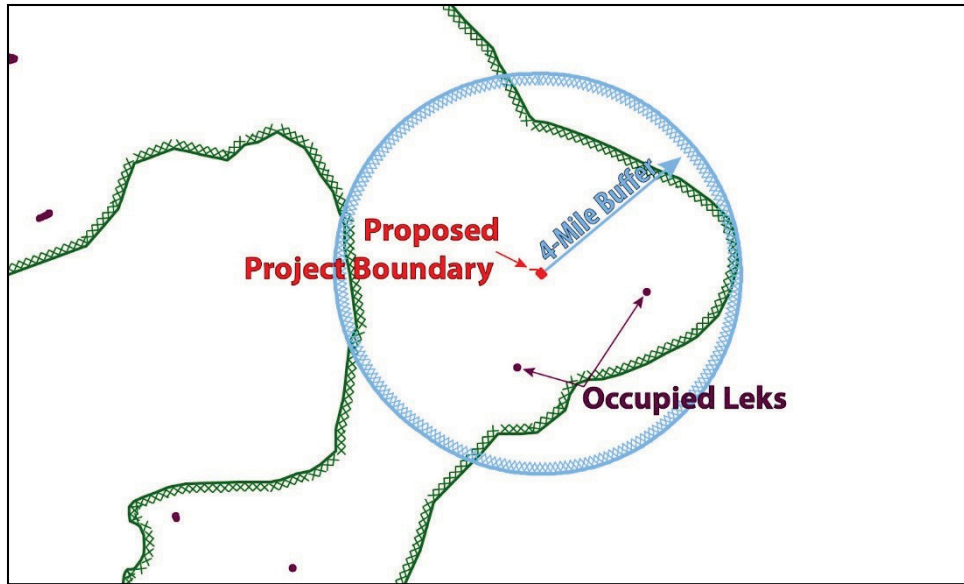
Maximum Density and Disturbance Process

Density and Disturbance Calculation

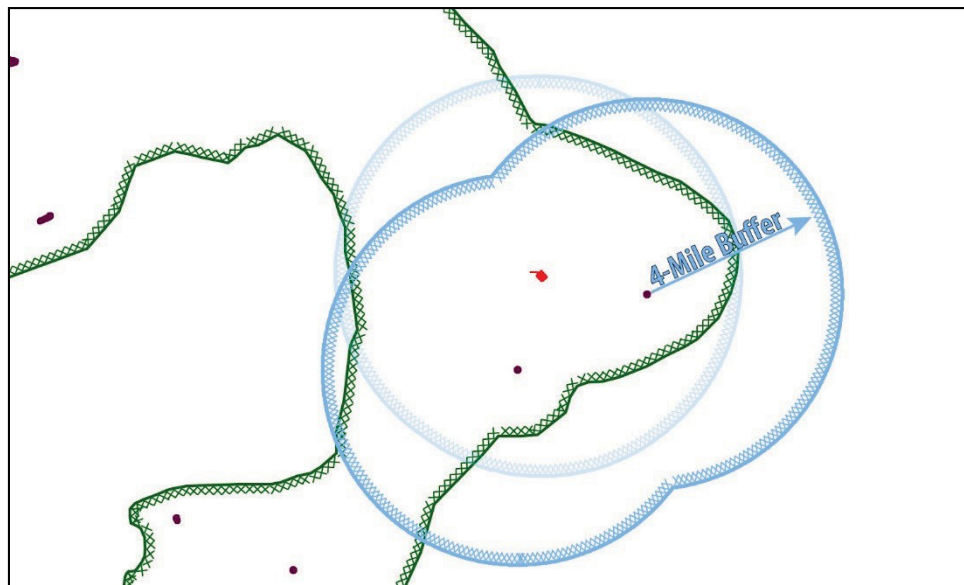
The DDCT is a spatially-based tool that calculates both the average density of disruptive activities and total surface disturbance within the area affected by the project, or DDCT assessment area. The DDCT assessment area is created based on buffers around proposed projects (first buffer) in protected Greater Sage-Grouse core areas, and subsequent buffers around any occupied, core area leks within the first buffer. A 4-mile buffer is used to identify 75% of the Greater Sage-Grouse use around a lek. All activities will be evaluated within the context of maximum allowable disturbance (disturbance percentages, location and number of disturbances) of suitable Greater Sage-Grouse habitat within the DDCT assessment area. This tool allows for better siting of projects rather than averaging the density/disturbance calculation per section.

All lands within core area boundaries are considered suitable habitat unless documented. Mapped unsuitable habitat is treated neither as suitable habitat, nor disturbance, which results in the area being removed from the DDCT assessment area altogether.

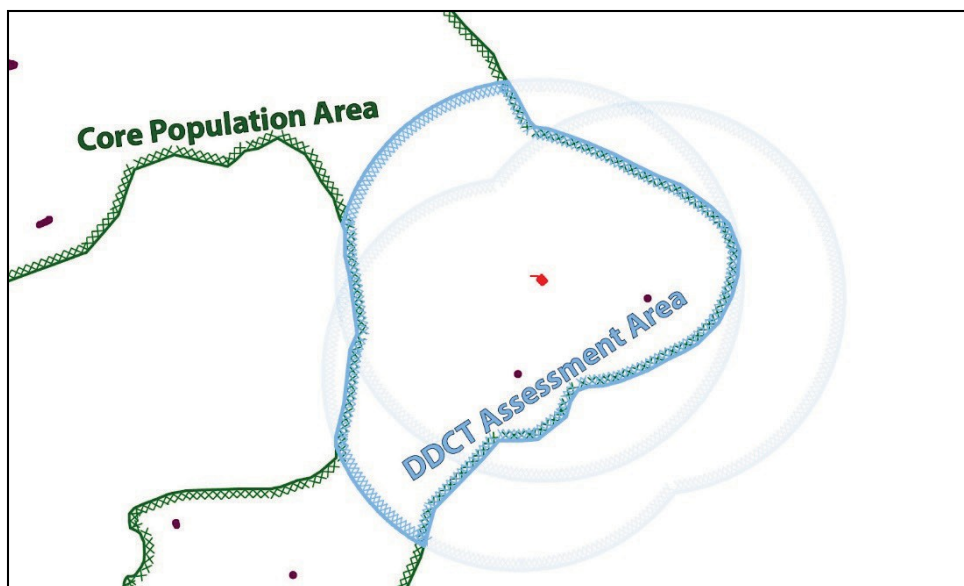
- I. DDCT: Determine all occupied leks within a core population area that may be affected by the project by placing a 4-mile boundary around the project boundary (as defined by the proposed area of disturbance related to the project). All occupied leks located within the 4-mile boundary and within a core population area will be considered in this assessment.



A 4-mile boundary will then be placed around the perimeter of each of these lek(s).



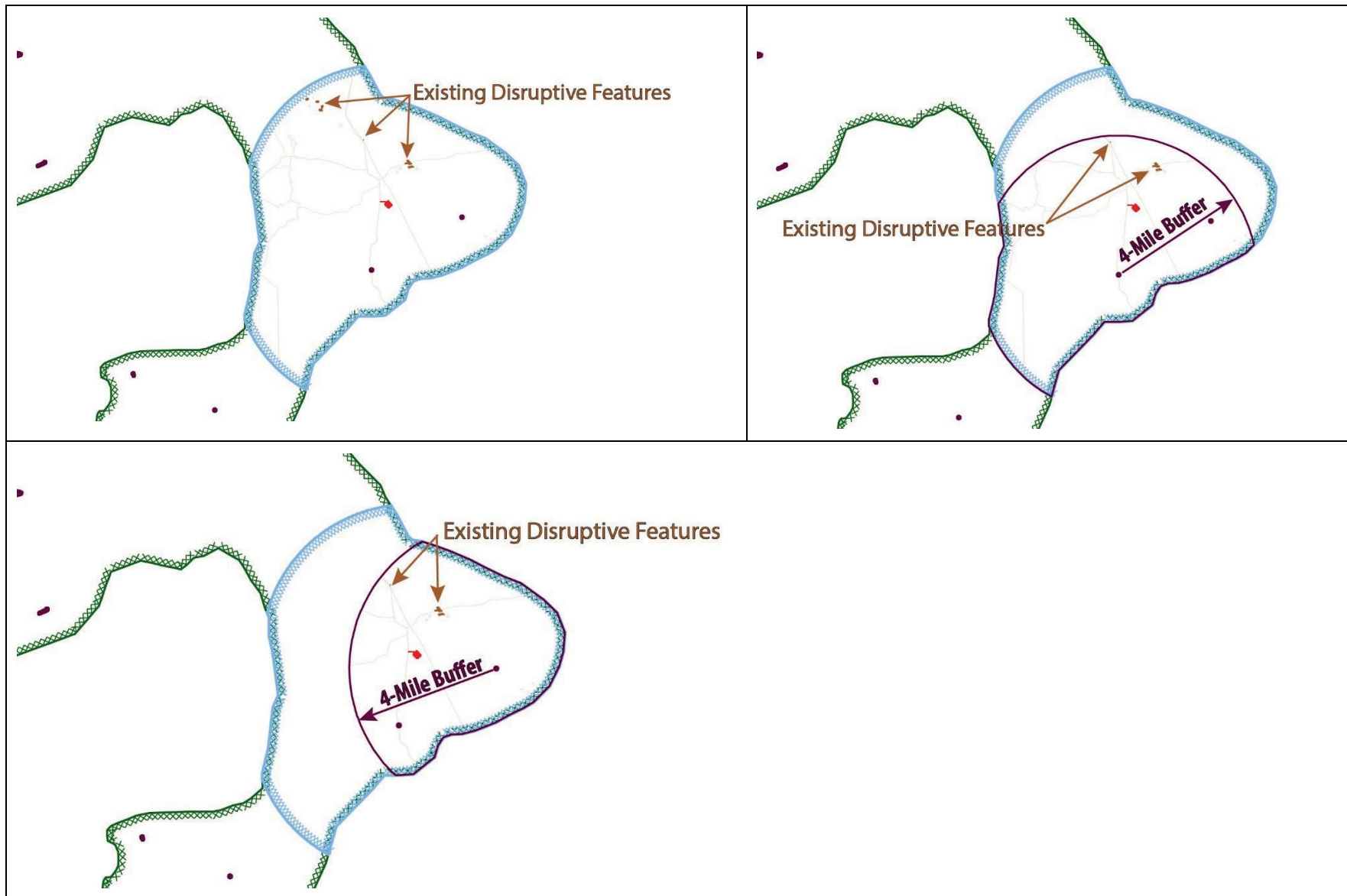
The core population area within the combined 4-mile buffer around both the leks and the project boundary creates the DDCT assessment area for each individual project.



Disturbance will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area.



Density of disruptive features will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area.



If there are no leks identified for this assessment within the 4-mile boundary around the project boundary, the DDCT assessment area will be that portion of the 4 mile project boundary within the core population area.

2. Density and Disturbance analysis: The total number of discrete disruptive activity features, as well as the total disturbance acres within the DDCT assessment area will be determined through an evaluation of:
 - a. Existing disturbance (Greater Sage-Grouse habitat that is disturbed due to existing anthropogenic activity and wildfire).
 - b. Approved permits (that have approval for on the ground activity) not yet implemented.
 - c. Validating digitized disturbance through on the ground evaluation.

The complete analysis package (DDCT results, mapbook, and Worksheet), and recommendations developed by consultation and review outlined herein will be forwarded to the appropriate permitting agency(s). WGFD recommendations will be included, as will other recommendations from project proponents and other appropriate agencies. Project proponent shall have access to all information used in developing recommendations. Where possible and when requested by the project proponent, state agencies shall provide the project proponent with potential development alternatives other than those contained in the project proposal.

If the permit for which a proponent has applied expires, another DDCT analysis is required before issuing a new permit. An additional DDCT is not required for permit extensions or renewals when no changes are being authorized. Any project will need to comply with the current Executive Order.

Step 2.3 – The BLM’s goal for any new activity or development proposal within core areas is to provide consistent implementation of project proposals that meet the BLM’s ARMPA goals and the population management objectives of the state. Activities would be consistent with the strategy where it can be sufficiently demonstrated that no declines to core populations would be expected as a result of the proposed action. Published research suggests that impacts on Greater Sage-Grouse leks associated primarily with infrastructure and energy development are discernible at a distance of at least 4 miles and that many leks within this radius have been extirpated as a direct result of development (Walker et al. 2007; Walker 2008). Research also suggests that an evaluation of habitats and Greater Sage-Grouse populations that attend leks within an 11-mile radius from the project boundary in the context of “large” projects may be appropriate in order to consider all seasonal habitats that may be affected for birds that use the habitats associated with the proposal during some portion of the life-cycle of seasonally migratory Greater Sage-Grouse (Connelly et al. 2000).

To determine the manner in which Greater Sage-Grouse may be affected by proposed undertakings, the following will be reviewed in the site-specific NEPA analysis to quantify the effects:

- Greater Sage-Grouse habitat delineation maps.
- Current science recommendations.
- The ‘Base Line Environment Report’ (USGS), which identifies areas of direct and indirect effect for various anthropogenic activities.
- Consultation with agency or state wildlife agency biologist.
- Other methods needed to provide an accurate assessment of impacts.

If the proposal will not have a direct or indirect impact on either the habitat or population, document the findings in the NEPA and proceed with the appropriate process for review, decision and implementation of the project.

Step 3—Apply Avoidance and Minimization Measures to Comply with Greater Sage-Grouse Goals and Objectives

If the project can be relocated so as to not have an impact on Greater Sage-Grouse and still achieve objectives of the proposal and the disturbance limitations, relocate the proposed activity and proceed with the appropriate process for review, decision and implementation (NEPA and decision record). This Step does not consider redesign of the project to reduce or eliminate direct and indirect impacts, but rather authorization of the project in a physical location that will not impact Greater Sage-Grouse. If the preliminary review of the proposal concludes that there may be adverse impacts on Greater Sage-Grouse habitat or populations in Step 2 and the project cannot be effectively relocated to avoid these impacts, proceed with the appropriate process for review, decision and implementation (NEPA and decision record) with the inclusion of appropriate mitigation requirements to further reduce or eliminate impacts on Greater Sage-Grouse habitat and populations and achieve compliance with Greater Sage-Grouse objectives. Mitigation measures could include design modifications of the proposal, site disturbance restoration, post project reclamation, etc. Compensatory or off-site mitigation may be required (Step 4) in situations where residual impacts remain after application of all avoidance and minimization measures.

Step 4 – Apply Compensatory Mitigation or Reject / Defer Proposal

If screening of the proposal has determined that direct and indirect impacts cannot be eliminated through avoidance or minimization, evaluate the proposal to determine if compensatory mitigation can be used to offset the remaining adverse impacts and achieve Greater Sage-Grouse goals and objectives. If the impacts cannot be effectively mitigated, reject or defer the proposal. The criteria for determining this situation could include but are not limited to:

- The current trend within the priority habitat is down and additional impacts, whether mitigated or not, could lead to further decline of the species or habitat.
- The proposed mitigation is inadequate in scope or duration, has proven to be ineffective, or is unproven in terms of science-based approach.
- The project would affect habitat that has been determined to be a limiting factor for species sustainability.
- Other site-specific information and analysis that determined the project would lead to a downward change of the current species population or habitat and not comply with Greater Sage-Grouse goals and objectives.

If, following application of available impact avoidance and minimization measures, the project can be mitigated to fully offset impacts and assure conservation gain to the species and comply with Greater Sage-Grouse goals and objectives, proceed with the appropriate process for review, decision and implementation (NEPA and decision record).

Mitigation

General

In undertaking BLM management actions and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM will require and assure mitigation that provides a net conservation gain to the species, including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In Wyoming, the USFWS has found that “the core area strategy, if implemented by all landowners via regulatory mechanism, would provide adequate protection for Greater Sage-Grouse and their habitats in the state.” The BLM will implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO 2015-4). Compensatory mitigation would be used when avoidance and minimization measures consistent with EO 2015-4 are inadequate to protect core population area Greater Sage-Grouse.

Mitigation will follow the regulations from the White House Council on Environmental Quality (CEQ) (40 CFR 1508.20; e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation (see glossary).

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the NEPA decision making process including the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. A robust and transparent Regional Mitigation Strategy will contribute to Greater Sage-Grouse habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts on Greater Sage-Grouse and its habitat.

The BLM's Regional Mitigation Manual MS-1794 serves as a framework for developing and implementing a Regional Mitigation Strategy. The following sections provide additional guidance specific to the development and implementation of a WAFWA Management Zone Regional Mitigation Strategy.

Developing a WAFWA Management Zone Regional Mitigation Strategy

The BLM, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy to guide the application of the mitigation hierarchy for BLM management actions and third party actions that result in habitat loss and degradation. The strategy should consider any state-level Greater Sage-Grouse mitigation guidance that is consistent with the requirements identified in this appendix. The Regional Mitigation Strategy should be developed in a transparent manner, based on the best science available and standardized metrics.

As described in the ARMPA, the BLM will establish a WAFWA Management Zone Greater Sage-Grouse Conservation Team (hereafter, Team) to help guide the conservation of Greater Sage-Grouse, within 90 days of the issuance of the ROD. The Strategy will be developed within 1 year of the issuance of the ROD.

The Regional Mitigation Strategy should include mitigation guidance on avoidance, minimization, and compensation, as follows:

- Avoidance
 - Include avoidance areas (e.g., right-of-way avoidance/exclusion areas and no surface occupancy areas) already included in laws, regulations, policies, and/or land use plans (e.g., RMPs and state plans); and,
 - Include any potential, additional avoidance actions (e.g., additional avoidance best management practices) with regard to Greater Sage-Grouse conservation.
- Minimization
 - Include minimization actions (e.g., required design features and best management practices) already included in laws, regulations, policies, land use plans, and/or land-use authorizations; and,
 - Include any potential, additional minimization actions (e.g., additional minimization best management practices) with regard to Greater Sage-Grouse conservation.
- Compensation
 - Include discussion of impact/project valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and program administration. Each of these topics is discussed in more detail below.
 - Residual Impact and Compensatory Mitigation Project Valuation Guidance
 - A common standardized method should be identified for estimating the value of the residual impacts and value of the compensatory mitigation projects, including accounting for any uncertainty associated with the effectiveness of the projects.
 - This method should consider the quality of habitat, scarcity of the habitat, and the size of the impact/project.
 - For compensatory mitigation projects, consideration of durability (see glossary), timeliness (see glossary), and the potential for failure (e.g., uncertainty associated with effectiveness) may require an upward adjustment of the valuation.
 - The resultant compensatory mitigation project will, after application of the above guidance, result in proactive conservation measures for Greater Sage-Grouse (consistent with BLM Manual 6840 – Special Status Species Management, section .02).
 - Compensatory Mitigation Options
 - Options for implementing compensatory mitigation should be identified, such as:
 - Utilizing certified mitigation/conservation bank or credit exchanges.
 - Contributing to an existing mitigation/conservation fund.
 - Authorized-user conducted mitigation projects.
 - For any compensatory mitigation project, the investment must be additional (i.e., additionality: the conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project).
 - Compensatory Mitigation Siting
 - Sites should be in areas that have the potential to yield a net conservation gain to the Greater Sage-Grouse, regardless of land ownership.

- Sites should be durable (see glossary).
- Sites identified by existing plans and strategies (e.g., fire restoration plans, invasive species strategies, healthy land focal areas) should be considered, if those sites have the potential to yield a net conservation gain to Greater Sage-Grouse and are durable.
- Compensatory Mitigation Project Types and Costs
 - Project types should be identified that help reduce threats to Greater Sage-Grouse (e.g., protection, conservation, and restoration projects).
 - Each project type should have a goal and measurable objectives.
 - Each project type should have associated monitoring and maintenance requirements, for the duration of the impact.
 - To inform contributions to a mitigation/conservation fund, expected costs for these project types (and their monitoring and maintenance), within the WAFWA Management Zone, should be identified.
- Compensatory Mitigation Compliance and Monitoring
 - Mitigation projects should be inspected to ensure they are implemented as designed, and if not, there should be methods to enforce compliance.
 - Mitigation projects should be monitored to ensure that the goals and objectives are met and that the benefits are effective for the duration of the impact.
- Compensatory Mitigation Reporting
 - Standardized, transparent, scalable, and scientifically-defensible reporting requirements should be identified for mitigation projects.
 - Reports should be compiled, summarized, and reviewed in the WAFWA Management Zone in order to determine if Greater Sage-Grouse conservation has been achieved and/or to support adaptive management recommendations.
- Compensatory Mitigation Program Implementation Guidelines
 - Guidelines for implementing the state-level compensatory mitigation program should include holding and applying compensatory mitigation funds, operating a transparent and credible accounting system, certifying mitigation credits, and managing reporting requirements.

Incorporating the Regional Mitigation Strategy into NEPA Analyses

The BLM will include the avoidance, minimization, and compensatory recommendations from the Regional Mitigation Strategy in one or more of the NEPA analysis' alternatives for BLM management actions and third party actions that result in habitat loss and degradation and the appropriate mitigation actions will be carried forward into the decision.

Implementing a Compensatory Mitigation Program

The BLM needs to ensure that compensatory mitigation is strategically implemented to provide a net conservation gain to the species, as identified in the Regional Mitigation Strategy. In order to align with existing compensatory mitigation efforts, this compensatory mitigation program will be managed at a state level (as opposed to a WAFWA Management Zone or a Field Office), in collaboration with our partners (e.g., federal, tribal, and state agencies).

To ensure transparent and effective management of the compensatory mitigation funds, the BLM will enter into a contract or agreement with a third-party to help manage the state-level compensatory mitigation funds, within 1 year of the issuance of the Record of Decision. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM will remain responsible for making decisions that affect federal lands.

COT Objective 2: Implement Targeted Habitat Management and Restoration

“Some sage-grouse populations warrant more than the amelioration of the impacts from stressors to maintain sage-grouse on the landscape. In these instances, and particularly with impacts resulting from wildfire, it may be critical to not only remove or reduce anthropogenic threats to these populations but additionally to improve population health through active habitat management (e.g. habitat restoration). This is particularly important for those populations that are essential to maintaining range-wide redundancy and representation.” (COT report 2013)

In many areas of Wyoming, amelioration of threats isn’t enough. Activities must be taken to enhance the habitat for continued success of Greater Sage-Grouse. This objective identifies the areas where ARMPA will put forth the commitments for habitat restoration and enhancement.

The WGFD established local Greater Sage-Grouse working groups over 10 years ago. Each of these local working groups developed conservation plans that have served to guide conservation of Greater Sage-Grouse habitat at a local level. The management objectives for this federal land use plan were developed in coordination with the State of Wyoming, recognizing the ongoing work that has been done over the last 10 years in Wyoming as a result of the conservation efforts identified by each of the local working groups.

Upon completion of the planning process, with issuance of an Approved Plan and Record of Decision, subsequent implementation decisions will be put into effect by developing implementation (activity-level or project-specific) plans. These implementation decisions will be based upon the objectives identified in the Approved Plan and Record of Decisions, and will be coordinated with local working groups.

COT Objective 3: Develop and Implement State and Federal Conservation Strategies and Associated Incentive-based Conservation Actions and Regulatory Mechanisms.

“To conserve sage-grouse and habitat redundancy, representation, and resilience, state and federal agencies, along with interested stakeholders within range of the sage-grouse should work together to develop a plan, including any necessary regulatory or legal tools (or use an existing plan, if appropriate) that includes clear mechanisms for addressing the threats to sage-grouse within PACs. Where consistent with state conservation plans, sage-grouse habitats outside of PACs should also be addressed. We recognize that threats can be ameliorated through a variety of tools within the purview of states and federal agencies, including incentive-based conservation actions or regulatory mechanisms. Federal land management agencies should work with states in developing adequate regulatory mechanisms. Federal land management agencies should also contribute to the incentive-based conservation and habitat restoration and rehabilitation efforts. In the development of conservation plans, entities (states, federal land management agencies, etc.) should coordinate with USFWS. This will ensure that the plans address the threats contributing to the 2010 warranted but precluded determination, and that conservation strategies will meaningfully contribute to future listing analyses.” (COT report 2013)

Implementation Working Groups

Implementation strategies for a landscape scale species requires coordination across multiple scales, as the work that is conducted at the local scale must be tracked and evaluated for overall success within core areas, the state of Wyoming across the region. As the Greater Sage-Grouse is formally managed by the State of Wyoming, and has a statewide strategy through Governor's Executive Order 2011-05, implementation must be evaluated at that scale as well. For this reason, Wyoming Plans will utilize multiple types of working groups, representing each of the scales at which implementation will be tracked.

National Level

In December 2011, Wyoming Governor Matt Mead and Secretary of the Interior Ken Salazar co-hosted a meeting to address coordinated conservation of the Greater Sage-Grouse across its range. Ten states within the range of the Greater Sage-Grouse were represented, as were the Natural Resources Conservation Service (NRCS), and the Department of the Interior (DOI) — including representatives from the BLM and USFWS. The primary outcome of the meeting was the creation of a Sage-Grouse Task Force (Task Force) chaired by Governors Mead (Wyoming) and Hickenlooper (Colorado) and the Director of the BLM. The Task Force was directed to develop recommendations on how to best advance a coordinated, multi-state, range-wide effort to conserve the Greater Sage-Grouse, including the identification of conservation objectives to ensure the long-term viability of the species.

Regional Level

Regional Level Teams (Sage-grouse Implementation Group)

State Level

The Sage-grouse Implementation Team (SGIT) has been established through Wyoming Legislature (Wyoming Statute 9-19-101(a)) to review data and make recommendations to the Governor of Wyoming regarding actions and funding to enhance and restore Greater Sage-Grouse habitats in Wyoming. Additionally, the SGIT is responsible for making recommendations to the Governor regarding regulatory actions necessary to maintain Greater Sage-Grouse populations and Greater Sage-Grouse habitats.

Adaptive Management Working Group (AMWG) has been established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority. The AMWG includes BLM, USFWS, and State of Wyoming.

Local Level

In 2000, a Local Working Group was established by the WGFD to develop and facilitate implementation of local conservation plans for the benefit of Greater Sage-Grouse, their habitats, and whenever feasible, other species that use sagebrush habitats. This group prepared the Wyoming Greater Sage-Grouse Conservation Plan (Wyoming Sage-Grouse Working Group 2003) to provide coordinated management and direction across the state. In 2004, local Greater Sage-Grouse working groups were formed to develop and implement local conservation plans. Eight local working groups around Wyoming have completed conservation plans, many of which prioritize addressing past, present, and reasonably foreseeable threats at the state and local levels, and prescribe management actions for private

landowners to improve Greater Sage-Grouse conservation at the local scale, consistent with Wyoming's Core Population Area Strategy.

Implementation Tracking

Because the State of Wyoming continues to retain management of the species, and through implementation of the Executive Order, BLM Wyoming will continue to coordinate tracking of populations, disturbance and conservation actions.

- DDCT GIS for tracking disturbance

- Population counts

- Lek counts

- Conservation actions

In addition to the tracking databases being maintained by the State of Wyoming, a national Greater Sage-Grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of Greater Sage-Grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the Record of Decision or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

Public Involvement

A website where the public can quickly and easily access data concerning implementation will be developed and kept current on the Wyoming BLM database. Creating this website and maintaining it through the implementation cycle will be a vital part of implementation success. The public is welcome to provide implementation comments to the BLM any time during the cycle, but schedules for implementation planning decisions will be posted so the public can make timely comments. All Activity Plan Working Group meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement. This includes providing web-based information to the public prior to any Activity Plan Working Group meetings; such that members of the public can provide input to the working session, both early and mid-way through the scheduled meetings.

The state sponsored LWG and SGIT meetings are advertised and open to the public.

COT Objective 4: Proactive Conservation Actions

“Proactive, incentive based, voluntary conservation actions (e.g. Candidate Conservation Agreements with Assurances, Natural Resources Conservation Service programs) should be developed and/or implemented by interested stakeholders and closely coordinated across the range of the species to ensure they are complimentary and address sage-grouse conservation needs and threats. These efforts need to receive full funding, including funding for necessary personnel.” (COT report 2013)

In addition to the conservation activities identified through implementation of the Resource Management Plan in coordination with the Local Working Group Conservation Plans, BLM will continue to partner with other agencies and stakeholders to identify conservation actions to benefit Greater Sage-Grouse habitat. Actions that may occur could include Candidate Conservation Agreements (CCA) with

accompanying Candidate Conservation Agreements with Assurances (CCAA) and designation of conservation easements.

CCAs are entered into when a potential threat to habitat is identified. BLM enters into CCAs with USFWS to identify potential threats and plan for conservation measures to address potential threats. The purpose of federal land CCAs and the accompanying nonfederal CCAAs is to encourage conservation actions for species that are not yet listed as threatened or endangered. The goal is that enhancements in conservation can preclude the need for federal listing or so that conservation can occur before the status of the species has become so dire that listing is necessary. Although a single property owner's activities may not eliminate the need to list, conservation, if conducted by enough property owners throughout the species' range, can eliminate the need to list.

The BLM will work with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies and will work cooperatively with other agencies, organizations, governments, and interested parties for the conservation of sensitive species and their habitats to meet agreed on species and habitat management goals. Cooperative efforts are important for conservation based on an ecosystem management approach and will improve efficiency by combining efforts and fostering collaborative working relationships.

Conservation Easements are identified private lands with Greater Sage-Grouse habitat where the private landowners enter into voluntary agreements with the government to give up developmental rights that may adversely affect habitat. The most common way these areas may be used in Wyoming is for mitigation banks. Allowing development within some areas of historic Greater Sage-Grouse habitat or marginal habitat will require appropriate mitigation. In some cases the most appropriate mitigation may be for project proponents to buy credits at a conservation easement, thus creating a mitigation bank. Overall, the benefit is to the Greater Sage-Grouse, as it reduces the overall potential for fragmented habitat by ensuring there are areas with no development potential that could adversely affect the viability of the species.

To learn more about what CCAs and CCAAs are in place for Greater Sage-Grouse, please see the USFWS website: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B06W>.

Sweetwater River Conservancy Habitat Conservation Bank

The Sweetwater River Conservancy Habitat Conservation Bank is the first conservation bank established for Greater Sage-Grouse. Located in central Wyoming, the bank manages habitat for Greater Sage-Grouse allowing energy development and other activities to proceed on other lands within Wyoming. A conservation bank is a site or suite of sites established under an agreement with the USFWS, intended to protect, and improve habitat for species. Credits may be purchased that result in perpetual conservation easements and conservation projects on the land to offset impacts occurring elsewhere. The Sweetwater River Conservancy Habitat Conservation Bank launched with 55,000 deeded acres of Greater Sage-Grouse habitat, and could expand up to 700,000 acres on other lands owned by the Sweetwater River Conservancy contingent upon demand (USFWS 2015).

Wyoming Landscape Conservation Initiative

The Wyoming Landscape Conservation Initiative is a long-term, science-based effort to assess and enhance aquatic and terrestrial habitats at a landscape scale in southwest Wyoming, while facilitating

responsible development through local collaboration and partnership. Collaborative efforts address multiple concerns at a scale that considers all activities on the landscape, and can leverage resources that might not be available for single agency projects. Greater Sage-Grouse initiatives from the Wyoming Landscape Conservation Initiative have included habitat enhancement efforts (e.g., invasive weed treatment, prescribed grazing strategies), and Greater Sage-Grouse research studies (Wyoming Landscape Conservation Initiative 2013).

Powder River Basin Restoration Program

The Powder River Basin Restoration Program is a collaborative partnership to restore and enhance Greater Sage-Grouse habitat on a landscape level in the Powder River Basin. The basin encompasses 13,493,840 acres in northeast Wyoming and southeast Montana. Surface ownership is composed of approximately 70 percent private lands, 14 percent BLM-administered lands (including 8 percent in Wyoming and 6 percent in Montana), 8 percent Forest Service lands, and 8 percent States of Wyoming and Montana lands. Subsurface mineral ownership is 50 to 60 percent federal (BLM 2014).

The Powder River Basin Restoration Program is focusing on areas affected by the federal oil and gas development that has occurred over the past decade in the Powder River Basin in northeastern Wyoming. Its objectives are restoring or enhancing disturbed previously suitable habitat to suitable habitat for sagebrush obligate species, primarily Greater Sage-Grouse. This includes multiple sites affected by coal bed natural gas abandonment reclamation efforts, wildfires, and noxious and invasive plants. Priority will be given to those areas recognized as priority habitats (e.g., core population areas and connectivity corridors).

Habitat objectives are meeting the needs for nesting, brood-rearing, and late brood-rearing. The program would contribute to efforts focused on the management and control of mosquitoes carrying West Nile virus and would include funding, labor, treatment locations, and other needs as determined.

Additionally, efforts would be coordinated to reduce fuels in and near Greater Sage-Grouse habitat, to enhance sagebrush stands, support restoration efforts, and reduce the risk of high-severity wildfire. Pine stands and juniper woodlands would be managed for structural diversity and to reduce fuels, especially near PHMA, human developments, and recreation areas.

Natural Resource Conservation Service Sage-Grouse Initiative

The US Department of Agriculture, NRCS Sage-Grouse Initiative (SGI) is working with private landowners in 11 western states to improve habitat for Greater Sage-Grouse (Manier et al. 2013). With 13.5 million acres of Greater Sage-Grouse habitat in private ownership within MZ II/VII (Manier et al. 2013, p. 118), a unique opportunity exists for the NRCS to benefit Greater Sage-Grouse and to ensure the persistence of large and intact rangelands by implementing the SGI.

Participation in the SGI program is voluntary, but willing participants enter into binding contracts or easements to ensure that conservation practices that enhance Greater Sage-Grouse habitat, such as fence marking, protecting riparian areas, and maintaining vegetation in nesting areas, are implemented. Participating landowners are bound by a contract (usually 3 to 5 years) to implement, in consultation with NRCS staff, conservation practices if they wish to receive the financial incentives offered by the SGI. These financial incentives generally take the form of payments to offset costs of implementing conservation practices and easements or rental payments for long-term conservation.

While potentially effective at conserving Greater Sage-Grouse populations and habitat on private lands, incentive-based conservation programs that fund the SGI generally require reauthorization from Congress under subsequent farm bills, meaning future funding is not guaranteed.

COT Objective 5: Development of Monitoring Plans

“A robust range-wide monitoring program must be developed and implemented for sage- grouse conservation plans, which recognizes and incorporates individual state approaches. A monitoring program is necessary to track the success of conservation plans and proactive conservation activities. Without this information, the actual benefit of conservation activities cannot be measured and there is no capacity to adapt if current management actions are determined to be ineffective.” (COT report 2013)

The Greater Sage-Grouse Monitoring Framework

Introduction

The purpose of this Greater Sage-Grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM IM 2012-044) to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. Therefore, the BLM will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the Greater Sage-Grouse planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan, which will be developed after the signing of the ROD. For a summary of the frequency of reporting see Attachment A. Adaptive management will be informed by data collected at any and all scales.

To ensure the BLM has the ability to make consistent assessments about Greater Sage-Grouse habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions. Implementation monitoring results will provide information to allow the BLM to evaluate the extent that decisions from the BLM RMP to conserve Greater Sage-Grouse and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

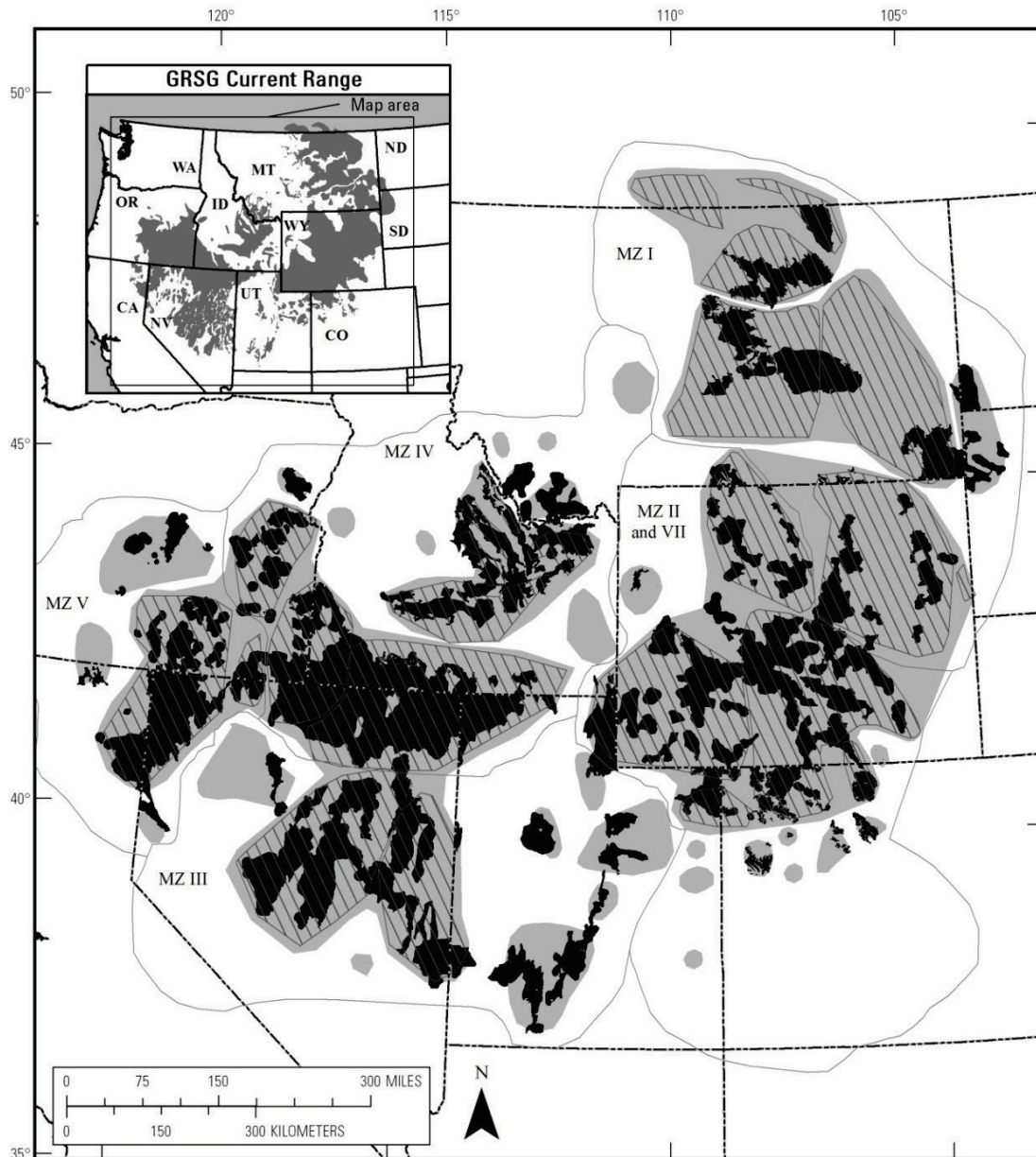
This multi-scale monitoring approach is necessary as Greater Sage-Grouse are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2014) as first order (broad scale), second order (mid- scale), third order (fine scale), and fourth order (site scale) to apply them to Greater Sage-Grouse habitat selection. The various scales may show differences because of the methods used. The broad and mid-scale may provide a generalized direction; however, the suitability baseline (pre-Euro) is not considered an accurate baseline. The current baseline will provide better information on trends provided the data used in the analysis is sound. Based upon the management actions related to the BLM and Wyoming Greater Sage-Grouse Executive Order, the broad and mid-scale may greatly

underestimate the impacts of the threats outlined in the COT report. Habitat selection and habitat use by Greater Sage-Grouse occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring Greater Sage-Grouse habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to Greater Sage-Grouse and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Greater Sage-Grouse Habitat Assessment Framework (HAF) (Stiver et al. *in press*).

Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these existing datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of Greater Sage-Grouse as defined by Schroeder et al. (2004), and clipped by Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; **Figure C-1**). This broad and mid-scale monitoring data and analysis will provide context for ARMPA areas; states; Greater Sage-Grouse priority habitat, general habitat and other Greater Sage-Grouse designated management areas; and PACs as defined in the Greater Sage-Grouse Conservation Objectives: Final Report (COT, USFWS 2013). Throughout the remainder of the document, all of these areas will be referred to as “Greater Sage-Grouse areas.”

This monitoring framework is divided into two sections. The broad- and mid-scale methods, described in the following section, provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to determine the effectiveness of the planning strategy and management decisions. (See **Table C-2**, Indicators for monitoring implementation of the national planning strategy, ARMPA decisions, Greater Sage-Grouse habitat, and Greater Sage-Grouse populations at the broad and mid scales.) For Greater Sage-Grouse habitat at the fine and site scales, this monitoring framework describes a consistent approach (e.g., indicators and methods) for monitoring Greater Sage-Grouse seasonal habitats. Funding, support, and dedicated personnel for broad- and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of BLM multiscale monitoring commitments, see **Attachment A**.

Figure C-1
Map of Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013



GRSG PACs, Subpopulations and Populations
LEGEND

-  Subpopulations
-  COT PACs
-  Populations

Sources:
 Current Range: Schroeder et al., 2004
 Populations: Connelly et al., 2004
 Subpopulations: Connelly et al., 2004
 PACs: USFWS COT Report, 2013

Table C-2
Indicators for Monitoring Implementation of the Strategy, Decisions, Greater Sage-Grouse Habitat, and Greater Sage-Grouse Populations at the Broad and Mid-scales.

Geographic Scales	Implementation	Habitat		Population (State Wildlife Agencies)
		Availability	Degradation	Demographics
Broad Scale: From the range of Greater Sage-Grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining, and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations.	An analysis of ARMPA decisions across the designated scale	Mid-scale habitat indicators (HAF 2014; Table C-3 e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining, and infrastructure facilities (Table C-3)	Individual population trend
Fine Scale: Pacs	A summary of DDCT actions related to BLM mineral and surface resources in conjunction with other ownerships	Areas that have greater than 5% sagebrush cover and non-habitat (unsuitable) that is less than 0.6 miles from the suitable habitat.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs.	PAC Trends
Site Scale DDCT level	A summary of DDCT actions related to BLM mineral and surface resources.	The available occupied habitat using the DDCT process.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs.	Individual lek Trends
Broad Scale: From the range of Greater Sage-Grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining, and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations. PACs	RMP decisions	Mid-scale habitat indicators (HAF 2014; Table C-3 e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining, and infrastructure facilities (Table C-3)	Individual population trend

Broad and Mid-Scales

First-order habitat selection, the broad scale, describes the physical or geographical range of a species. The first-order habitat of the Greater Sage-Grouse is defined by populations of Greater Sage-Grouse associated with sagebrush landscapes, based on Schroeder et al. 2004, and Connelly et al. 2004, and on

population or habitat surveys since 2004. An intermediate scale between the broad and mid scales was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation communities. This scale is referred to as the WAFWA MZs. Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second-order habitat selection, the mid-scale, includes Greater Sage-Grouse populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 square miles and are nested within MZs. PACs range from 20 to 20,400 square miles and are nested within population areas.

Other mid-scale landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011; Leu and Hanser 2011; Knick and Hanser 2011).

Midscale indicators using the HAF can grossly underestimate the occupation of anthropogenic activities because of the use of 30m pixels. The HAF removes 'non-'habitat from the suitability availability. There are no parameters that are provided to protect adjacent suitable habitat from development on these non-habitat parcels, thus making the adjacent non-habitat a potential threat by indirect impacts.

The Wyoming BLM field offices will be actively participating in a fine and site scale monitoring that will more accurately reflect the impacts associated with direct and indirect effects of anthropogenic and wildfire impacts.

A. Implementation (Decision) Monitoring

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of ARMPA decisions. The BLM will monitor implementation of project-level and/or site-specific actions and authorizations, with their associated conditions of approval/stipulations for Greater Sage-Grouse, spatially (as appropriate) within priority habitat, general habitat, and other Greater Sage-Grouse designated management areas, at a minimum, for the Wyoming Greater Sage-Grouse ARMPA planning area. These actions and authorizations, as well as progress toward completing and implementing activity-level plans, will be monitored consistently across all planning units and will be reported to BLM headquarters annually, as well as reported to the State of Wyoming with numerical and spatial data twice a year, and a HQ summary report every 5 years, for the respective planning area. A national-level Greater Sage-Grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of Greater Sage-Grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the Record of Decision or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

B. Habitat (Vegetation) Monitoring

The USFWS, in its 2010 listing decision for the Greater Sage-Grouse, identified 18 threats contributing to the destruction, modification, or curtailment of Greater Sage-Grouse habitat or range (75 *Federal Register* 13910 2010). The BLM will, therefore, monitor the relative extent of these threats that remove sagebrush, both spatially and temporally, on all lands within an analysis area, and will report on amount,

pattern, and condition at the appropriate and applicable geographic scales and boundaries. These 18 threats have been aggregated into three broad- and mid-scale measures to account for whether the threat predominantly removes sagebrush or degrades habitat. (See **Table C-3**, Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring.) The three measures are:

1. Sagebrush Availability (percent of sagebrush per suitable unit area)
2. Habitat Degradation (percent of human activity per unit area)
3. Energy and Mining Density (facilities and locations per suitable unit area)

Table C-3
Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring.

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights-of-way		X	

Data availability may preclude specific analysis of individual layers. See the detailed methodology for more information.

These three habitat disturbance measures will evaluate disturbance on all lands within priority habitat, regardless of land ownership. The direct area of influence will be assessed with the goal of accounting for actual removal of sagebrush on which Greater Sage-Grouse depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 (sagebrush availability) examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape). Measure 1, therefore, monitors the change in sagebrush availability—or, specifically, where and how much of the sagebrush community is available on lands that can support sagebrush within the range of Greater Sage-Grouse. The sagebrush community is defined as the ecological systems that have the capability of supporting sagebrush vegetation and seasonal Greater Sage-

Grouse habitats within the range of Greater Sage-Grouse (see **Section B.1.**, Sagebrush Availability). Measure 2 (see **Section B.2.**, Habitat Degradation Monitoring) and Measure 3 (see **Section B.3.**, Energy and Mining Density) focus on where habitat degradation is occurring within suitable sagebrush soils by using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic area of interest and in areas that have the capability of supporting sagebrush and seasonal Greater Sage-Grouse use. Measure 2 (habitat degradation) not only quantifies footprint/area of direct disturbance but also establishes a surrogate for those threats most likely to have ongoing activity. Because energy development and mining activities are typically the most intensive activities in sagebrush habitat, Measure 3 (the density of active energy development, production, and mining sites) will help identify areas of particular concern for such factors as noise, dust, traffic, etc. that degrade Greater Sage-Grouse habitat.

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the Greater Sage-Grouse and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

B.1 Sagebrush Availability (Measure 1)

Greater Sage-Grouse populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. Measure 1 has been divided into two sub-measures to describe sagebrush availability on the landscape:

Measure 1a: the current amount of sagebrush on the geographic area of interest, and

Measure 1b: the amount of sagebrush on the geographic area of interest compared with the amount of sagebrush the landscape of interest could ecologically support.

Measure 1a (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic area of interest]. The appropriate geographic areas of interest for sagebrush availability include the species' range, WAFWA MZs, populations, and PACs. In some cases these Greater Sage-Grouse areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

Measure 1b (the amount of sagebrush for context within the geographic area of interest) will be calculated using this formula: [existing sagebrush divided by [prior to Euro-American contact geographic extent of lands that could have supported sagebrush]]. This measure will provide information to set the context for a given geographic area of interest during evaluations of monitoring data. The information could also be used to inform management options for restoration or mitigation and to inform effectiveness monitoring.

The sagebrush base layer for Measure 1 will be based on geospatial vegetation data adjusted for the threats listed in **Table C-3**. The following subsections of this monitoring framework describe the methodology for determining both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid scales.

a. Establishing the Sagebrush Base Layer: The current geographic extent of sagebrush vegetation within the rangewide distribution of Greater Sage-Grouse populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2013). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the rangewide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011; Leu and Hanser 2011; Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability of supporting sagebrush vegetation prior to Euro-American contact [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area of interest compared with how much sagebrush existed historically (Measure 1b). Therefore, the BLM has determined that LANDFIRE provides the best available data at broad and mid scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. The BLM, in addition to aggregating the sagebrush types into the sagebrush base layer, will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. The BLM—through its Assessment, Inventory, and Monitoring (AIM) program and, specifically, the BLM's landscape monitoring framework (Taylor et al. 2014)—will provide field data to the LANDFIRE program to support continuous quality improvements of the LANDFIRE EVT layer. The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of the existing percent of sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will also be used to determine the trend in other landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*). In the future, changes in sagebrush availability, generated annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See **Section D.**, Effectiveness Monitoring).

Within the BLM, field office—wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than what is provided through LANDFIRE. Where available, these finer-scale products will be useful for additional and complementary mid-scale indicators and local-scale analyses (Fine and Site Scales). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale, where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, for example patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. in press). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See **Section D**).

Data Sources for Establishing and Monitoring Sagebrush Availability

In much the same manner as how the LANDFIRE data were selected as the data source, described above, the criteria for selecting the datasets (**Table C-4**) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

Nationally consistent dataset available across the range Known level of confidence or accuracy in the dataset Continual maintenance of dataset and known update interval

Table C-4
Datasets for Establishing and Monitoring Changes in Sagebrush Availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for Sagebrush Availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for Sagebrush Availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium (MRLC)	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

LANDFIRE Existing Vegetation Type Version 1.2

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping there have been two update efforts: version 1.1 represents changes before 2008, and version 1.2 reflects changes on the landscape before 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer.

Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by Greater Sage-Grouse subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the Greater Sage-Grouse (**Table C-5**). Two additional vegetation types that are not ecological systems were added to the EVT and are *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak- Mixed Montane Shrubland ecological system were named *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance respectively.

Table C-5
Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse.

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Mixed Low Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia bigelovii</i> <i>Artemisia nova</i> <i>Artemisia frigida</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Columbia Plateau Scabland Shrubland	<i>Artemisia rigida</i>
Great Basin Xeric Mixed Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longicaulis</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Big Sagebrush Shrubland	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Mixed Salt Desert Scrub	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia spinescens</i>
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>rupicola</i>
Columbia Plateau Low Sagebrush Steppe	<i>Artemisia arbuscula</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i>
Inter-Mountain Basins Big Sagebrush Steppe	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>tripartita</i> <i>Artemisia frigida</i>
Inter-Mountain Basins Montane Sagebrush Steppe	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia nova</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>spiciformis</i>

Table C-5
Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and
Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse.

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Northwestern Great Plains Mixed grass Prairie	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia frigida</i>
Northwestern Great Plains Shrubland	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Western Great Plains Sand Prairie	<i>Artemisia cana</i> ssp. <i>cana</i>
Western Great Plains Floodplain Systems	<i>Artemisia cana</i> ssp. <i>cana</i>
Columbia Plateau Steppe and Grassland	<i>Artemisia</i> spp.
Inter-Mountain Basins Semi-Desert Shrub-Steppe	<i>Artemisia tridentata</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Rocky Mountain Lower Montane-Foothill Shrubland	<i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia frigida</i>
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	<i>Artemisia tridentata</i>
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i>
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
<i>Quercus gambelii</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i>

Accuracy and Appropriate Use of LANDFIRE Datasets

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in **Table C-5** will be merged into one value that represents the sagebrush base layer. With all ecological systems aggregated, the combined accuracy of the sagebrush base layer (EVT) will be much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of Greater Sage-Grouse as defined by Schroeder (2004). Attachment C lists the user and producer accuracies for the aggregated ecological systems that make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7% to 100% and user accuracies ranging from 57.1% to 85.7%.

LANDFIRE EVT data are not designed to be used at a local level. In reports of the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the 30m pixel level (900m² resolution of raster data) for any reporting. The smallest geographic extent for using the data to determine percent sagebrush is at the PAC level; for the smallest PACs, the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

Agricultural Adjustments for the Sagebrush Base Layer

The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL) (<http://www.nass.usda.gov/research/Cropland/Release/index.htm>). CDL data are generated annually, with

estimated producer accuracies for “large area row crops ranging from the mid 80% to mid-90%,” depending on the state (http://www.nass.usda.gov/research/Cropland/sarsfaqs2.htm#Section3_18.0). Specific information on accuracy may be found on the NASS metadata website (<http://www.nass.usda.gov/research/Cropland/metadata/meta.htm>). CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes and nonagricultural classes. For this effort, and in the baseline environmental report (Manier et al. 2013), nonagricultural classes were removed from the original dataset. The excluded classes are: Barren (65 & 131), Deciduous Forest (141), Developed/High Intensity (124), Developed/Low Intensity (122), Developed/Med Intensity (123), Developed/Open Space (121), Evergreen Forest (142), Grassland Herbaceous (171), Herbaceous Wetlands (195), Mixed Forest (143), Open Water (83 & 111), Other Hay/Non Alfalfa (37), Pasture/Hay (181), Pasture/Grass (62), Perennial Ice/Snow (112), Shrubland (64 & 152), Woody Wetlands (190).

The rule set for adjusting the sagebrush base layer for agricultural lands (and for updating the base layer for agricultural lands in the future) is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of the CDL classifies that pixel as one of the nonagricultural classes listed above. The assumption is that even though individual pixels may be classified as a nonagricultural class in any given year, the pixel has not necessarily been restored to a natural sagebrush community that would be included in **Table C-5**. A further assumption is that once an area has moved into agricultural use, it is unlikely that the area would be restored to sagebrush. Should that occur, however, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the sagebrush restoration monitoring section of this monitoring framework

Urban Adjustments for the Sagebrush Base Layer

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a 5-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush base layer during the update process. Although the impervious surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

Fire Adjustments for the Sagebrush Base Layer:

Two datasets were selected for performing fire adjustments and updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires that all fires of more than 10 acres are to be reported to GeoMac; therefore, there will be many small fires of less

than 10 acres that will not be accounted for in the adjustment and monitoring attributable to fire. Using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1,000 acres will be used to adjust and monitor the sagebrush base layer.

For fires greater than 1,000 acres, MTBS was selected as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program (<http://www.mtbs.gov>) is an ongoing, multiyear project to map fire severity and fire perimeters consistently across the United States. One of the burn severity classes within MTBS is an unburned to low-severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter for the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. Not all wildfires, however, have the same impacts on the recovery of sagebrush habitat, depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed, restoration than does the warmer, dryer sagebrush habitat. These cooler, moister areas will likely be detected as sagebrush in future updates to LANDFIRE.

Conifer Encroachment Adjustment for the Sagebrush Base Layer:

Conifer encroachment into sagebrush vegetation reduces the spatial extent of Greater Sage-Grouse habitat (Davies et al. 2011; Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation resulting in Greater Sage-Grouse habitat loss include various juniper species, such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species, including singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas fir (*Pseudotsuga menziesii*) (Gruell et al. 1986; Grove et al. 2005; Davies et al. 2011).

A rule set for conifer encroachment was developed to be used for determination of the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and have the capability of supporting sagebrush vegetation. Those ecological systems (**Table C-6**) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush vegetation was defined as including sagebrush species (Attachment B) that provide habitat for the Greater Sage-Grouse and are included in the Sage-Grouse Habitat Assessment Framework. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems and these immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

Table C-6
Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus osteosperma</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia bigelovii</i> <i>Artemisia pygmaea</i>

Table C-6
Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Columbia Plateau Western Juniper Woodland and Savanna	<i>Juniperus occidentalis</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia rigida</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
East Cascades Oak-Ponderosa Pine Forest and Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Artemisia tridentata</i> <i>Artemisia nova</i>
Great Basin Pinyon-Juniper Woodland	<i>Pinus monophylla</i> <i>Juniperus osteosperma</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	<i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Rocky Mountain Foothill Limber Pine-Juniper Woodland	<i>Juniperus osteosperma</i> <i>Juniperus scopulorum</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i>
Rocky Mountain Poor-Site Lodgepole Pine Forest	<i>Pinus contorta</i> <i>Pseudotsuga menziesii</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i>
Southern Rocky Mountain Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus monosperma</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Southern Rocky Mountain Ponderosa Pine Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Pinus edulis</i> <i>Pinus contorta</i> <i>Juniperus</i> spp. <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>

Invasive Annual Grasses Adjustments for the Sagebrush Base Layer: There are no invasive species datasets from 2010 to the present (beyond the LANDFIRE data) that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see Monitoring Sagebrush Availability.

Sagebrush Restoration Adjustments for the Sagebrush Base Layer: There are no datasets from 2010 to the present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated); therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (version 1.2) attributable to restoration activities since 2010. Successful restoration treatments before 2010 are assumed to have been captured in the LANDFIRE refresh.

a. Monitoring Sagebrush Availability

Updating the Sagebrush Availability Sagebrush Base Layer

Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

2010 Existing Sagebrush Base Layer = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]

2012 Existing Sagebrush Update = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter]

2013 and beyond Existing Sagebrush Updates = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field]

Sagebrush Restoration Updates

Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation back in. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest

Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro-American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units that are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal habitat for the Greater Sage-Grouse. These ecological systems are listed in **Table C-5** with the exception of the *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse Habitat Assessment Framework and are found in Attachment B.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision

rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level (30m²) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

Tracking

BLM will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year and an updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will begin to be factored in as data allows. Attributable to data availability, there will be a 2-year lag (approximately) between when the estimate is generated and when the data used for the estimate becomes available (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

Future Plans

Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium (MRLC) are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the MRLC. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring "with-in" class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This "with-in" class variation can serve as one indicator of

sagebrush quality that cannot be derived from LANDFIRE's EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

B.2 Habitat Degradation Monitoring (Measure 2)

The measure of habitat degradation will be calculated by combining the footprints of threats identified in **Table C-3**. The footprint is defined as the direct area of influence of "active" energy and infrastructure; it is used as a surrogate for human activity. Although these analyses will try to summarize results at the aforementioned meaningful geographic areas of interest, some may be too small to report the metrics appropriately and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in **Table C-7**, Geospatial Data Sources for Habitat Degradation. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be provided to the USFWS.

a. Habitat Degradation Datasets and Assumptions

Energy (oil and gas wells and development facilities) – This dataset will compile information from three oil and gas databases: the proprietary IHS Enerdeq database, the BLM Automated Fluid Minerals Support System (AFMSS) database, and the proprietary Platts (a McGraw-Hill Financial Company) GIS Custom Data (hereafter, Platts) database of power plants. Point data from wells active within the last 10 years from IHS and producing wells from AFMSS will be considered as a 5-acre (2.0ha) direct area of influence centered on the well point, as recommended by the BLM WO-300 (Minerals and Realty Management). Plugged and abandoned wells will be removed if the date of well abandonment was before the first day of the reporting year (i.e., for the 2015 reporting year, a well must have been plugged and abandoned by 12/31/2014 to be removed). Platts oil and gas power plants data (subset to operational power plants) will also be included as a 5-acre (2.0ha) direct area of influence.

Additional Measure: Reclaimed Energy-related Degradation. This dataset will include those wells that have been plugged and abandoned. This measure thereby attempts to measure energy-related degradation that has been reclaimed but not necessarily fully restored to Greater Sage-Grouse habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last 10 years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed 2–10 years from energy development activities (Harju et al. 2010). Reclamation actions may require 2 or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take 6 or more years from the point of seeding, depending on such variables as annual precipitation, annual temperature, and soil type and depth (Pyke 2011). This 10-year period is conservative and assumes some level of habitat improvement 10 years after plugging. Research by Hemstrom et al. (2002), however, proposes an even longer period—more than 100 years—for recovery of sagebrush habitats, even with active restoration approaches. Direct area of influence will be considered 3 acres (1.2ha) (J. Perry, personal communication, February 12, 2014). This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded. This layer/measure could also be used where further

investigation at the fine or site scale would be warranted to: 1) quantify the level of reclamation already conducted, and 2) evaluate the amount of restoration still required for sagebrush habitat recovery. At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting restoration standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to wildfire and agriculture conversion (see Monitoring Sagebrush Restoration in Monitoring Sagebrush Availability). This dataset will be updated annually from the IHS dataset.

Energy (coal mines) – Currently, there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, U.S. Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement coal mining permit polygons (as available), and USGS Mineral Resources Data System mine occurrence points. These data will inform where active coal mining may be occurring. Additionally, coal power plant data from Platts power plants database (subset to operational power plants) will be included. Aerial imagery will then be used to digitize manually the active coal mining and coal power plants surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine and power plant direct area of influence. Coal mine location data source and imagery date will be documented for each digitized coal polygon at the time of creation. Subsurface facility locations (polygon or point location as available) will also be collected if available, included in density calculations, and added to the active surface activity layer as appropriate (if an actual direct area of influence can be located).

Energy (wind energy facilities) – This dataset will be a subset of the Federal Aviation Administration Digital Obstacles point file. Points where “Type_” = “WINDMILL” will be included. Direct area of influence of these point features will be measured by converting to a polygon dataset as a direct area of influence of 3 acres (1.2ha) centered on each tower point. See the BLM’s “Wind Energy Development Programmatic Environmental Impact Statement” (BLM 2005). Additionally, Platts power plants database will be used for transformer stations associated with wind energy sites (subset to operational power plants), also with a 3-acre (1.2ha) direct area of influence.

Energy (solar energy facilities) – This dataset will include solar plants as compiled with the Platts power plants database (subset to operational power plants). This database includes an attribute that indicates the operational capacity of each solar power plant. Total capacity at the power plant was based on ratings of the in-service unit(s), in megawatts. Direct area of influence polygons will be centered over each point feature representing 7.3ac (3.0ha) per megawatt of the stated operational capacity, per the report of the National Renewable Energy Laboratory (NREL), “Land-Use Requirements for Solar Power Plants in the United States” (Ong et al. 2013).

Energy (geothermal energy facilities) – This dataset will include geothermal wells in existence or under construction as compiled with the IHS wells database and power plants as compiled with the Platts database (subset to operational power plants). Direct area of influence of these point features will

be measured by converting to a polygon dataset of 3 acres (1.2ha) centered on each well or power plant point.

Mining (active developments; locatable, leasable, salable) – This dataset will include active locatable mining locations as compiled with the proprietary InfoMine database. Aerial imagery will then be used to digitize manually the active mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active mine direct area of influence. Mine location data source and imagery date will be documented for each digitized polygon at the time of creation. Currently, there are no known compressive databases available for leasable or salable mining sites beyond coal mines. Other data sources will be evaluated and used as they are identified or as they become available. Point data may be converted to polygons to represent direct area of influence unless actual surface disturbance is available.

Infrastructure (roads) – This dataset will be compiled from the proprietary Esri StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstate Highways, Major Roads, and Surface Streets to capture most paved and “crowned and ditched” roads while not including “two-track” and 4-wheel-drive routes. These minor roads, while not included in the broad- and mid-scale monitoring, may support a volume of traffic that can have deleterious effects on Greater Sage-Grouse leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine- and site-scale analysis will require more site-specific data than is identified in this monitoring framework. The direct area of influence for roads will be represented by 240.2ft, 84.0ft, and 40.7ft (73.2m, 25.6m, and 12.4m) total widths centered on the line feature for Interstate Highways, Major Roads, and Surface Streets, respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. Note: This is a related but different dataset than what was used in BER (Manier et al. 2013). Individual BLM planning units may use different road layers for fine- and site-scale monitoring.

Infrastructure (railroads) – This dataset will be a compilation from the Federal Railroad Administration Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct are of influence for railroads will be represented by a 30.8ft (9.4m) total width (Knick et al. 2011) centered on the non-abandoned railroad line feature.

Infrastructure (power lines) – This line dataset will be derived from the proprietary Platts transmission lines database. Linear features in the dataset attributed as “buried” will be removed from the disturbance calculation. Only “In Service” lines will be used; “Proposed” lines will not be used. Direct area of influence will be determined by the kV designation: 1–199 kV (100ft/30.5m), 200–399 kV (150ft/45.7m), 400–699 kV (200ft/61.0m), and 700-or greater kV (250ft/76.2m) based on average right-of-way and structure widths, according to BLM WO-300 (Minerals and Realty Management).

Infrastructure (communication towers) – This point dataset will be compiled from the Federal Communications Commission communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.5 acres (1.0ha) centered on each communication tower point (Knick et al. 2011).

Infrastructure (other vertical structures) – This point dataset will be compiled from the Federal Aviation Administration’s Digital Obstacles point file. Points where “Type_” = “WINDMILL” will be

removed. Duplicate points from the Federal Communications Commission communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.5 acres (1.0ha) centered on each vertical structure point (Knick et al. 2011).

Other Developed Rights-of-Way – Currently, no additional data sources for other rights-of-way have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in the categories described above. The newly purchased IHS data do contain pipeline information; however, this database does not currently distinguish between above-ground and underground pipelines. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to those used with the threats described above.

b. Habitat Degradation Threat Combination and Calculation

The threats targeted for measuring human activity (**Table C-3**) will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of Greater Sage-Grouse. Individual datasets, however, will be preserved to indicate which types of threats may be contributing to overall habitat degradation. This measure has been divided into three submeasures to describe habitat degradation on the landscape. Percentages will be calculated as follows:

Measure 2a. Footprint by geographic area of interest: Divide area of the active/direct footprint by the total area of the geographic area of interest (% disturbance in geographic area of interest).

Measure 2b. Active/direct footprint by historical sagebrush potential: Divide area of the active footprint that coincides with areas with historical sagebrush potential (BpS calculation from habitat availability) within a given geographic area of interest by the total area with sagebrush potential within the geographic area of interest (% disturbance on potential historical sagebrush in geographic area of interest).

Measure 2c. Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given geographic area of interest by the total area that is current sagebrush within the geographic area of interest (% disturbance on current sagebrush in geographic area of interest).

B.3 Energy and Mining Density (Measure 3)

The measure of density of energy and mining will be calculated by combining the locations of energy and mining threats identified in **Table C-3**. This measure will provide an estimate of the intensity of human activity or the intensity of habitat degradation. The number of energy facilities and mining locations will be summed and divided by the area of meaningful geographic areas of interest to calculate density of these activities. Data sources for each threat are found in **Table C-7**. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and 5-year (or longer) trends in habitat degradation.

Table C-7
Geospatial Data Sources for Habitat Degradation (Measure 2)

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM WO-300
Energy (coal)	Mines	BLM; Forest Service; Office of Surface Mining Reclamation and Environment; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0 ha)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7 ft. (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0 ft. (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2 ft. (73.2m)	USGS
Infrastructure (railroads)	ActiveLines	Federal Railroad Administration	30.8 ft. (9.4m)	USGS
Infrastructure (power lines)	1-199 kV Lines	Platts (transmission lines)	100 ft. (30.5 m)	BLM WO-300
	200-399 kV Lines	Platts (transmission lines)	150 ft. (45.7m)	BLM WO-300
	400-699 kV Lines	Platts (transmission lines)	200 ft. (61.0m)	BLM WO-300
	700+ kV Lines	Platts (transmission lines)	250 ft. (76.2m)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5 ac (1.0 ha)	BLM WO-300

a. Energy and Mining Density Datasets and Assumptions

Energy (oil and gas wells and development facilities) (See **Section B.2., Habitat Degradation Monitoring.**)

Energy (coal mines) (See **Section B.2., Habitat Degradation Monitoring.**)

Energy (wind energy facilities) (See **Section B.2., Habitat Degradation Monitoring.**) **Energy (solar energy facilities)** (See **Section B.2., Habitat Degradation Monitoring.**) **Energy (geothermal energy)**

facilities) (See **Section B.2.**, Habitat Degradation Monitoring.) **Mining (active developments; locatable, leasable, salable)** (See **Section B.2.**, Habitat Degradation Monitoring.)

b. Energy and Mining Density Threat Combination and Calculation

Datasets for energy and mining will be collected in two primary forms: point locations (e.g., wells) and polygon areas (e.g., surface coal mining). The following rule set will be used to calculate density for meaningful geographic areas of interest including standard grids and per polygon:

1. Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2. Polygons will not be merged, or features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3. The analysis unit (polygon or 640-acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit, all point features will be summed, and any individual polygons will be counted as one (e.g., a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g., a polygon crossing multiple 640-acre sections would be counted as one in each 640-acre section for a density per 640-acre-section calculation).
4. In methodologies with different-sized units (e.g., MZs, populations, etc.) raw facility counts will be converted to densities by dividing the raw facility counts by the total area of the unit. Typically this will be measured as facilities per 640 acres.
5. For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6. Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help display and convey information about areas within meaningful geographic areas of interest that have high levels of energy and/or mining activity.
7. Additional statistics for each defined unit may also include adjusting the area to include only the area with the historical potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Individual datasets and threat combination datasets for habitat degradation will be available through the BLM's EGIS web portal and geospatial gateway. Legacy datasets will be preserved so that trends may be calculated.

C. Population (Demographics) Monitoring

State wildlife management agencies are responsible for monitoring Greater Sage-Grouse populations within their respective states. WAFWA will coordinate this collection of annual population data by state agencies. These data will be made available to the BLM according to the terms of the forthcoming Greater Sage-Grouse Population Monitoring MOU (2014) between WAFWA and the BLM. The MOU outlines a process, timeline, and responsibilities for regular data sharing of Greater Sage-Grouse population and/or habitat information for the purposes of implementing Greater Sage-Grouse ARMPA and subsequent effectiveness monitoring. Population areas were refined from the "Greater Sage-Grouse

(*Centrocercus urophasianus*) Conservation Objectives: Final Report” (COT 2013) by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and to inform the adaptive management responses.

D. Effectiveness Monitoring

Effectiveness monitoring will provide the data needed to evaluate BLM actions toward reaching the objective of the national planning strategy (BLM IM 2012-044) – to conserve Greater Sage-Grouse populations and their habitat– and the objectives for the land use planning area. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of the ARMPA. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface ownership/management, and will help inform where finer-scale evaluations are needed, such as population areas smaller than an RMP or PACs within an RMP (described in Fine and Site Scales). Data will also include the trend of disturbance within these areas of interest to inform the need to initiate adaptive management responses as described in the ARMPA.

The BLM will coordinate with the State of Wyoming in evaluating the compliance of all actions within a Greater Sage-Grouse core area. Evaluation of current disturbance, disruptions and conservation actions within a SG core area will be conducted to determine if all entities are in compliance with their specific standards and whether or not it indeed has not caused declines of Greater Sage-Grouse populations. This approach also helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines, without excluding the possibility of concurrent, finer-scale evaluations as needed where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the Greater Sage-Grouse national planning strategy, the BLM will evaluate the answers to the following questions and prepare a broad- and mid-scale effectiveness report:

- I. Sagebrush Availability and Condition:
 - a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
 - b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre-EuroAmerican historical distribution of sagebrush (BpS)?
 - c. What is the trend and condition of the indicators describing sagebrush characteristics important to Greater Sage-Grouse?
2. Habitat Degradation and Intensity of Activities:
 - a. What is the amount of habitat degradation and the change in that amount?
 - b. What is the intensity of activities and the change in the intensity?
 - c. What is the amount of reclaimed energy-related degradation and the change in the amount?
 - d. What is the population estimation of Greater Sage-Grouse and the change in the population estimation?
3. How is the BLM contributing to changes in the amount of sagebrush?
4. How is the BLM contributing to disturbance?

The compilation of broad- and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule (see Attachment A), which may be accelerated to respond to critical emerging issues (in consultation with the USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and inform the BLM adaptive management strategy (**Section 6** of this appendix).

To determine the effectiveness of the Greater Sage-Grouse objectives of the land use plan, the BLM will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the Greater Sage-Grouse habitat objectives?
2. Are Greater Sage-Grouse areas within the ARMPA meeting, or making progress toward meeting, land health standards, including the Special Status Species/wildlife habitat standard?
3. Is the plan meeting the disturbance objective(s) within Greater Sage-Grouse areas?
4. Are the Greater Sage-Grouse populations within this plan boundary and within the Greater Sage-Grouse areas increasing, stable, or declining?

The effectiveness monitoring report for this ARMPA will occur on a 5-year reporting schedule (see Attachment A) or more often if habitat or population anomalies indicate the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS web portal and the geospatial gateway.

Methods

At the broad and mid scales (PACs and above) the BLM will summarize the vegetation, disturbance, and (when available) population data. Although the analysis will try to summarize results for PACs within each Greater Sage-Grouse population, some populations may be too small to report the metrics appropriately and may need to be combined to provide an estimate with an acceptable level of accuracy. Otherwise, they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the Greater Sage-Grouse areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas owing to successful restoration; and the amount of new disturbance the BLM has permitted. These data could be supplemented with population data (when available) to inform an understanding of the correlation between habitat and PACs within a population. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, National Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will use the information from Measure 1a (I.B.I., Sagebrush Availability) and calculate the change from the 2012 baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (I.B.I., Sagebrush Availability) will be used. To calculate the trend in the condition of sagebrush at the mid-scale, three sources of data will be used: the BLM's Grass/Shrub mapping effort (Future Plans in **Section B.1.**, Sagebrush Availability); the results from the calculation of the landscape indicators, such as patch size (described below); and the BLM's Landscape Monitoring Framework (LMF) and Greater Sage-Grouse intensification effort (also described below). The LMF and Greater Sage-Grouse intensification effort data are collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to Greater Sage-Grouse, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for Greater Sage-Grouse dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal, and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid scales will be used, along with the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with the NRCS. The objective of the LMF effort is to provide unbiased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM-administered lands. Recognizing that Greater Sage-Grouse populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of Greater Sage-Grouse (Knick and Connelly 2011, Stiver et al. in press), a group of Greater Sage-Grouse habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform Greater Sage-Grouse habitat needs. The experts represented the Agricultural Research Service, BLM, NRCS, USFWS, WAFWA, state wildlife agencies, and academia. The common indicators identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of Greater Sage-Grouse, additional plot locations in occupied Greater Sage-Grouse habitat (Sage-Grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS National Resources Inventory Rangeland Resource Assessment (<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?&cid=stelprdb1041620>).

The Greater Sage-Grouse intensification baseline data will be collected over a 5-year period, and an annual Greater Sage-Grouse intensification report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report, which will be available on an annual basis thereafter, contingent on continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the National Planning Strategy Effectiveness Report.

Calculating Question 2, National Planning Strategy Effectiveness: Evaluations of the amount of habitat degradation and the intensity of the activities in the area of interest will use the information from Measure 2 (**Section B.2.**, Habitat Degradation Monitoring) and Measure 3 (**Section B.3.**, Energy and Mining Density). The field office will collect data on the amount of reclaimed energy-related degradation on plugged and abandoned and oil/gas well sites. The data are expected to demonstrate that the reclaimed sites have yet to meet the habitat restoration objectives for Greater Sage-Grouse habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the National Planning Strategy Effectiveness Report.

Calculating Question 3, National Planning Strategy Effectiveness: The change in Greater Sage-Grouse estimated populations will be calculated from data provided by the state wildlife agencies, when available.

This population data (**Section C.**, Population [Demographics] Monitoring) will be used to answer Question 3 of the National Planning Strategy Effectiveness Report.

Calculating Question 4, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of sagebrush in the area of interest will use the information from Measure 1a (**Section B.1.**, Sagebrush Availability). This measure is derived from the national datasets that remove sagebrush (**Table C-4**). To determine the relative contribution of BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in the geographic areas of interest. This information will be used to answer Question 4 of the National Planning Strategy Effectiveness Report.

Calculating Question 5, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of disturbance in the area of interest will use the information from Measure 2a (**Section B.2.**, Monitoring Habitat Degradation) and Measure 3 (**Section B.3.**, Energy and Mining Density). These measures are all derived from the national disturbance datasets that degrade habitat (**Table C-7**). To determine the relative contribution of BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in the geographic areas of interest. This information will be used to answer Question 5 of the National Planning Strategy Effectiveness Report.

Answers to the five questions for determining the effectiveness of the national planning strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad-scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence that the objectives of the national planning strategy to maintain populations and their habitats have been met. Conversely, where information indicates that sagebrush is decreasing and vegetation conditions are degrading, disturbance in Greater Sage-Grouse areas is increasing, and/or populations are declining relative to the baseline, there is evidence that the objectives of the national planning strategy are not being achieved. Such a determination would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

With respect to the land use plan area, the BLM will summarize the vegetation, disturbance, and population data to determine if the ARMPA is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM surface management areas and will help inform where finer-scale evaluations are needed, such as seasonal habitats, corridors, or linkage areas. Data will also include the trend of disturbance within the Greater Sage-Grouse areas, which will inform the need to initiate adaptive management responses as described in the ARMPA.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting land health standards (as articulated in “BLM Handbook 4180-1, Rangeland Health Standards”) in Greater Sage-Grouse areas will be used to determine the ARMPA’s effectiveness in meeting the vegetation objectives for Greater Sage-Grouse habitat set forth in the plan. The field office/ranger district will be responsible for collecting this data. In order for this data to be consistent and comparable, common indicators, consistent methods, and an unbiased sampling framework will be implemented following the principles in the BLM’s AIM strategy (Taylor et al. 2014; Toevs et al. 2011; MacKinnon et al. 2011), in the BLM’s Technical Reference “Interpreting Indicators of Rangeland Health” (Pellant et al.

2005), and in the HAF (Stiver et al. in press) or other approved WAFWA MZ—consistent guidance to measure and monitor Greater Sage-Grouse habitats. This information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: Greater Sage-Grouse areas within the ARMPA that are achieving land health stands (or, if trend data are available, that are making progress toward achieving them)—particularly the Special Status Species/wildlife habitat land health standard—will be used to determine the ARMPA’s effectiveness in achieving the habitat objectives set forth in the plan. Field offices will follow directions in “BLM Handbook 4180-1, Rangeland Health Standards,” to ascertain if Greater Sage-Grouse areas are achieving or making progress toward achieving land health standards. One of the recommended criteria for evaluating this land health standard is the HAF indicators.

Calculating Question 3, Land Use Plan Effectiveness: The amount of habitat disturbance in Greater Sage-Grouse areas identified in the ARMPA will be used to determine the ARMPA’s effectiveness in meeting the plan’s disturbance objectives. National datasets can be used to calculate the amount of disturbance, but field office data will likely increase the accuracy of this estimate. This information will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Calculating Question 4, Land Use Plan Effectiveness: The change in estimated Greater Sage-Grouse populations will be calculated from data provided by the state wildlife agencies, when available, and will be used to determine ARMPA effectiveness. This population data (**Section C.**, Population [Demographics] Monitoring) will be used to answer Question 4 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the ARMPA will be used to inform the need for finer-scale investigations, initiate adaptive management actions as described in the ARMPA, initiate causation determination, and/or determine if changes to management decisions are warranted. The measures used at the broad and mid scales will provide a suite of characteristics for evaluating the effectiveness of the adaptive management strategy.

Fine and Site Scales

Fine-scale (third-order) habitat selected by Greater Sage-Grouse is described as the physical and geographic area within home ranges during breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect Greater Sage-Grouse use of, and movements between, seasonal use areas. The habitat monitoring at the fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for Greater Sage-Grouse associated with a lek or lek group within a population or subpopulation area. Fine- and site-scale monitoring will inform the ARMPA effectiveness monitoring (see **Section D.**, Effectiveness Monitoring) and the hard and soft triggers identified in the ARMPA’s adaptive management section.

The BLM will coordinate with the State of Wyoming to share conservation, disturbance and vegetation analysis data to provide a core by core evaluation to make necessary adjustments in activity, priorities and other actions.

Site-scale habitat selected by Greater Sage-Grouse is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of sagebrush and the associated understory vegetation. They also include vegetation associated with

riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support Greater Sage-Grouse habitat needs during different stages in their annual cycle.

As described in the Conclusion, details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan for the ARMPA. The need for fine- and site-scale-specific habitat monitoring will vary by area, depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine- and site-scale monitoring include habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluation of the success of projects targeting Greater Sage-Grouse habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM's AIM strategy (Toevs et al. 2011) and in "AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy" (Taylor et al. 2014). Approved monitoring methods are: "BLM Core Terrestrial Indicators and Methods" (MacKinnon et al. 2011); The BLM's Technical Reference "Interpreting Indicators of Rangeland Health" (Pellant et al. 2005); and, "Sage-Grouse Habitat Assessment Framework: Multiscale Assessment Tool" (Stiver et al. in press).

Other state-specific disturbance tracking models include: the BLM's Wyoming DDCT (<http://ddct.wygisc.org/>) and the BLM's White River Data Management System in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine- and site-scale Greater Sage-Grouse habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) Greater Sage-Grouse guidelines as well as many of the core indicators in the AIM strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF; any such adjustments should be ecologically defensible. To foster consistency, however, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for making those adjustments. That justification should be provided. WAFWA MZ adjustments must be supported by regional plant productivity and habitat data for the floristic province. If adjustments are made to the site-scale indicators, they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from Greater Sage-Grouse studies found in the relevant area and peer-reviewed by the appropriate wildlife management agency(ies) and researchers.

When conducting land health assessments, the BLM should follow, at a minimum, "Interpreting Indicators of Rangeland Health" (Pellant et al. 2005) and the "BLM Core Terrestrial Indicators and Methods" (MacKinnon et al. 2011). For assessments being conducted in Greater Sage-Grouse designated management areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and rollup analysis among management units; help provide consistent data to inform the classification and interpretation of imagery; and provide condition and trend of the indicators describing sagebrush characteristics important to Greater Sage-Grouse habitat (see **Section D.**, Effectiveness Monitoring).

Conclusion

This Greater Sage-Grouse Monitoring Framework was developed for all of the RMPs involved in the Greater Sage-Grouse planning effort. As such, it describes the monitoring activities at the broad and mid scales and provides a guide for the BLM to collaborate with partners/other agencies to develop the ARMPA's specific monitoring plan.

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LITERATURE CITED

- Baruch-Mordo, S., J.S. Evans, J.P. Severson, D.E. Naugle, J.D. Maestas, J.M. Kiesecker, M.J. Falkowski, C.A. Hagen, and K.P. Reese. 2013. Saving sage-grouse from the trees: A proactive solution to reducing a key threat to a candidate species. *Biological Conservation* 167:233–241.
- Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation assessment of Greater Sage-Grouse and sagebrush habitats. Unpublished report. Western Association of Fish and Wildlife Agencies, Cheyenne, WY. Available at http://sagemap.wr.usgs.gov/docs/Greater_Sage-grouse_Conservation_Assessment_060404.pdf.
- Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of Greater Sage-Grouse habitats and populations. Station Bulletin 80. College of Natural Resources Experiment Station, University of Idaho, Moscow, ID.
- Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage-grouse populations and their habitats. *Wildlife Society Bulletin* 28:967–985.
- Davies, K.W., C.S. Boyd, J.L. Beck, J.D. Bates, T.J. Svejcar, and M.A. Gregg. 2011. Saving the sagebrush sea: An ecosystem conservation plan for big sagebrush plant communities. *Biological Conservation* 144:2573–2584.

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- Fry, J.A., G. Xian, S. Jin, J.A. Dewitz, C.G. Homer, L. Yang, C.A. Barnes, N.D. Herold, and J.D. Wickham. 2011. Completion of the 2006 National Land Cover Database for the conterminous United States. *PE&RS* 77(9):858–864.
- Garton, E.O., J.W. Connelly, J.S. Horne, C.A. Hagen, A. Moser, and M. Schroeder. 2011. Greater Sage-Grouse population dynamics and probability of persistence. In: *Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats*, edited by S.T. Knick and J.W. Connelly, 293–382. *Studies in Avian Biology*, vol. 38. University of California Press, Berkeley, CA.
- Grove, A.J., C.L. Wambolt, and M.R. Frisina. 2005. Douglas-fir's effect on mountain big sagebrush wildlife habitats. *Wildlife Society Bulletin* 33:74–80.
- Gruell, G.E., J.K. Brown, and C.L. Bushey. 1986. Prescribed fire opportunities in grasslands invaded by Douglas-fir: State-of-the-art guidelines. General Technical Report INT-198. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, UT. 19pp.
- Harju, S.M., M.R. Dzialak, R.C. Taylor, L.D. Hayden-Wing, J.B. Winstead. 2010. Thresholds and time lags in effects of energy development on Greater Sage-Grouse populations. *Journal of Wildlife Management* 74(3):437–448.
- Hemstrom, M. A., M. J. Wisdom, M. M. Rowland, B. Wales, W. J. Hann, and R. A. Gravenmier. 2002. Sagebrush-steppe vegetation dynamics and potential for restoration in the Interior Columbia Basin, USA. *Conservation Biology* 16:1243–1255.
- Homer, C.G., C.L. Aldridge, D.K. Meyer, M.J. Coan, and Z.H. Bowen. 2009. Multiscale sagebrush rangeland habitat modeling in southwest Wyoming: U.S. Geological Survey Open-File Report 2008–1027. 14pp.
- Johnson, D.H. 1980. The comparison of usage and availability measurements for evaluating resource preference. *Ecology* 61:65–71.
- Knick, S.T., and J.W. Connelly (editors). 2011. *Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats*. *Studies in Avian Biology*, vol. 38. University of California Press, Berkeley, CA.
- Knick, S.T., and S.E. Hanser. 2011. Connecting pattern and process in Greater Sage-Grouse populations and sagebrush landscapes. In: *Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats*, edited by S.T. Knick and J.W. Connelly, 383–405. *Studies in Avian Biology*, vol. 38. University of California Press, Berkeley, CA.
- Knick, S.T., S.E. Hanser, R.F. Miller, D.A. Pyke, M.J. Wisdom, S.P. Finn, E.T. Rinkes, and C.J. Henny. 2011. Ecological influence and pathways of land use in sagebrush. In: *Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats*, edited by S.T. Knick and J.W. Connelly, 203–251. *Studies in Avian Biology*, vol. 38. University of California Press, Berkeley, CA.

- LANDFIRE: LANDFIRE Existing Vegetation Type layer. (2013, June – last update.) U.S. Department of the Interior, U.S. Geological Survey. [Online.] Available at: <http://landfire.cr.usgs.gov/viewer/> [2013, May 8].
- Leu, M., and S.E. Hanser. 2011. Influences of the human footprint on sagebrush landscape patterns: implications for sage-grouse conservation. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 253–271. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.
- MacKinnon, W.C., J.W. Karl, G.R. Toevs, J.J. Taylor, M. Karl, C.S. Spurrier, and J.E. Herrick. 2011. BLM core terrestrial indicators and methods. Tech Note 440. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.
- Manier, D.J., D.J.A Wood, Z.H. Bowen, R.M. Donovan, M.J. Holloran, L.M. Juliusson, K.S. Mayne, S.J. Oyler-McCance, F.R. Quamen, D.J. Saher, and A.J. Titolo. 2013. Summary of science, activities, programs, and policies that influence the rangewide conservation of Greater Sage-Grouse (*Centrocercus urophasianus*): U.S. Geological Survey Open–File Report 2013–1098. 170pp.
- NatureServe. 2011. International ecological classification standard: Terrestrial ecological classifications. NatureServe Central Databases, Arlington, VA. Data current as of July 31, 2011.
- Ong, S., C. Campbell, P. Denholm, R. Margolis, and G. Heath. 2013. Land-use requirements for solar power plants in the United States. National Renewable Energy Laboratory, U.S. Department of Energy Technical Report NREL/TP-6A20-56290. 39pp. Available at: <http://www.nrel.gov/docs/fy13osti/56290.pdf>.
- Pellant, M., P. Shaver, D.A. Pyke, and J.E. Herrick. 2005. Interpreting indicators of rangeland health, version 4. Technical Reference 1734-6. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver, CO. BLM/WO/ST-00/001+1734/REV05. 122pp.
- Perry, J. Personal communication. February 12, 2014.
- Pyke, D.A. 2011. Restoring and rehabilitating sagebrush habitats. In: Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats, edited by S.T. Knick and J.W. Connelly, 531–548. Studies in Avian Biology, vol. 38. University of California Press, Berkeley, CA.
- Schroeder, M.A., C.L. Aldridge, A.D. Apa, J.R. Bohne, C.E. Braun, S.D. Bunnell, J.W. Connelly, P.A. Deibert, S.C. Gardner, M.A. Hilliard, G.D. Kobriger, S.M. McAdam, C.W. McCarthy, J.J. McCarthy, D.L. Mitchell, E.V. Rickerson, and S.J. Stiver. 2004. Distribution of sage-grouse in North America. Condor 106: 363–376.
- 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. Unpublished report. Western Association of Fish and Wildlife Agencies, Cheyenne, WY. Available at <http://www.wafwa.org/documents/pdf/GreaterSage-grouseConservationStrategy2006.pdf>.

Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. In press.

Sage-grouse habitat assessment framework: Multiscale habitat assessment tool. Bureau of Land Management and Western Association of Fish and Wildlife Agencies. Technical Reference. U.S. Department of the Interior, Bureau of Land Management, Denver, CO.

Taylor, J., E. Kachergis, G. Toevs, J. Karl, M. Bobo, M. Karl, S. Miller, and C. Spurrier. 2014. AIM-monitoring: A component of the BLM assessment, inventory, and monitoring strategy. Tech Note 445. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

Toevs, G.R., J.J. Taylor, C.S. Spurrier, W.C. MacKinnon, M.R. Bobo. 2011. Bureau of Land Management assessment, inventory, and monitoring strategy: For integrated renewable resources management. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO.

U.S. Department of Agriculture. National Agricultural Statistics Service Cropland Data Layer. {YEAR}. Published crop-specific data layer [online]. USDA-NASS, Washington, D.C. Available at <http://nassgeodata.gmu.edu/CropScape/> (accessed {DATE}; verified {DATE}).

United States Department of the Interior, Bureau of Land Management. 2001. Handbook H-4180-1, Release 4-107. Rangeland health standards handbook. Available at http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.61484.File.dat/h4180-1.pdf.

U.S. Department of the Interior, Bureau of Land Management. 2005. Wind Energy Development Programmatic Environmental Impact Statement (EIS). BLM Washington Office, Washington, D.C.

U.S. Department of the Interior, Bureau of Land Management. 2011. BLM national Greater Sage-Grouse land use planning strategy. Instruction Memorandum No. 2012-044. BLM Washington Office, Washington, D.C.

U.S. Department of the Interior, Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants; 12-month findings for petitions to list the Greater Sage-Grouse (*Centrocercus urophasianus*) as threatened or endangered. Proposed Rule. *Federal Register* 75: 13910–14014 (March 23, 2010).

U.S. Department of the Interior, Fish and Wildlife Service. 2013. Greater Sage-Grouse (*Centrocercus urophasianus*) conservation objectives: Final report. U.S. Fish and Wildlife Service, Denver, CO.

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Attachment A: An Overview of Monitoring Commitments

	Broad and Mid scales					Fine and Site Scales
	Implementa- tion	Sagebrush Availability	Habitat Degradation	Population	Effectiveness	
How will the data be used?	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to Greater Sage-Grouse habitat and inform adaptive management	Tracking trends in Greater Sage-Grouse populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
Who is collecting the data?	BLM Field Office (FO)	NOC and NIFC	National data sets (NOC), BLM FOs	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, (with partners) including disturbance
How often are the data collected, reported and made available to USFWS?	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with ARMPA evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
What is the spatial scale?	Summarized by ARMPA with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ, and ARMPA with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
What are the potential personnel and budget impacts?	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data mgmt. cost are TBD	At a minimum, current skills and capacity must be maintained; data mgmt. and data layer purchase cost are TBD	No additional personnel or budget impacts for BLM	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment
Who has primary and secondary responsibilities for reporting?	BLM FO & SO BLM Planning	NOC WO	NOC BLM SO & appropriate programs	WAFWA & state wildlife agencies BLM SO, NOC	Broad and mid-scale at the NOC, RMP at BLM SO	BLM FO, BLM SO
What new processes/tools are needed?	National implementation data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

Attachment B - List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and Bio-physical Settings Layers

Artemisia arbuscula subspecies longicaulis
Artemisia arbuscula subspecies longiloba
Artemisia bigelovii
Artemisia nova
Artemisia papposa
Artemisia pygmaea
Artemisia rigida
Artemisia
spinescens
Artemisia tripartita subspecies rupicola
Artemisia tripartita subspecies tripartita
Tanacetum nuttallii
Artemisia cana subspecies bolanderi
Artemisia cana subspecies cana
Artemisia cana subspecies viscidula
Artemisia tridentata subspecies wyomingensis
Artemisia tridentata subspecies tridentata
Artemisia tridentata subspecies vaseyana
Artemisia tridentata subspecies spiciformis
Artemisia tridentata subspecies xericensis
Artemisia tridentata variety pauciflora
Artemisia frigida
Artemisia pedatifida

Attachment C – User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
Snake River Plain	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0% user and producer accuracies, attributable to no available reference data for the ecological systems of interest.

User accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? Commission Error equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 – user's accuracy).

Producer accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? Omission Error equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 – producer's accuracy).

COT Objective 6: Prioritize, fund and implement research to address existing uncertainties

“Increased funding and support for key research projects that will address uncertainties associated with sage-grouse and sagebrush habitat management is essential. Effective amelioration of threats can only be accomplished if the mechanisms by which those threats are imposed on the redundancy, representation, and resilience of the species and its habitats are understood.” (COT report 2013)

In accordance with BLM policy, the Record of Decision and Approved Plan will establish intervals and standards for evaluations as part of the implementation strategy. Priorities will be established based on the identified threats in the planning area, the conservation objectives included as part of the Approved Plan, and any potential uncertainties associated with Greater Sage-Grouse and associated habitat management. A part of this strategy will include development of a budget to accomplish each of the identified tasks and fund potential research topics to address any uncertainties.

As new science pertaining to Greater Sage-Grouse and habitat is continuously evolving, refined management strategies may be necessary to ensure that BLM is utilizing the most current science, information, and data regarding Greater Sage-Grouse. It is for this reason that BLM has collaborated with the State of Wyoming and USFWS to develop an adaptive management strategy as a part of the planning process.

Wyoming Greater Sage-Grouse Adaptive Management Plan

The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat will be addressed before consequences become severe or irreversible. This adaptive management plan:

- Utilizes science-based soft and hard adaptive management triggers,
- Addresses multiple scales of data, and
- Utilizes an adaptive management working group.

Adaptive Management Triggers

Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting greater Sage-Grouse Conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.

Soft Triggers:

Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local Greater Sage-Grouse working groups will evaluate the metrics with the AMWG on an annual basis. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. The purpose of these strategies is to address localized Greater Sage-Grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.

Hard Triggers:

Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect.

Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60% of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40% of normal variability for a 3-year time period within a 5-year range of analysis. A minimum of 3 consecutive years in a 5-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).

Adaptive Management Response**Soft Triggers Response:**

Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short or long term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the AMWG will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or state-wide level.

Hard Trigger Response:

Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric that has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, National Technical Team reports, and National Policy Team guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM's planning regulations and policies.

Baseline Greater Sage-Grouse population levels are established by pre-disturbance surveys, reference surveys and accounting for regional and statewide trends in population levels. Population counts in Wyoming are maintained by the WGFD. Estimates of population are determined based upon survey protocols determined by the WGFD, and are implemented consistently throughout the state. Population counts are tracked for individual leks and then calculated for each core area (PHMA).

Interim Strategy

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team (see Implementation Groups below) will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric that has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, National Technical Team reports, and National Policy Team guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM's planning regulations and policies.

The interim strategy will be implemented for the biologically significant unit (BSU), which, in Wyoming, is the core area, regardless of whether the core area crosses multiple planning boundaries. If it has been identified that more than one core area has the same hard triggers being tripped, or is trending toward triggers being tripped, the interim strategy will be implemented at the appropriate scale.

Causal Factor Assessment

The causal factor assessment will be completed within 180 days of determination that a hard trigger threshold has been crossed. Once the causal factor assessment is completed by the AMWG, the interim response strategy will be modified to adequately address the causal factors in consultation with the technical team. If a causal factor or factors cannot be identified, the interim response strategy shall stay in place until the cause can be determined and any new planning decision can be implemented.

EIS LEVEL PROJECTS

Each major project (EIS level) will include adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming, and will be consistent with the Wyoming Greater Sage-Grouse Adaptive Management Plan. These adaptive management strategies will be developed in partnership with the AMWG, WGFD, project proponents, partners, and stakeholders, incorporating the best available science.

IMPLEMENTATION GROUPS**Sage-Grouse Implementation Team**

The State of Wyoming's strategy is implemented by the SGIT, established by Executive Order in 2008 and codified in 2014 by the Wyoming Legislature (W.S. § 9-19-101). The SGIT is a Governor appointed body with representation by federal agencies (BLM, Forest Service, USFWS, and NRCS), state agencies (WGFD, Department of Agriculture, Department of Environmental Quality, Wildlife and Natural Resource Trust Fund, Oil and Gas Conservation Commission, and Office of State Lands and Investments), the Wyoming Legislature, county governments, energy developers, mining companies, landowners, and nongovernmental organizations. The BLM, USFWS, NRCS and the Forest Service all have an equal role in the SGIT.

Land and Resource Management Plan – Implementation Teams

Land and Resource Management Plans are implemented through implementation teams. These implementation teams include cooperating agencies who participated in the development of this land use plan representing local, state, and federal agencies. These implementation teams will coordinate with the AMWG and others to evaluate metrics and management responses necessary to meet Greater Sage-Grouse conservation objectives within their planning area.

Adaptive Management Working Group and Technical Team

An AMWG will be established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority. The AMWG will include BLM, Forest Service, USFWS, and State of Wyoming. The purpose of this group will be to initiate a response strategy should it be determined that a hard trigger has been tripped or if soft triggers are showing a trend across a region. A hard trigger may be tripped at any time, thus, upon identification of such event, current available population and habitat data will be reviewed by the AMWG with the assistance of a technical team comprised of agency biologists, scientists familiar with the MZ in question, and other individuals as appropriate (e.g., habitat managers, respective landowners, other appropriate representatives) to confirm that a hard trigger has been tripped. Upon verification of data showing that a hard trigger has been tripped, the AMWG will convene within 14 days.

The AMWG will review monitoring data that has been collected by the appropriate local Greater Sage-Grouse working groups in conformance with data collection standards. This group will meet annually to review all data collected in the prior year regarding Greater Sage-Grouse populations and habitats. Monitoring data will have been analyzed (by WGFD for population-based metrics [leks, wing counts, etc.] and by land managers [BLM, Forest Service, State of Wyoming] for habitat-based metrics [DDCT, etc.]). Should the monitoring data suggest a trend toward a soft or hard trigger being tripped, they will 1. Identify what metric is indicating that trend (population or habitat); and 2. Identify a technical team to review the data and compile a range of activities that may be causing the trend. Should review of the monitoring data identify that multiple soft triggers have been tripped in one core area, or the same triggers have been tripped across multiple core areas, the technical team will be tasked with verifying the scope and intensity of the trends.

Once the analysis of the trends has been completed by the technical team and reported back to the AMWG, the AMWG will make recommendations to the appropriate land managing agency regarding an interim adaptive management strategy to be implemented. Implementation will occur via the appropriate regulations and policy applicable for that agency. At that time, the State of Wyoming will conduct a review of the regulatory authority implementing the Sage-Grouse Core Area Strategy to determine if a State of Wyoming adaptive management strategy is warranted.

Upon review of the annual data by the AMWG and technical team, the State of Wyoming, as part of the AMWG, will contact neighboring states within the respective MZ to inform them of any findings. Should a hard trigger be tripped, the trigger that has been tripped and any recommended adaptive management strategy being implemented will be shared with the appropriate neighboring state(s). Should the need arise for implementation of a multi-state adaptive management strategy; the AMWG will coordinate to develop an effective response.

The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved. This could result in returning to previous management once the objectives of the interim management strategy have been met. The AMWG would work in coordination with the SGIT and the Local Working Groups to ensure transparency and public involvement in the process.

SMALL LEKS

Small leks will be given special consideration. Due to geographic variations a definition of “small” is not provided, rather determination of “small” will be made by the AMWG based upon recommendations of the scientific community. Generally, “small” is considered 10 or fewer males for a 3-year time period within a 5-year range of analysis. If a trigger is hit based upon such a lek, then the adaptive management working group will evaluate the site-specific circumstances and determine appropriate remedial action.

GLOSSARY TERMS

Additionality: The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (BLM Manual Section 1794).

Avoidance mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20(a)) (e.g., may also include avoiding the impact by moving the proposed action to a different time or location.)

Compensatory mitigation: Compensating for the (residual) impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Compensatory mitigation projects: Specific, on-the-ground actions to improve and/or protect habitats (e.g., chemical vegetation treatments, land acquisitions, conservation easements).

Compensatory mitigation sites: The durable areas where compensatory mitigation projects will occur.

Durability (protective and ecological): The administrative, legal, and financial assurances that secure and protect the conservation status of a compensatory mitigation site, and the ecological benefits of a compensatory mitigation project, for at least as long as the associated impacts persist. (BLM Manual Section 1794).

Minimization mitigation: Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR 1508.20 (b))

Residual impacts: Impacts from an authorized land use that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Timeliness: The conservation benefits from compensatory mitigation accruing as early as possible or before impacts have begun. (BLM Manual Section 1794).

Appendix D

Cumulative Effects Supporting Information

Appendix D. Cumulative Effects Supporting Information

D.I RANGEWIDE IMPACTS FROM PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

Table I represents the past, present, and reasonably foreseeable actions across the entire range for Greater Sage-Grouse, which are separated by state. When assessing the cumulative impact of the RMPA/EIS on Greater Sage-Grouse and its habitat, there are multiple geographic scales that the BLM has considered, including the appropriate WAFWA MZ. WAFWA MZs have biological significance to Greater Sage-Grouse. Established and delineated in 2004 in the *Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats* (Connelly et al. 2004), the WAFWA MZs are based on floristic provinces that reflect ecological and biological issues and similarities, not political boundaries.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Great Basin		
Habitat Restoration Programmatic EIS	Great Basin-wide programmatic habitat restoration project	Programmatic document effects will be realized when the field implements projects. This action will provide opportunities to improve and enhance habitat through vegetation treatments.
Fuel Breaks Programmatic EIS	Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects. This action will help to reduce the loss of habitat due to catastrophic fires.
Northwest Colorado		
Integrated program of work	Habitat restoration and improvement projects	Potential localized, short-term, adverse impacts on Greater Sage-Grouse habitat, with beneficial long-term impacts. Actions are consistent with those foreseen in the 2015 Final EIS and are therefore within the range of cumulative effects analyzed in the 2015 Final EIS.
Travel management	White River Field Office: Area-wide travel designations being considered through an ongoing plan amendment Little Snake Field Office: Travel Management plan, identifying route designations consistent with criteria in the 2015 LUPA	These actions represent implementation of objectives from 2015 ARMPA to prioritize travel management in Greater Sage-Grouse habitat. Impacts are covered in the cumulative impacts of the 2015 Final EIS as reasonably foreseeable.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Continued oil and gas development	Disturbance and fragmentation	Development is consistent with the reasonably foreseeable development scenarios analyzed as part of the 2015 Final EIS and the associated field office RMPs. Additional impacts are expected to be within the range analyzed in 2015 Final EIS cumulative impacts analysis.
<i>Plans</i>		
Northwest Colorado Programmatic Vegetation Treatment Environmental Assessment (DOI-BLM-CO-N000-2017-0001-EA) decision	Programmatic NEPA document for streamlining habitat treatments in sagebrush	
Idaho		
Wildland fires 2015–2017	BLM: Past acres burned on BLM-administered land	534,744 acres of HMA burned since the ROD was signed in 2015. Post-fire rehabilitation was implemented. Too soon to determine the effectiveness of rehabilitation.
Habitat treatments 2015–2017	BLM: Past habitat improvement projects	431,295 acres treated to restore or improve potential Greater Sage-Grouse habitat. Too soon to determine the effectiveness of treatment.
ROWs issued 2015–2017	BLM: Past ROWs issued on BLM-administered land	97 ROWs were issued in the planning area but fewer than 10 were in Greater Sage-Grouse habitat and resulted in new habitat loss. The effects were mitigated, using the mitigation hierarchy.
Soda Fire restoration	BLM: Present habitat restoration and fuel break construction	Restoration of previously burned Greater Sage-Grouse habitat. Results in a net benefit to Greater Sage-Grouse habitat.
Twin Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Idaho Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Natural gas-producing well near Weiser, Idaho	Private: Present active gas well on private land	Well is not in Greater Sage-Grouse habitat.
Conifer removal	NRCS: Present (2018) 1,862 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Weed treatments	NRCS: Present (2018) 95 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2018) 21,308 feet of pipeline and 40 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows.
Pending ROWs 2015–2017	BLM: Future ROW under analysis on BLM-administered land	123 ROW applications have been submitted and are pending review and analysis.
Boise District Vegetation Project	BLM: Future habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions result in a net benefit to Greater Sage-Grouse habitat.
Tristate Fuel Breaks Project	BLM: Future Greater Sage-Grouse habitat protection	Fuel breaks would protect habitat from wildfires. Some sagebrush may be lost during fuel break construction. Results in a net benefit to Greater Sage-Grouse habitat.
Bruneau-Owyhee Sage-Grouse Habitat Project	BLM: Future removal of juniper encroaching into Greater Sage-Grouse habitat	Bruneau-Owyhee Sage-Grouse Habitat Project would remove encroaching juniper from Greater Sage-Grouse habitat and render the habitat usable for Greater Sage-Grouse. Results in a net benefit to Greater Sage-Grouse habitat.
Conifer removal	NRCS: Future (2019–2023) 5,541 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.
Weed treatments	NRCS: Future (2019–2023) 357 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2019–2023) 82,502 feet of pipeline and 46 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows.
Nevada and Northeast California		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM administered land	Approximately 1.3 million acres of HMA burned between 2015-2017. Post-fire restoration is being implemented as described below.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	1.8 million acres of habitat are either currently being treated or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Habitat Treatments	BLM: Past – Habitat improvement projects	Over 176,000 acres of Greater Sage-Grouse habitat was treated between 2015-2017 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	227 ROWs were issued in the planning area between 2015-2017. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy.
	BLM: Future pending	85 ROW applications are pending review and analysis. New ROWs would be held to the compensatory mitigation process described in this Proposed RMPA/Final EIS. However, no additional impacts from those described in the Draft EIS and 2015 Final EIS are expected. In addition, BLM Nevada is also currently evaluating a proposed withdrawal for expansion of the Fallon Naval Air Station, Fallon Range Training Complex for defense purposes.
Oil and Gas	BLM: Past	BLM has offered for lease 425,711 acres in HMAs; 407,478 of that total was leased. Lease stipulations apply as described in the leases according to HMA category.
	BLM: Past and Future	BLM's scheduled lease sale on June 12, 2018 included offering a total 110,556 acres of HMAs for lease. After the sale, 30,591 acres in HMA were sold. On September 11, 2018, BLM held another lease sale, where 13,163 acres in HMA were sold. The final lease sale of 2018 for BLM Nevada is scheduled for December 11, 2018 and this sale will not include any parcels within HMA for lease.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Geothermal	BLM: Past and Present	Between 2015 and 2017, the BLM has offered for lease 24,468 acres within HMAs. Lease stipulations apply as described in the leases as analyzed in the 2015 Final EIS. Six geothermal development permits have been approved and drilled on existing pads on existing leases. McGinness Hills Phase 3 Environmental Assessment authorized up to 42 acres of disturbance on existing leases, which will be offset according to the mitigation hierarchy.
Geothermal	Forest Service: Future Pending	6,901 acres of HMA pending Forest Service concurrence to lease, no pending geothermal development permits. If in HMAs, stipulations would be as described in 2015.
Locatable Mineral Projects	BLM: Past and Present	Between 2015 and 2017, the BLM has approved 18 new mines and/or expansions in the planning area, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
	BLM: Future Pending	The BLM is currently reviewing 20 plans of development for new mines or expansions, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
Fuel Breaks Programmatic EIS	BLM: Future – Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects.
Sage-Grouse Conservation	Forest Service- Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they propose alignment with state management plans and strategies.
Oregon		
Emergency Stabilization and Rehabilitation in South Bull Ridge RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2017).
Emergency Stabilization and Rehabilitation in South Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).
Emergency Stabilization and Rehabilitation in North Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Trout Creek Mountain	Grazing permit renewal	Grazing permit renewal allotment includes the East Fork Trout Creek Research Natural Area (2016).
Utah		
Fire and Fuels		
Wildland Fires 2015-2017	Acres burned on BLM administered land	<p>Approximately 61,262 acres of PHMA/GHMA burned between 2015-2017. Post-fire restoration is being implemented across all population areas that are affected.</p> <p>Effects: Potential loss of habitat value due to the removal of vegetation by fire.</p>
Fire Restoration (Emergency Stabilization and Rehabilitation)	Acres of habitat restoration following wildland fires	<p>Approximately 173,100 acres of HMA were treated/restored between 2015-2017. All of these acres are being restored in according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire across all population areas that are affected.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p>
Vegetation		
Habitat Treatments	Acres of habitat improvement projects	<p>Past: Over 219,000 acres of Greater Sage-Grouse habitat was treated between 2015-2017 to maintain or improve conditions for Greater Sage-Grouse across all populations. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p> <p>Future: Over 524,702 acres of Greater Sage-Grouse habitat is being proposed for treatment over the next 5 years. Treatments will include conifer removal, fuel breaks, invasive species removal and habitat protection/restoration across all populations.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Lands and Realty		
Land Use and Realty (issued and pending) 2015-2018	ROWs issued or pending on BLM land	<p>Past: 841 ROWs were issued in the planning area between 2015 and 2017.</p> <p>Effect: This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy.</p> <p>Future: 380 ROW applications are pending review and analysis.</p> <p>Effect: New ROWs would be held to the compensatory mitigation process described in this Proposed RMPA/Final EIS. However, no additional impacts from those described in the Draft EIS and 2015 Final EIS are expected.</p>
Zephyr Transmission Line	500 kV transmission line	<p>Application received – could impact the Bald Hills, Uintah, Carbon, Strawberry, Emery, and Sheeprocks populations.</p> <p>Effects: May remove vegetation due to construction activities. Towers may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>
Parker Knoll Pump Storage Hydroelectric Federal Energy Regulatory Commission Project	Create electricity using a two-reservoir, gravity-fed system; approximately 200 acres of Greater Sage-Grouse habitat would be lost; mitigation involves Greater Sage-Grouse habitat-improvement work in areas adjacent to the lost habitat.	<p>Still in planning and pre-NEPA stages – could impact the Parker Mountain population.</p> <p>Effects: May remove vegetation due to construction activities. Increased maintenance activities could lead to an increase in collision mortalities. Any associated tall structures may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Enefit Utility Project	Five rights-of-way across public lands for infrastructure (a road, 3 pipelines, and 2 powerlines) to support development of a mine on private lands. Estimated 1,037 acres of disturbance for the rights-of-way (7,000-9,000 acre mine and 320-acre processing plant).	<p>ROD issued in September 2018. Issuance and constructions of ROWs still pending – could impact the Uintah population.</p> <p>Effects: May remove vegetation due to construction activities. Increased maintenance activities could lead to an increase in collision mortalities. Any associated tall structures may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>
Leasable Minerals (Oil and Gas, Non-energy Leasable Minerals, Coal, and Oil Shale and Tar Sands)		
Oil and Gas Leases	Acres of BLM land leased for Oil and Gas development	<p>Past: From 2105-2017 the BLM has leased approximately 25,000 acres in HMAs, of which approximately 25 of those acres were located in PHMA. Lease stipulations apply as described in the leases according to HMA category.</p> <p>Effects: The act of leasing would have no direct effect.</p> <p>Future: The BLM is required to conduct quarterly lease sales which could include parcels in HMA. Lease stipulations would still be as described in 2015 until a decision is made on this RMPA/EIS.</p> <p>Effect: The act of leasing would have no direct effect, as no specific disturbance is taken as a result of purchasing a lease.</p> <p>Leasing could occur in any of the populations, but would be most likely to impact the Uintah, Carbon, Emery, and Rich populations due to mineral potential.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Oil and Gas Wells	Oil and Gas exploration and development	<p>Based upon the reasonable and foreseeable development assumptions in Chapter 4, it is anticipated that 2,968 oil and gas wells will be drilled within occupied Greater Sage-Grouse habitat within the population areas, of which 2,289 wells are anticipated to be producing wells. Exploration wells expected in all populations. Development wells anticipated in Uintah, Carbon, Emery, and Rich populations.</p> <p>Effect: The development of wells within these areas could lead to fragmentation and loss of habitat due to construction activities. Increased noise levels associated with traffic and compressors may impact lek attendance. Increased traffic associated with day-to-day operations may also increase the potential for collision mortality. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>
Asphalt Ridge Tar Sands Development	Lease approximately 6,000 acres of Tar Sands Lands described in the Asphalt Ridge Tract, which is directly adjacent to existing approximately 16,000 acres of State leases	<p>Still in planning and NEPA stages – could impact the Uintah population.</p> <p>Effect: As a largely underground operation on BLM-administered lands, this would disturb a small amount of land associated with ancillary features. On the portions of the mine that would be mined through surface means, habitat would be lost and noise, dust, and light would affect adjacent areas.</p>
Flat Canyon Coal Lease by application	The Flat Canyon Coal Lease Tract is approximately 2, 692 acres of federal coal reserves	<p>Forest Service completed the consent to BLM. Approximately 23 acres out of the 2,692 acres are within the Emery Population Area.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Alton Coal Tract Lease-by-Application	Add 3,576 acres of federal surface or mineral estate to existing 300-acre mine on private land.	<p>ROD issued in August 2018. Lease and development of the mine still pending – could impact the Panguitch population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Williams Draw Coal Lease by Application	The proposed action includes 4,200 acres of federal surface and mineral estate; the proposal may have several vents, drilling exploration holes on the surface and underground, and load-out facilities	<p>Still in planning and NEPA stages; could impact the Carbon population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Greens Hollow Coal Lease by Application	Proposal includes 6,700 acres; a vent is proposed off site; minimal surface disturbances with the exception for exploration drilling	<p>The area has been leased, but development is on hold due to litigation. Would affect the Emery population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Flat Canyon Coal Lease by Application	Lease by Application 3,792 acres; and Exploration License, 595 acres	<p>Leased and under production in the Carbon population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Gilsonite Leasing	16,810 acres that are currently under prospecting permit application; the permits would either be issued or a Known Gilsonite Leasing Area would be established, thus allowing competitive leasing	<p>The prospecting permit applications have been in place since the late 1980s; Known Gilsonite Leasing Area report ongoing, after which NEPA will begin to address backlogs for these areas in the Uintah population.</p> <p>Effect: Activities associated with development or prospecting of the permit / lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Phosphate Fringe Acreage Lease	1,627 acres of fringe acreage lease on BLM-administered lands	<p>NEPA has started and awaiting a Development Scenario to complete the NEPA for this area in the Uintah population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Phosphate Competitive Lease Application	1,186 acres on National Forest System lands	<p>NEPA has started and awaiting a Development Scenario to complete the NEPA for this area in the Uintah population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Other Items		
Hard Rock Prospecting Permits being considered on Bankhead Jones	Hard rock exploration permits	<p>Pending Consideration for this area in the Sheeprocks population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat, vehicle mortality due to increased traffic and disruption of seasonal use areas. Most of these impacts should be removed by management standards identified in the selected alternative.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Gooseberry Narrows Reservoir	Bureau of Reclamation project on Forest Service and private land; project is approximately 1,200 acres	<p>EIS is complete, pending EPA review and approval for this portion of the Carbon population.</p> <p>Effect: Activities associated with construction and operation of the reservoir would result in loss of habitat within the project area and a potential increase for vehicle mortality due to increased traffic. However, the habitat lost within the project area may be supplemented by improving the quality and seasonal functionality of the adjacent habitat. Most of the impacts should be removed by management standards identified in the selected alternative.</p>
Motorized Travel Plan Implementation	Implementation of motorized route designation plans across the planning region	<p>Implementation actions underway statewide, with travel planning reasonably foreseeable in the Sheeprocks, Uintah, Carbon and Panguitch populations.</p> <p>Effect: The development of a motorized travel plan would potential help to reduce fragmentation of habitat and centralizing disturbance into areas of lesser importance.</p>
Grand Staircase-Escalante National Monument Management Plan	Development of a resource management plan	<p>Draft EIS issued in August 2018. Still in planning stages for this area that overlaps the Panguitch population.</p> <p>Effect: This action would provide a framework to manage both the remaining monument areas and the areas no longer within the monument boundaries. It is too early in the process to determine a cumulative effect since the proposed plan is unknown.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Forest Service Sage-Grouse Planning	Forest Service and Utah Division of Wildlife Resources	<p>Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they propose alignment with state management plans and strategies. Applicable to all Greater Sage-Grouse populations with National Forest System Lands.</p> <p>Effect: This effort will help to align the Forest Service's plan to be more consistent with the State of Utah's plan and provide the adequate management actions necessary to protect and conserve the Greater Sage-Grouse.</p>
State of Utah Greater Sage-Grouse Management	Update of the State's Conservation Plan for Greater Sage-Grouse in Utah, as well as implementation of the State's compensatory mitigation rule	<p>Past: The Conservation Plan for Greater Sage-Grouse in Utah was finalized in 2013; it was designed to be updated every 5 years. While it requires a 4:1 mitigation ratio in the State's Sage-Grouse Management Areas (SGMA), there was no established approach to implement that mitigation process to the State's 11 SGMAs.</p> <p>Effect: The plan establishes the management actions necessary for the State of Utah to continue to enhance and conserve the Greater Sage-Grouse while still allowing for economic opportunities.</p> <p>Future: The State is updating their Greater Sage-Grouse plan and incorporating the compensatory mitigation rule that provides a process to develop a banking system to apply the state's 4:1 mitigation ratio that is designed to improve habitat for Greater Sage-Grouse.</p> <p>Effect: This effort will help to refine and identify areas to improve management actions and allow for the incorporation of new and local science to better balance Greater Sage-Grouse management across the state. It will also provide an opportunity for economic development to occur while offsetting the impacts to habitat quality.</p>

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Wyoming		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM administered land	Approximately 137,000 acres of HMA burned between 2015 and 2017. Post-fire restoration and habitat treatments are being implemented, as described below, to diminish impacts of habitat lost to wildland fire.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	Approximately 4,030 acres of BLM-administered habitat are either currently being treated or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.
Habitat Treatments	BLM: Past – Habitat improvement projects	More than 96,000 acres of Greater Sage-Grouse habitat were treated between 2015 and 2017 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/ restoration.
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	BLM Wyoming issued approximately 3,000 ROWs in the planning area between 2015-2017. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	There are approximately 590 ROW applications pending review and analysis. New ROWs under the Proposed Plan would align with the management prescriptions of the Core Area Strategy and State of Wyoming Mitigation Framework. No additional cumulative impacts are anticipated, beyond those described.
Oil and Gas	BLM: Past	BLM Wyoming has offered for lease 861,634 acres; 812,123 acres of that total was leased. Leases followed management prescriptions in the RMPs and ARMPA and stipulations apply as described in the leases according to HMA category.
	BLM: Future pending	BLM Wyoming has a scheduled lease sale in June 2018 that will offer 198,588 acres for lease. The actions in the Proposed Plan to not propose to change stipulations analyzed in the 2014 and 2015 plans.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Locatable Mineral Projects	BLM: Past and Present	Between 2015-2017, the BLM has approved 17 new mines and/or expansions within the planning area (including non-habitat). The Proposed Plan does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed on the existing plans.
	BLM: Future pending	The BLM is currently reviewing 26 plans of operation for new mines, mine expansions and notice-level activities. This number also includes 10 pending mine patents, which are in the process of being patented into private ownership. The Proposed Plan does not propose changes to any decisions associated with locatable minerals, and future impacts would be analyzed in future EISs, adhering to existing requirements of the RMPs and ARMPA.
Leasable Mineral Projects (Coal)	BLM: Past and Present	Two coal lease modifications were issued in 2018, totaling 1,306.61 acres. For lease modifications occurring in Greater Sage-Grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	BLM Wyoming is currently reviewing 4 coal lease applications/modifications totaling 10,148.56 acres. No management decisions for leasable minerals are proposed for change under the Proposed Plan.
Greater Sage-Grouse Conservation	Forest Service: Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they will propose alignment with state management plans and strategies.

D.2 CUMULATIVE EFFECTS ANALYSIS – HABITAT AND ALLOCATION DECISION SUMMARIES FOR THE NO-ACTION AND PROPOSED PLAN AMENDMENT ALTERNATIVES BY MANAGEMENT ZONE

Data representing the final plan allocation decisions and habitat delineations collected by the BLM upon the completion of the 2015 planning process have been updated or corrected relative to the final allocation decisions from the 2015 plans to reflect maintenance-related changes, adaptive management responses, or refined source data. The BLM used these data to represent the No-Action Alternative for the current plan analysis. The BLM then identified 2015 data which are not subject to change in any alternatives associated with the 2018 planning process. These data were carried forward as the alternative allocation decision data. The BLM was also able to provide allocation decision data representing changes included in the 2018 Proposed RMPAs/Final EISs, which were then used in the comparative analysis. Decision data are summarized by habitat type within each Management Zone (MZ) (see **Figure 1**) and are presented in this appendix in both approximate acreage of BLM-administered lands within each habitat designation as well as percent of BLM-administered lands within a habitat designation to which an allocation decision applies. For programs where allocation decisions change, information is presented separately. In cases where no change has occurred, both alternatives are presented together. The BLM Montana is currently not undergoing a plan amendment process; however, data were included in this cumulative effects summary. A summary of data submitted for this analysis can be found in Table 1, detailing which areas did not provide data for analysis. In these cases, summaries reflect submitted data only. All figures and tables are intended for MZ summary purposes only. They represent data available at the time of consolidation and may be revised as plans are finalized. Consult each individual EIS for final/official acreages.

Table 2
Data Submission Summary for Cumulative Effects Analysis. Y = Data submitted, N = No data submitted, followed by which area within the State that did not provide data.

Program Area	Colorado	Idaho	Montana & The Dakotas	Nevada/NE California	Oregon	Utah	Wyoming
Geothermal Energy	Y	Y	N – Miles City, Lewistown, Billings, UMRBNM	Y	N	Y	N – Bighorn Basin
Land Tenure	Y	Y	Y	Y	N	Y	Y
Livestock Grazing	Y	Y	Y	Y	Y	Y	Y
Locatable Minerals	Y	Y	Y	Y	Y	Y	Y
Non-Energy Leasable Minerals	Y	Y	N – Miles City, Billings	Y	N	Y	N – Bighorn Basin, Buffalo, Wyoming (9-Plan)
Fluid Mineral Leasing (Oil & Gas)	Y	Y	N - Lewistown	Y	N	Y	Y
Rights-of-Ways	Y	Y	Y	Y	N	Y	Y
Salable-Mineral Materials Disposals	Y	Y	Y	Y	N	Y	Y
Solar Energy	Y	Y	Y	Y	N	Y	N – Bighorn Basin, Buffalo, Lander, Wyoming (9-Plan)
Trails and Travel Management	Y	Y	Y	Y	N	Y	Y
Wind Energy	Y	Y	Y	Y	N	Y	Y

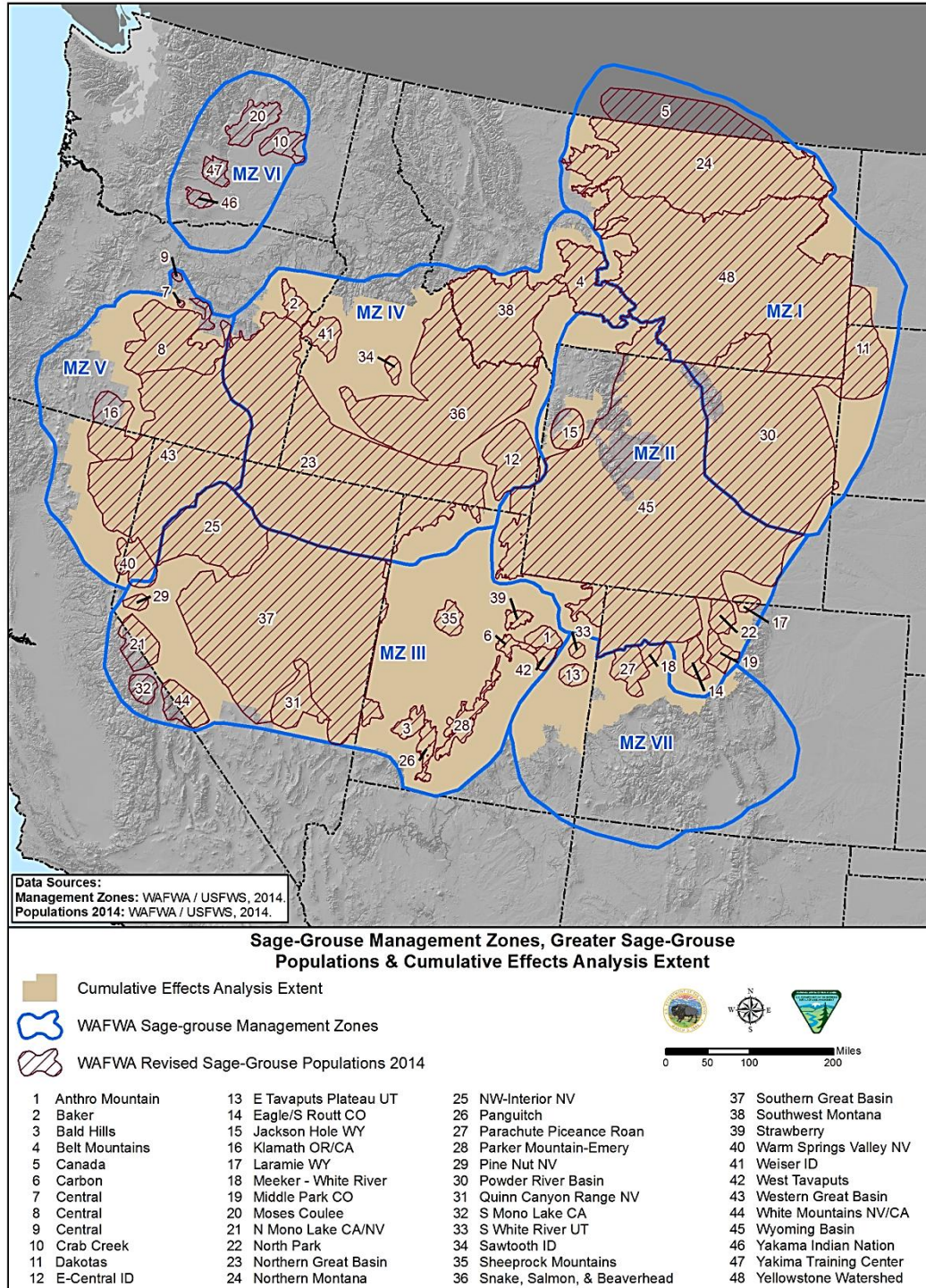


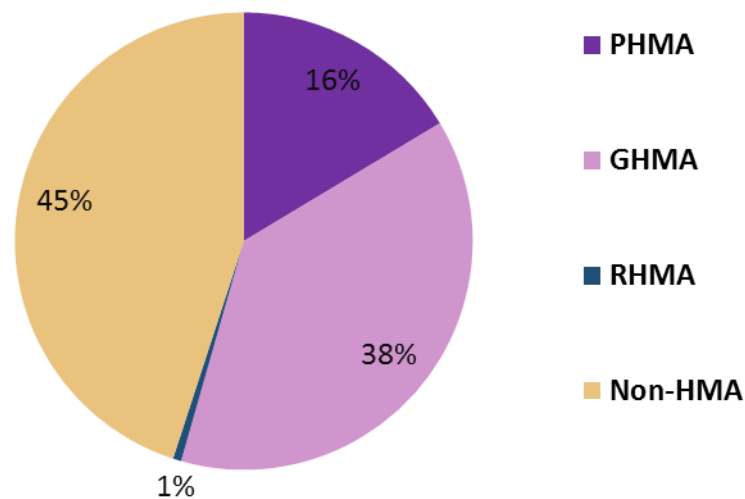
Figure I – Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations

D.2.1 Management Zone I – Wyoming, Montana, North Dakota, South Dakota**I. Habitat Management****Table 3 – Habitat Management Areas within MZ I**

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ I							
No Action				Management Alignment			
PHMA	GHMA	RHMA ¹	Non-HMA	PHMA	GHMA	RHMA	Non-HMA
12,122,000	28,339,000	437,000	33,467,000	12,122,000	28,339,000	437,000	33,467,000
Approximate Percent of MZ I that is HMA							
No Action				Management Alignment			
PHMA	GHMA	RHMA	Non-HMA	PHMA	GHMA	RHMA	Non-HMA
16%	38%	1%	45%	16%	38%	1%	45%

**No Action & Management Alignment- MZ I -
Habitat Management Areas within the Planning
Area**

**Figure 2 - Habitat Management Areas within MZ I**

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

¹ Restoration Habitat Management Area (RHMA)

II. Geothermal Energy

Table 4 – Geothermal Energy Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

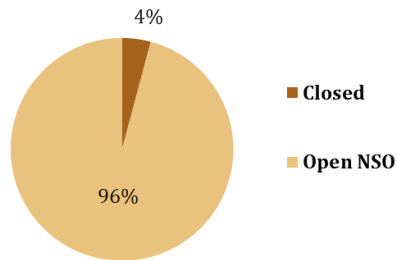
¹ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

They represent data available at the time of consolidation and may be revised as Plans are finalized.

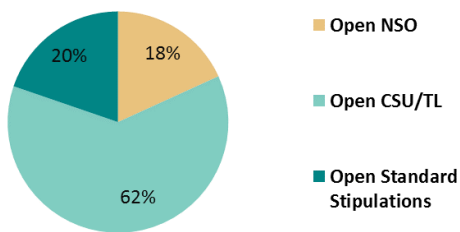
Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Decisions¹ in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	86,000	0	NA	86,000	172,000
Open NSO	1,988,000	130,000	NA	230,000	2,349,000
Open CSU/TL	0	443,000	NA	1,071,000	1,514,000
Open Standard Stipulations	0	141,000	NA	372,000	514,000
Total	2,074,000	714,000	NA	1,760,000	4,548,000
Approximate % of Habitat Management Area by Geothermal Decision¹ within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	4%	0%	NA	5%	4%
Open NSO	96%	18%	NA	13%	52%
Open CSU/TL	0%	62%	NA	61%	33%
Open Standard Stipulations	0%	20%	NA	21%	11%
Total	100%	100%	NA	100%	100%

**No Action & Management Alignment -
PHMA - Geothermal Energy**



**No Action & Management Alignment - GHMA -
Geothermal Energy**



**No Action & Management Alignment - Non-
HMA - Geothermal Energy**

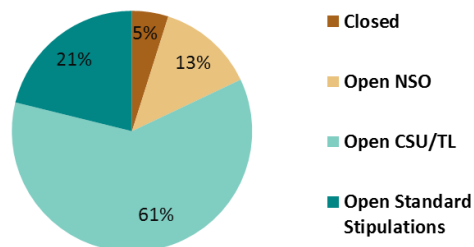


Figure 3 – Geothermal Energy Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ¹ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

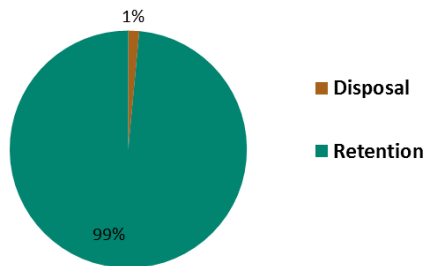
III. Land Tenure

Table 5 – Land Tenure Decisions within MZ I

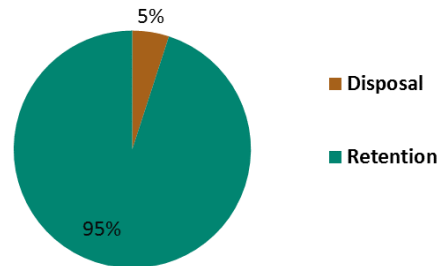
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ I by Habitat Management Area Type					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	49,000	167,000	0	143,000	359,000
Retention	3,259,000	2,997,000	159,000	1,538,000	7,953,000
Total	3,308,000	3,164,000	159,000	1,681,000	8,312,000
Approximate % of Habitat Management Area by Land Tenure Decision within Habitat in MZ I					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	1%	5%	0%	9%	4%
Retention	99%	95%	100%	91%	96%
Total	100%	100%	100%	100%	100%

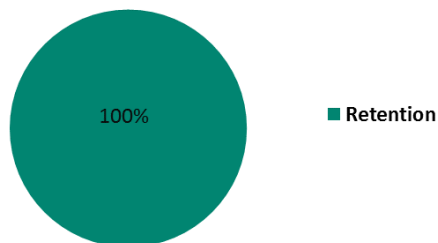
No Action & Management Alignment - PHMA
- Land Tenure



No Action & Management Alignment - GHMA - Land Tenure



No Action & Management Alignment - RHMA - Land Tenure



No Action & Management Alignment - Non-HMA - Land Tenure

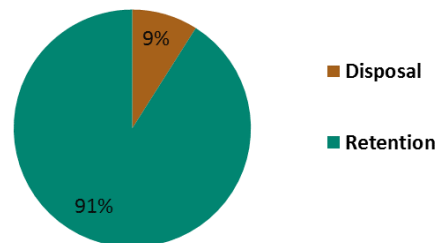


Figure 4 – Land Tenure Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IV. Livestock Grazing

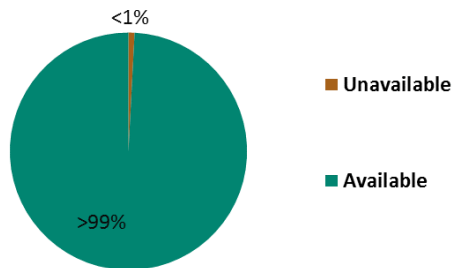
Table 6 – Livestock Grazing Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

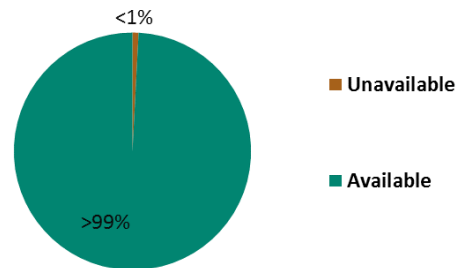
Approximate Acres of Livestock Grazing Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Unavailable	3,000	8,000	0	12,000	23,000
Available	3,303,000	3,186,000	158,000	1,632,000	8,279,000
Total	3,306,000	3,194,000	158,000	1,644,000	8,302,000

Approximate % of Habitat Management Area by Livestock Grazing Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Unavailable	<1%	<1%	0%	<1%	<1%
Available	100%	100%	100%	100%	100%
Total	100%	100%	100%	100%	100%

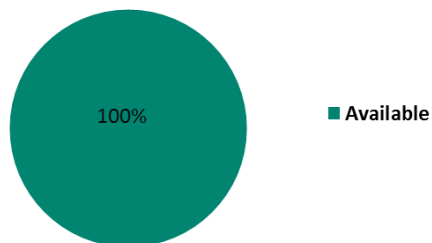
No Action & Management Alignment -
PHMA - Livestock Grazing



No Action & Management Alignment -
GHMA - Livestock Grazing



No Action & Management - RHMA -
Livestock Grazing



No Action & Management - Non-HMA -
Livestock Grazing

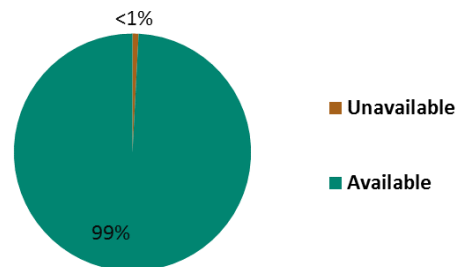


Figure 5 – Livestock Grazing Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

V. Locatable Minerals

Table 7 – Locatable Minerals Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages. ² MT Recommended Withdrawals Decisions in PHMA will be removed via plan maintenance.

Approximate Acres of Locatable Minerals Decisions² in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Existing Withdrawals	22,000	203,000	0	240,000	465,000
Recommended Withdrawals	1,094,000	166,000	0	46,000	1,306,000
Open	4,053,000	7,132,000	164,000	2,688,000	14,037,000
Total	5,169,000	7,501,000	165,000	2,974,000	15,808,000
Approximate % of Habitat Management Area by Locatable Minerals Decisions² within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Existing Withdrawals	<1%	3%	<1%	8%	3%
Recommended Withdrawals	21%	2%	0%	2%	8%
Open	79%	95%	100%	90%	89%
Total	100%	100%	100%	100%	100%

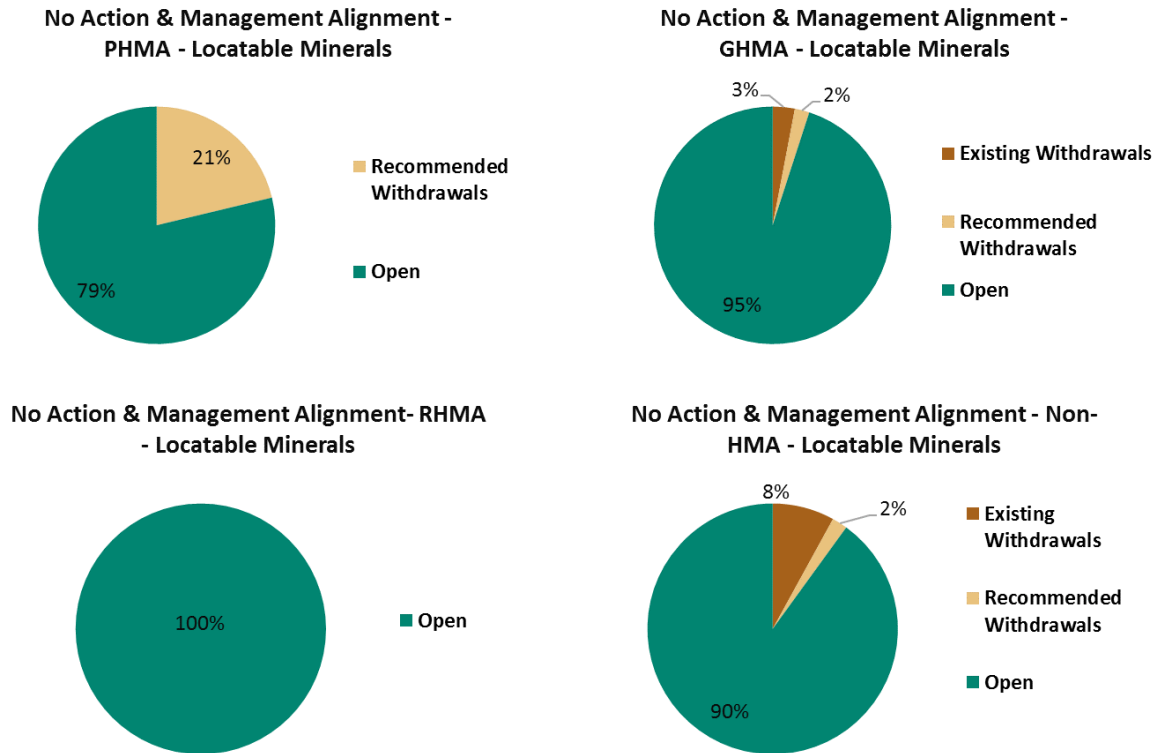


Figure 6 – Locatable Mineral Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages. ² MT Recommended Withdrawals Decisions in PHMA will be removed via plan maintenance.

VI. Non-Energy Leasable Minerals

Table 8 – Non-Energy Leasable Minerals Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

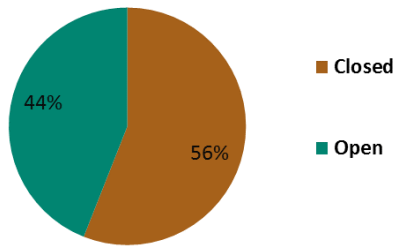
³ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

They represent data available at the time of consolidation and may be revised as Plans are finalized.

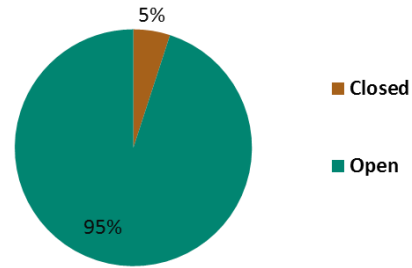
Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals³ Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	2,432,000	296,000	NA	355,000	3,083,000
Open	1,900,000	6,205,000	NA	2,463,000	10,568,000
Total	4,332,000	6,501,000	NA	2,818,000	13,651,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals³ Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	56%	5%	NA	13%	23%
Open	44%	95%	NA	87%	77%
Total	100%	100%	NA	100%	100%

No Action & Management Alignment- PHMA
- Non-Energy Leasable Minerals



No Action & Management Alignment -
GHMA - Non-Energy Leasable Minerals



No Action & Management Alignment - Non-
HMA - Non-Energy Leasable Minerals

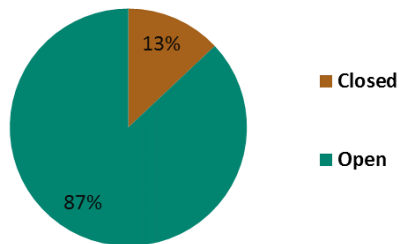


Figure 7 – Non-Energy Leasable Minerals Decisions within MZ I

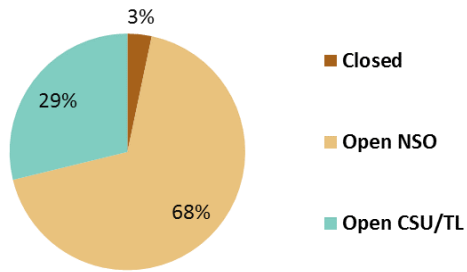
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ³ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 9 – Fluid Minerals (Oil & Gas) Decisions within MZ I**

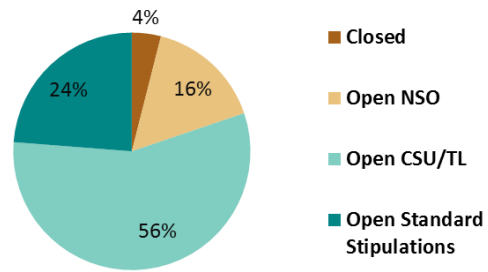
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁴Data not available for portions of MT. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Minerals (Oil a& Gas) Decisions⁴ in MZ I by Habitat Management Area Type					
Fluid Minerals (Oil and Gas)	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	196,000	328,000	0	346,000	870,000
Open NSO	3,730,000	1,485,000	228,000	406,000	5,849,000
Open CSU/TL	1,582,000	5,280,000	64,000	2,155,000	9,082,000
Open Standard Stipulations	0	2,223,000	0	744,000	2,967,000
Total	5,508,000	9,316,000	292,000	3,651,000	18,768,000
Approximate % of Habitat Management Area by Fluid Minerals (Oil a& Gas) Decision⁴ within Habitat in MZ I					
Fluid Minerals (Oil and Gas)	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3%	4%	0%	9%	5%
Open NSO	68%	16%	78%	11%	31%
Open CSU/TL	29%	57%	22%	59%	48%
Open Standard Stipulations	0%	24%	0%	20%	16%
Total	100%	100%	100%	100%	100%

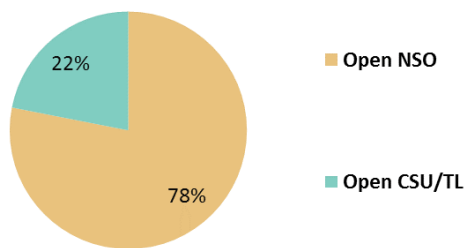
No Action & Management Alignment -
PHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment -
GHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment -
RHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment - Non-
HMA - Fluid Mineral Leasing (Oil & Gas)

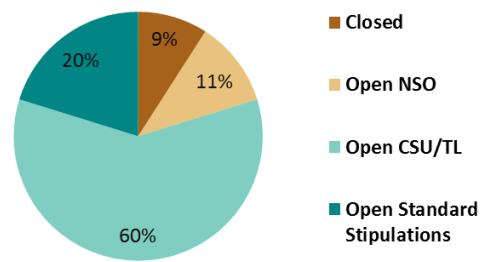


Figure 8 – Fluid Minerals (Oil & Gas) Decisions within MZ I

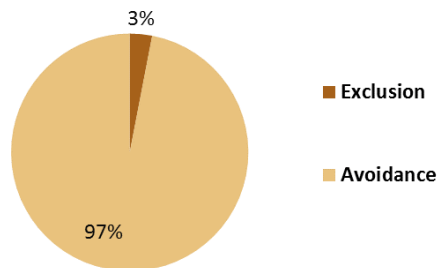
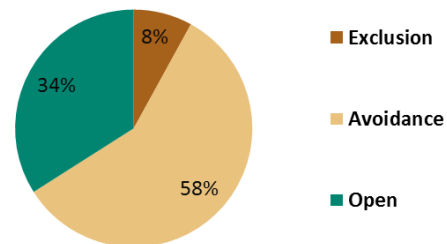
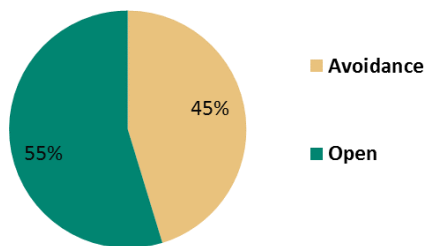
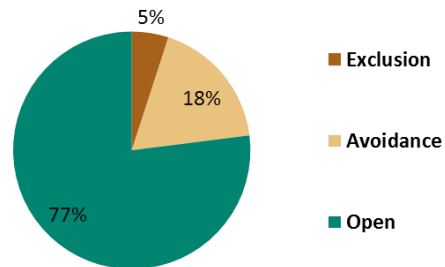
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁴Data not available for a portion of MT. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VIII. Rights-of-Ways

Table 10 – Rights-of-Ways Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	110,000	240,000	0	86,000	436,000
Avoidance	3,163,000	1,819,000	72,000	282,478	5,336,478
Open	5,000	1,067,000	87,000	1,206,000	2,364,000
Total	3,278,000	3,126,000	159,000	1,574,478	8,136,478
Approximate % of Habitat Management Area by Rights-of-Ways Decision within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	3%	8%	0%	5%	5%
Avoidance	97%	58%	45%	18%	66%
Open	0%	34%	55%	77%	29%
Total	100%	100%	100%	100%	100%

No Action & Management Alignment - PHMA - Rights of Ways**No Action & Management Alignment - GHMA - Rights of Ways****No Action & Management Alignment - RHMA - Rights of Ways****No Action & Management Alignment - Non-HMA - Rights of Ways****Figure 9 – Rights-of-Ways Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

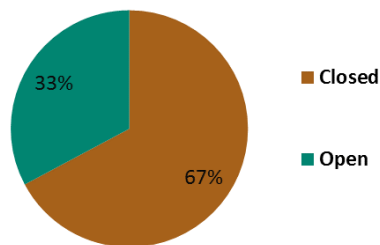
IX. Salable Minerals Materials

Table 11 – Salable Minerals Decisions within MZ I

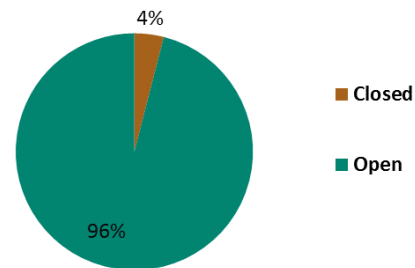
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3,870,000	402,000	9,000	424,000	4,705,000
Open	1,882,000	8,787,000	267,000	2,990,000	13,926,000
Total	5,752,000	9,189,000	276,000	3,414,000	18,631,000
Approximate % of Habitat Management Area by Salable Minerals Materials Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	67%	4%	3%	12%	25%
Open	33%	96%	97%	88%	75%
Total	100%	100%	100%	100%	100%

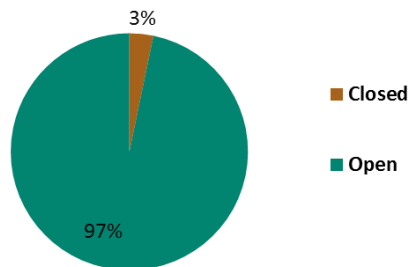
No Action & Management Alignment -
PHMA - Salable Minerals Materials



No Action & Management Alignment -
GHMA - Salable Minerals Materials



No Action & Management Alignment -
RHMA - Salable Minerals Materials



No Action & Management Alignment - Non-
HMA - Salable Minerals Materials

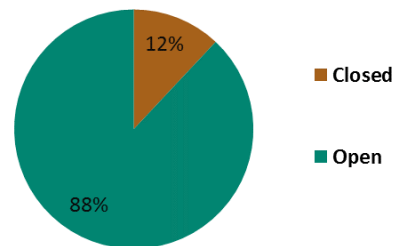


Figure 10 – Salable Minerals Materials Decisions within MZ I

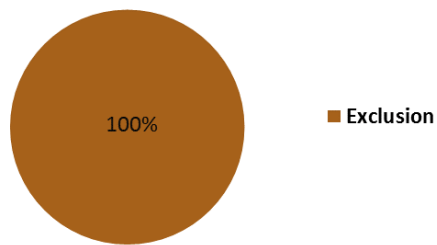
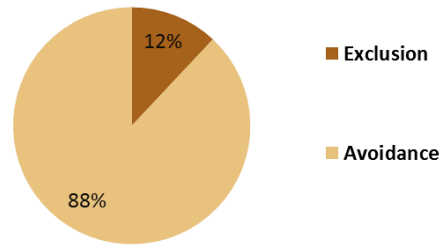
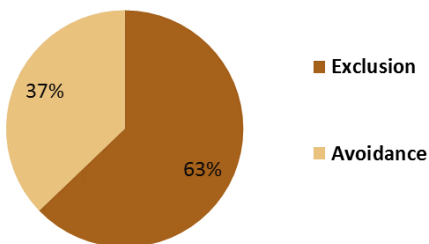
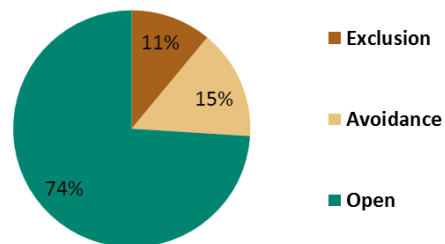
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

X. Solar Energy**Table 12 – Solar Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁵ Data not available for Wyoming. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions⁵ in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,709,000	249,000	93,000	239,000	3,290,000
Avoidance	0	1,844,000	55,000	172,000	2,071,000
Open	0	0	0	1,144,000	1,145,000
Total	2,709,000	2,093,000	148,000	1,555,000	6,506,000
Approximate % of Habitat Management Area by Solar Energy Decision⁵ within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	100%	12%	63%	11%	51%
Avoidance	0%	88%	37%	15%	32%
Open	0%	0%	0%	74%	18%
Total	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar EnergyNo Action & Management Alignment -
GHMA - Solar EnergyNo Action & Management Alignment -
RHMA - Solar EnergyNo Action & Management Alignment - Non-
HMA - Solar Energy**Figure 11 - Solar Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁵ Data not available for Wyoming. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XI. Trails and Travel Management**Table 13 – Trails and Travel Management Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	2,000	39,000	0	11,000	52,000
Limited	3,306,000	3,125,000	159,000	1,655,000	8,245,000
Open	0	0	0	0	0
Total	3,308,000	3,164,000	159,000	1,666,000	8,297,000
Approximate % of Habitat Management Area by Trails and Travel Management Decision within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	0%	1%	0%	1%	1%
Limited	100%	99%	100%	99%	99%
Open	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%

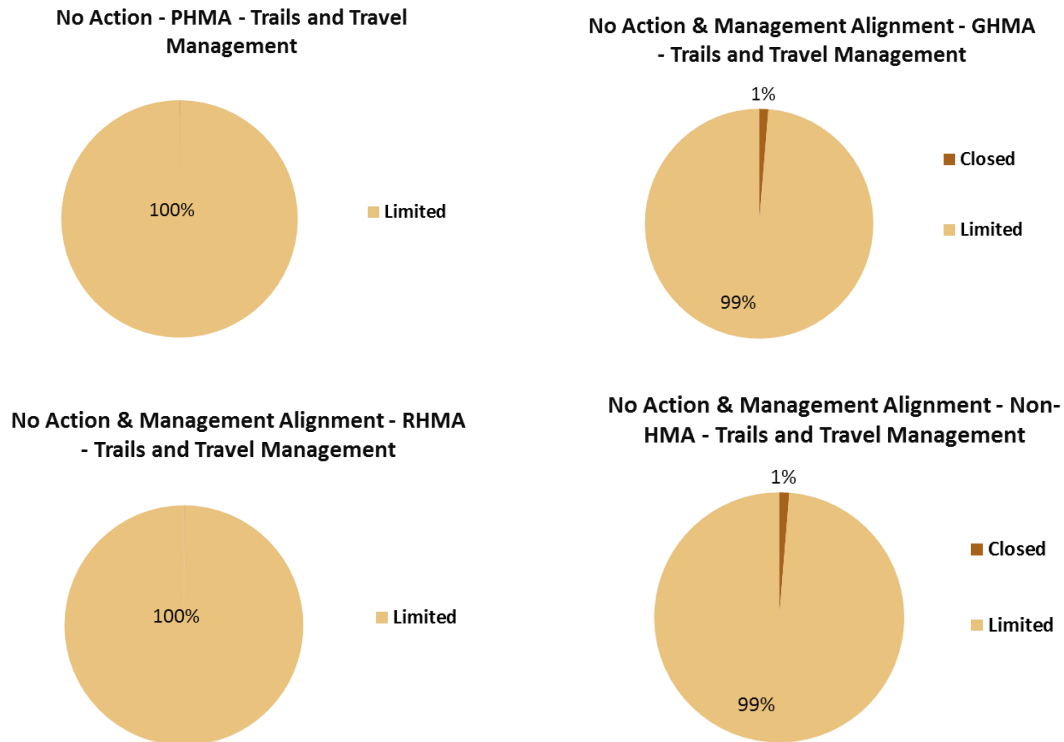


Figure 12 – Trails and Travel Management Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

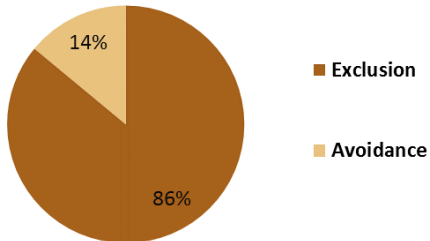
XII. Wind Energy

Table 14 – Wind Energy Decisions within MZ I

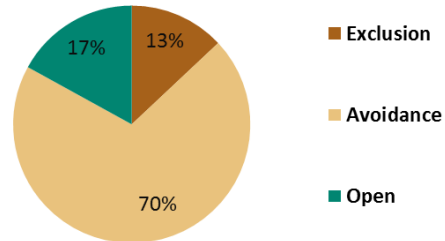
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,966,000	384,000	93,000	419,000	3,862,000
Avoidance	493,000	2,090,000	55,000	594,000	3,232,000
Open	0	513,000	0	655,000	1,168,000
Total	3,459,000	2,987,000	148,000	1,668,000	8,262,000
Approximate % of Habitat Management Area by Wind Energy Decision within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	86%	13%	63%	25%	47%
Avoidance	14%	70%	37%	36%	39%
Open	0%	17%	0%	39%	14%
Total	100%	100%	100%	100%	100%

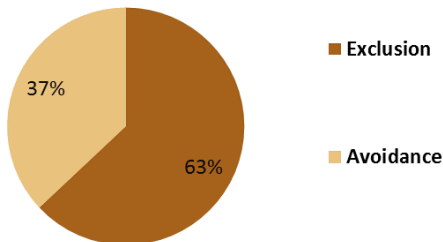
No Action & Management Alignment -
PHMA - Wind Energy



No Action & Management Alignment -
GHMA - Wind Energy



No Action & Management Alignment -
RHMA - Wind Energy



No Action & Management Alignment - Non-
HMA - Wind Energy

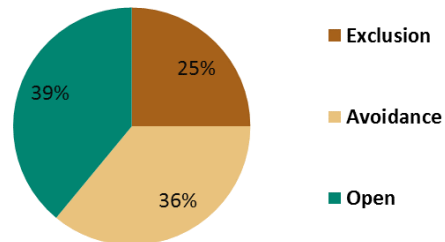


Figure 13 – Wind Energy Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

D.2.2 Management Zones II/VII – Wyoming, Colorado, Utah, Idaho

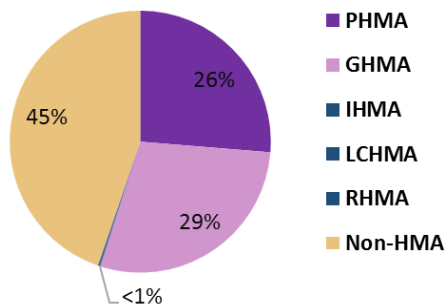
I. Habitat Management

Table 15 – Habitat Management Areas within MZs II/VII

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZs II/VII					
No Action					
PHMA	IHMA	GHMA	LCHMA ²	RHMA	Non-HMA
16,699,000	69,000	18,220,000	295,000	8,000	28,409,000
Management Alignment					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
16,664,000	69,000	17,394,000	295,000	8,000	29,270,000
Approximate Percent of MZs II/VII that is HMA					
No Action					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
26%	<1%	29%	<1%	<1%	45%
Management Alignment					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
26%	<1%	27%	<1%	<1%	46%

No Action - MZ II & VII - Habitat within the Planning Area



Management Alignment - MZ II & VII - Habitat within the Planning Area

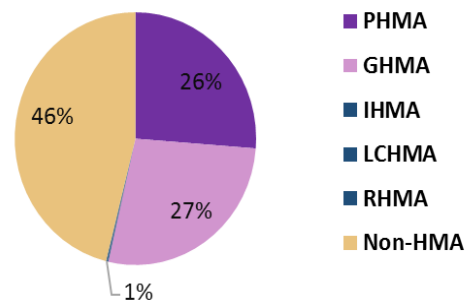


Figure 14 – Habitat Management Areas within MZs II/VII

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

² Linkage Connectivity Habitat Management Area (LCHMA)

II. Geothermal Energy

Table 16 – Geothermal Energy Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁶ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

They represent data available at the time of consolidation and may be revised as Plans are finalized.

Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Energy Decisions⁶ in MZ II/VII by Habitat Management Area Type							
Geothermal Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	781,000	1,000	285,000	1,000	NA	2,342,000	3,409,000
Open NSO	2,271,000	29,000	342,000	54,000	NA	1,917,000	4,615,000
Open CSU/TL	983,000	0	1,316,000	81,000	NA	3,511,000	5,891,000
Open Standard Stipulations	0	0	245,000	8,000	NA	2,407,000	2,660,000
Total	4,037,000	29,000	2,187,000	144,000	NA	10,179,000	16,575,000
Geothermal Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	565,000	1,000	260,000	1,000	NA	2,355,000	3,181,000
Open NSO	2,451,000	29,000	348,000	54,000	NA	1,923,000	4,804,000
Open CSU/TL	983,000	0	1,109,000	81,000	NA	3,719,000	5,891,000
Open Standard Stipulations	0	0	140,000	8,000	NA	2,512,000	2,660,000
Total	4,000,000	29,000	1,857,000	144,000	NA	10,509,000	16,538,000
Approximate % of Habitat Management Area by Geothermal Energy Decision⁶ in MZ II/VII							
Geothermal Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	19%	<1%	13%	1%	NA	23%	21%
Open NSO	56%	100%	16%	38%	NA	19%	28%
Open CSU/TL	24%	0%	60%	56%	NA	34%	36%
Open Standard Stipulations	0%	0%	11%	6%	NA	24%	16%
Total	100%	100%	100%	100%	NA	100%	100%
Geothermal Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	14%	<1%	14%	1%	NA	22%	19%
Open NSO	61%	100%	19%	38%	NA	18%	29%
Open CSU/TL	25%	0%	60%	56%	NA	35%	36%
Open Standard Stipulations	0%	0%	8%	6%	NA	24%	16%
Total	100%	100%	100%	100%	NA	100%	100%

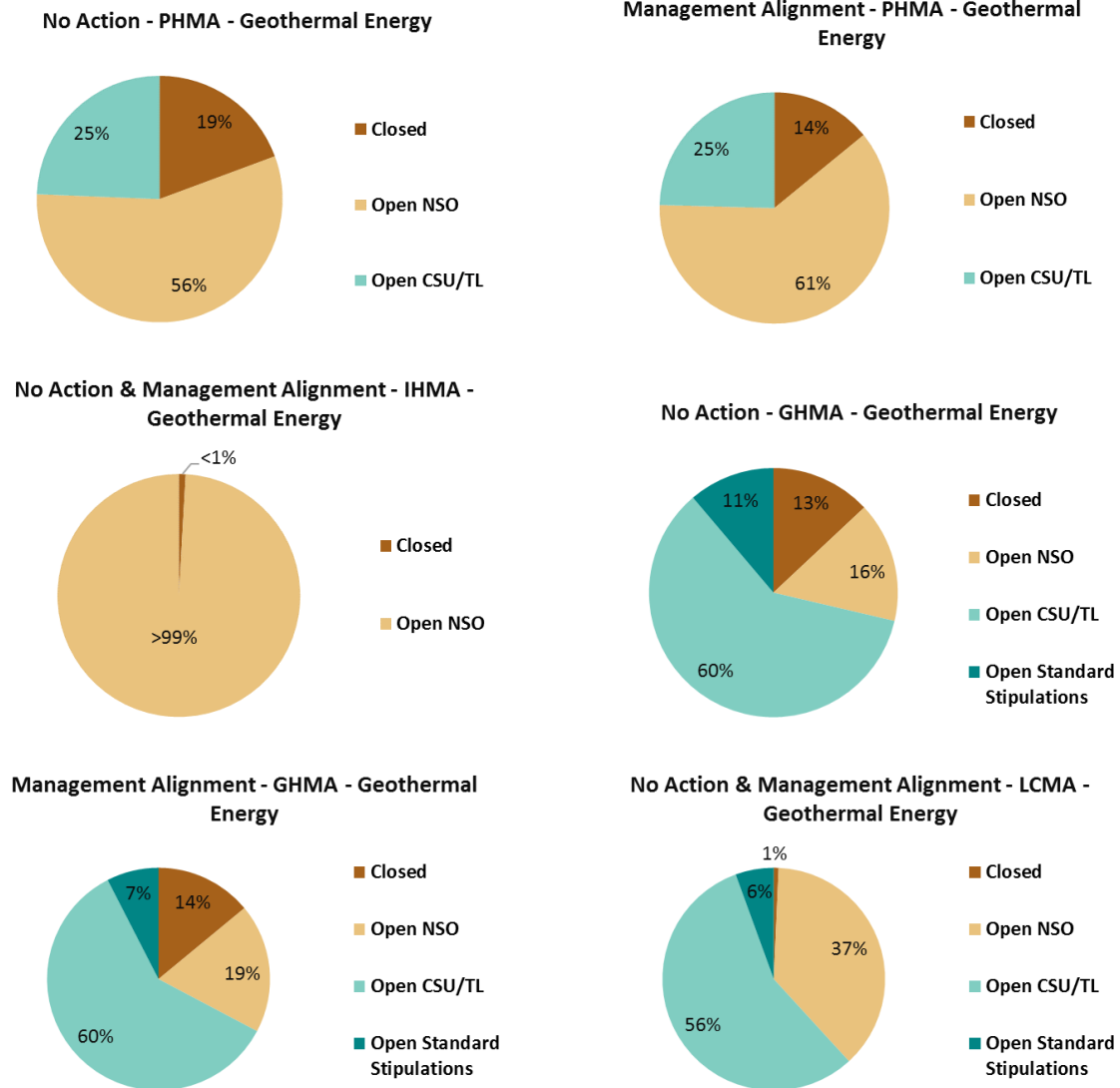
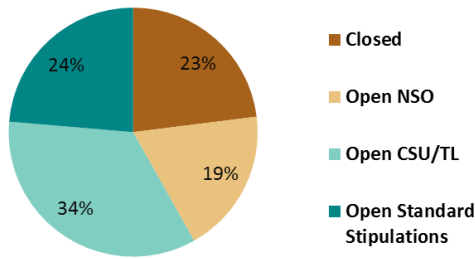


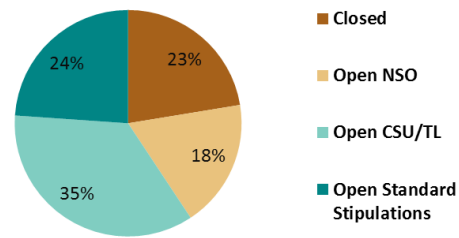
Figure 15 – Geothermal Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁶ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Geothermal Energy



Management Alignment - Non-HMA - Geothermal Energy

**Figure 15 (cont'd) - Geothermal Energy Decisions within MZ II/VII**

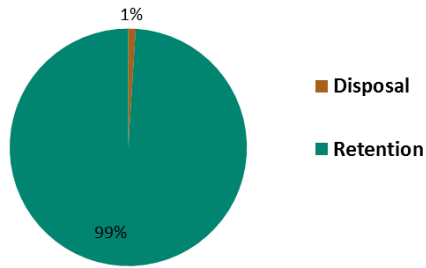
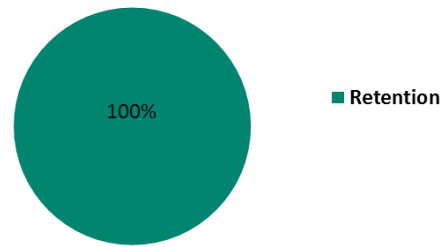
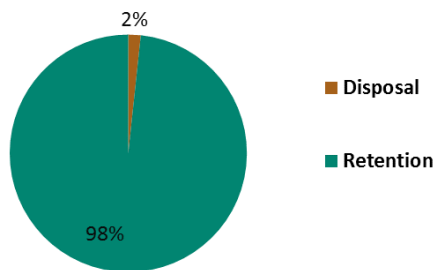
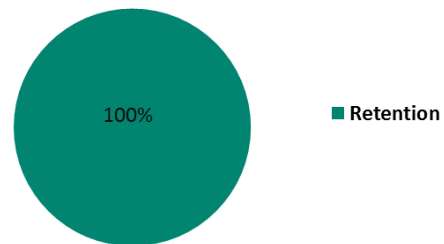
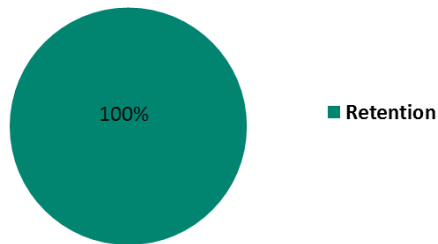
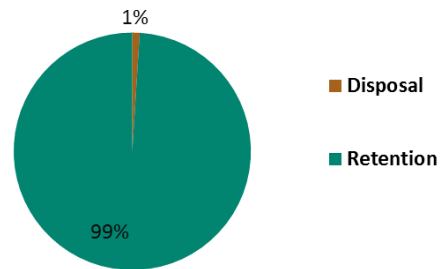
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁶ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

III. Land Tenure

Table 17 – Land Tenure Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ II/VII by Habitat Management Area Type							
Land Tenure	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Disposal	57,000	0	154,000	0	0	115,000	325,000
Retention	8,894,000	18,000	8,972,000	82,000	7,000	11,837,000	29,811,000
Total	8,951,000	18,000	9,126,000	82,000	7,000	11,952,000	30,136,000
Land Tenure	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Disposal	57,000	0	154,000	0	0	115,000	325,000
Retention	8,894,000	18,000	8,685,000	82,000	7,000	12,125,000	29,811,000
Total	8,951,000	18,000	8,839,000	82,000	7,000	12,239,000	30,136,000
Approximate % of Habitat Management Area by Land Tenure Decision in MZ II/VII							
Land Tenure	No Action & Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Disposal	1%	0%	2%	0%	0%	1%	1%
Retention	99%	100%	98%	100%	100%	99%	99%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Land TenureNo Action & Management Alignment - IHMA
- Land TenureNo Action & Management Alignment -
GHMA - Land TenureNo Action & Management Alignment -
LCHMA - Land TenureNo Action & Management Alignment -
RHMA - Land TenureNo Action & Management Alignment - Non-
HMA - Land Tenure**Figure 16 – Land Tenure Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IV. Livestock Grazing

Table 18 – Livestock Grazing Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ II/VII by Habitat Management Area Type							
Livestock Grazing	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	40,000	0	40,000	0	0	316,000	395,000
Available	8,872,000	18,000	9,069,000	81,000	7,000	8,193,000	26,241,000
Total	8,912,000	18,000	9,109,000	81,000	7,000	8,508,000	26,635,000
Livestock Grazing	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	40,000	0	40,000	0	0	316,000	395,000
Available	8,872,000	18,000	8,784,000	81,000	7,000	8,479,000	26,241,000
Total	8,912,000	18,000	8,824,000	81,000	7,000	8,794,000	26,635,000
Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ II/VII							
Livestock Grazing	No Action & Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	<1%	0%	<1%	0%	0%	4%	1%
Available	100%	100%	100%	100%	100%	96%	99%
Total	100%	100%	100%	100%	100%	100%	100%

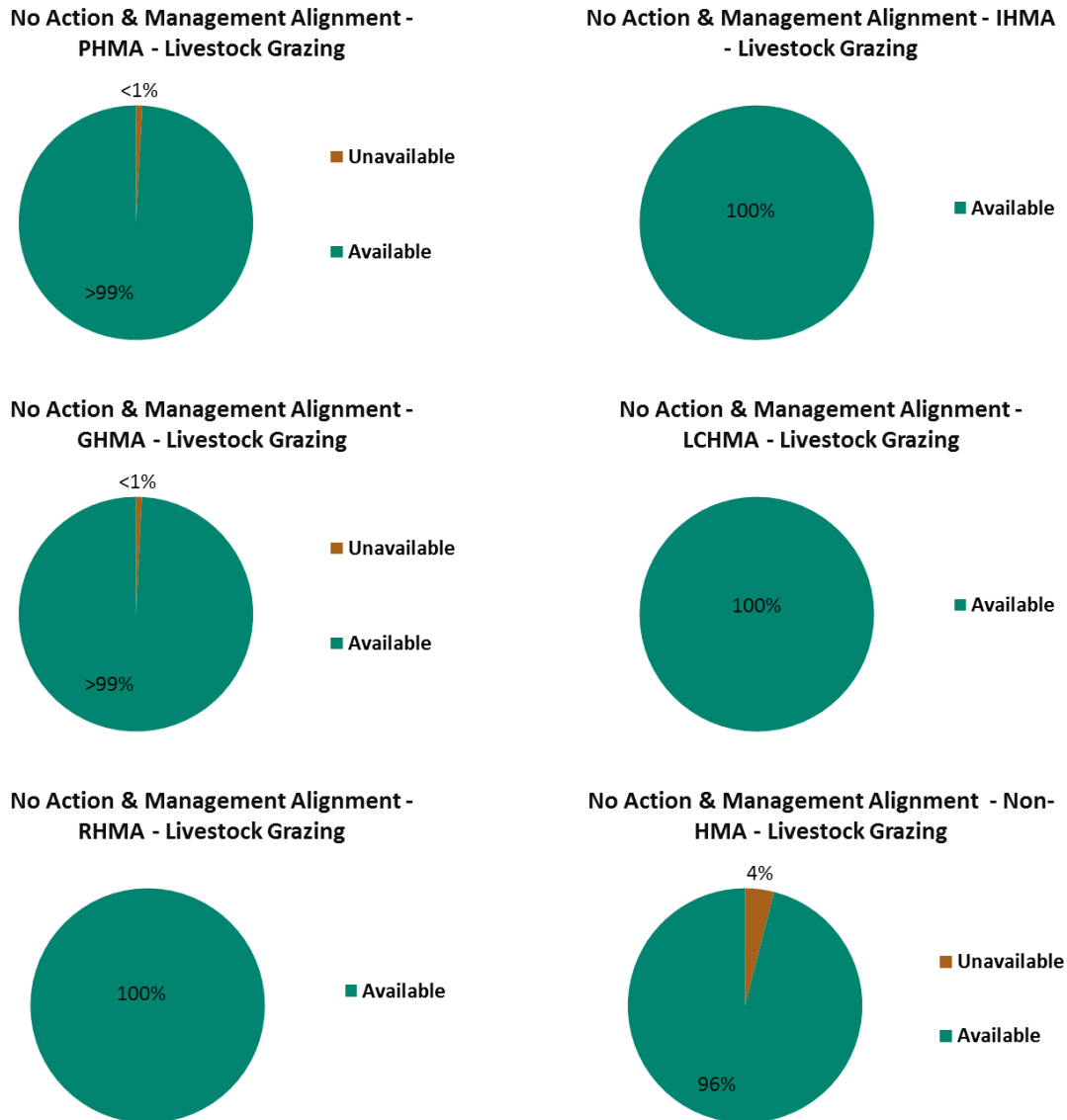


Figure 17 – Livestock Grazing Decisions within MZ II/VII

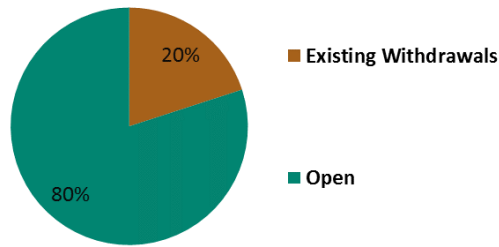
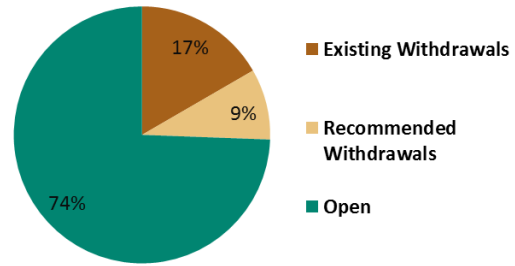
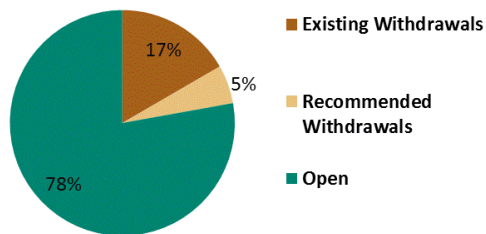
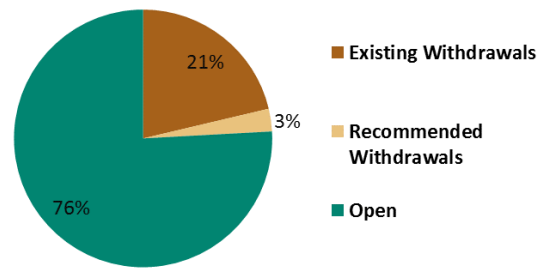
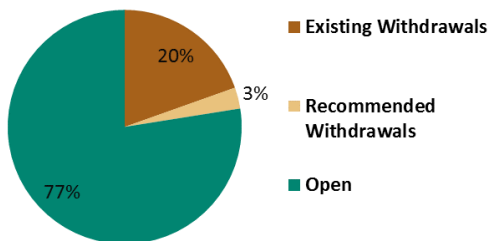
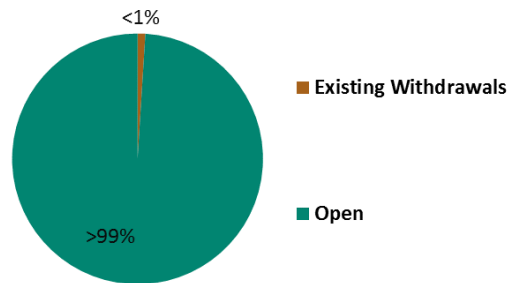
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

V. Locatable Minerals

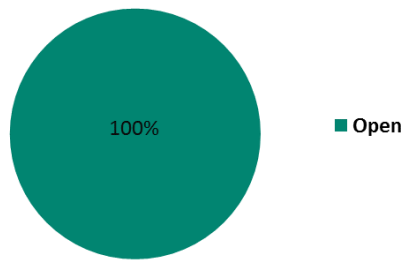
Table 19 – Locatable Minerals Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

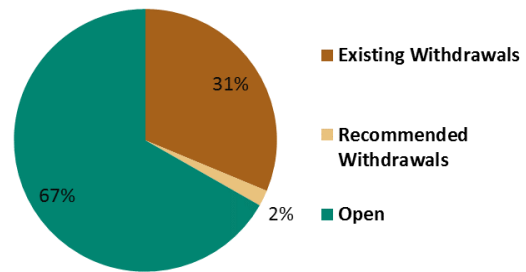
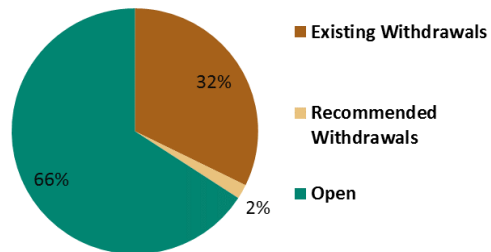
Approximate Acres of Locatable Minerals Decisions in MZ II/VII by Habitat Management Area Type							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	1,863,000	7,000	2,394,000	1,000	0	4,804,000	9,068,000
Recommended Withdrawals	998,000	0	320,000	0	0	302,000	1,620,000
Open	8,323,000	27,000	8,529,000	137,000	7,000	10,250,000	27,273,000
Total	11,185,000	33,000	11,243,000	137,000	7,000	15,357,000	37,962,000
Locatable Minerals	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	1,863,000	7,000	2,125,000	1,000	0	5,072,000	9,068,000
Recommended Withdrawals	618,000	0	318,000	0	0	302,000	1,238,000
Open	8,703,000	27,000	8,420,000	137,000	7,000	10,361,000	27,656,000
Total	11,185,000	33,000	10,863,000	137,000	7,000	15,736,000	37,962,000
Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ II/VII							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	17%	20%	21%	<1%	0%	31%	24%
Recommended Withdrawals	9%	0%	3%	0%	0%	2%	4%
Open	74%	80%	76%	100%	100%	67%	72%
Total	100%	100%	100%	100%	100%	100%	100%
Locatable Minerals	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	17%	20%	20%	<1%	0%	32%	24%
Recommended Withdrawals	6%	0%	3%	0%	0%	2%	3%
Open	78%	80%	78%	100%	100%	66%	73%
Total	100%	100%	100%	100%	100%	100%	100%

**No Action & Management Alignment - IHMA
- Locatable Minerals****No Action - PHMA - Locatable Minerals****Management Alignment - PHMA - Locatable
Minerals****No Action - GHMA - Locatable Minerals****Management Alignment - GHMA - Locatable
Minerals****No Action & Management Alignment -
LCHMA - Locatable Minerals****Figure I8 – Locatable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment -
RHMA - Locatable Minerals

No Action - Non-HMA - Locatable Minerals

Management Alignment - Non-HMA -
Locatable Minerals**Figure 18 (cont'd) – Locatable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VI. Non-Energy Leasable Minerals

Table 20 – Non-Energy Leasable Minerals Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁷Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals Decisions⁷ in MZ II/VII by Habitat Management Area Type							
Non-Energy Leasable Minerals	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,617,000	7,000	1,256,000	1,000	NA	4,591,000	9,471,000
Open	6,052,000	23,000	7,330,000	137,000	NA	10,221,000	23,763,000
Total	9,669,000	30,000	8,586,000	137,000	NA	14,812,000	33,233,000
Non-Energy Leasable Minerals	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,581,000	7,000	1,244,000	1,000	NA	4,603,000	9,436,000
Open	6,052,000	23,000	6,972,000	137,000	NA	10,614,000	23,799,000
Total	9,633,000	30,000	8,216,000	137,000	NA	15,217,000	33,233,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision⁷ in MZ II/VII							
Non-Energy Leasable Minerals	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	37%	23%	15%	<1%	NA	31%	28%
Open	63%	77%	85%	100%	NA	69%	72%
Total	100%	100%	100%	100%	NA	100%	100%
Non-Energy Leasable Minerals	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	37%	23%	15%	<1%	NA	30%	28%
Open	63%	77%	85%	100%	NA	70%	72%
Total	100%	100%	100%	100%	NA	100%	100%



Figure 19 - Non-Energy Leasable Minerals Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁷Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 21 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages

Approximate Acres of Fluid Minerals (Oil & Gas) Decisions in MZ II/VII by Habitat Management Area Type							
Fluid Minerals (Oil & Gas)	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1,294,000	7,000	1,178,000	1,000	0	4,773,000	7,252,000
Open NSO	4,399,000	23,000	1,425,000	54,000	5,000	2,628,000	8,535,000
Open CSU/TL	5,689,000	0	6,517,000	81,000	2,000	4,748,000	17,036,000
Open Standard Stipulations	0	0	2,297,000	8,000	0	2,895,000	5,200,000
Total	11,382,000	29,000	11,416,000	144,000	8,000	15,046,000	38,024,000
Fluid Minerals (Oil & Gas)	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1,078,000	7,000	1,153,000	1,000	0	4,787,000	7,024,000
Open NSO	4,578,000	23,000	1,430,000	54,000	5,000	2,634,000	8,725,000
Open CSU/TL	5,689,000	0	6,310,000	81,000	2,000	4,956,000	17,036,000
Open Standard Stipulations	0	0	2,193,000	8,000	0	3,000,000	5,200,000
Total	11,345,000	29,000	11,086,000	144,000	8,000	15,376,000	37,988,000
Approximate % of Habitat Management Area by Fluid Minerals (Oil & Gas) Decision in MZ II/VII							
Fluid Minerals (Oil & Gas)	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	11%	21%	10%	<1%	0%	32%	19%
Open NSO	39%	79%	12%	38%	63%	17%	22%
Open CSU/TL	50%	0%	57%	56%	37%	32%	45%
Open Standard Stipulations	0%	0%	20%	6%	0%	19%	14%
Total	100%	100%	100%	100%	100%	100%	100%
Fluid Minerals (Oil & Gas)	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	10%	21%	10%	<1%	0%	31%	18%
Open NSO	40%	79%	13%	38%	63%	17%	23%
Open CSU/TL	50%	0%	57%	56%	37%	32%	45%
Open Standard Stipulations	0%	0%	20%	6%	0%	20%	14%
Total	100%	100%	100%	100%	100%	100%	100%

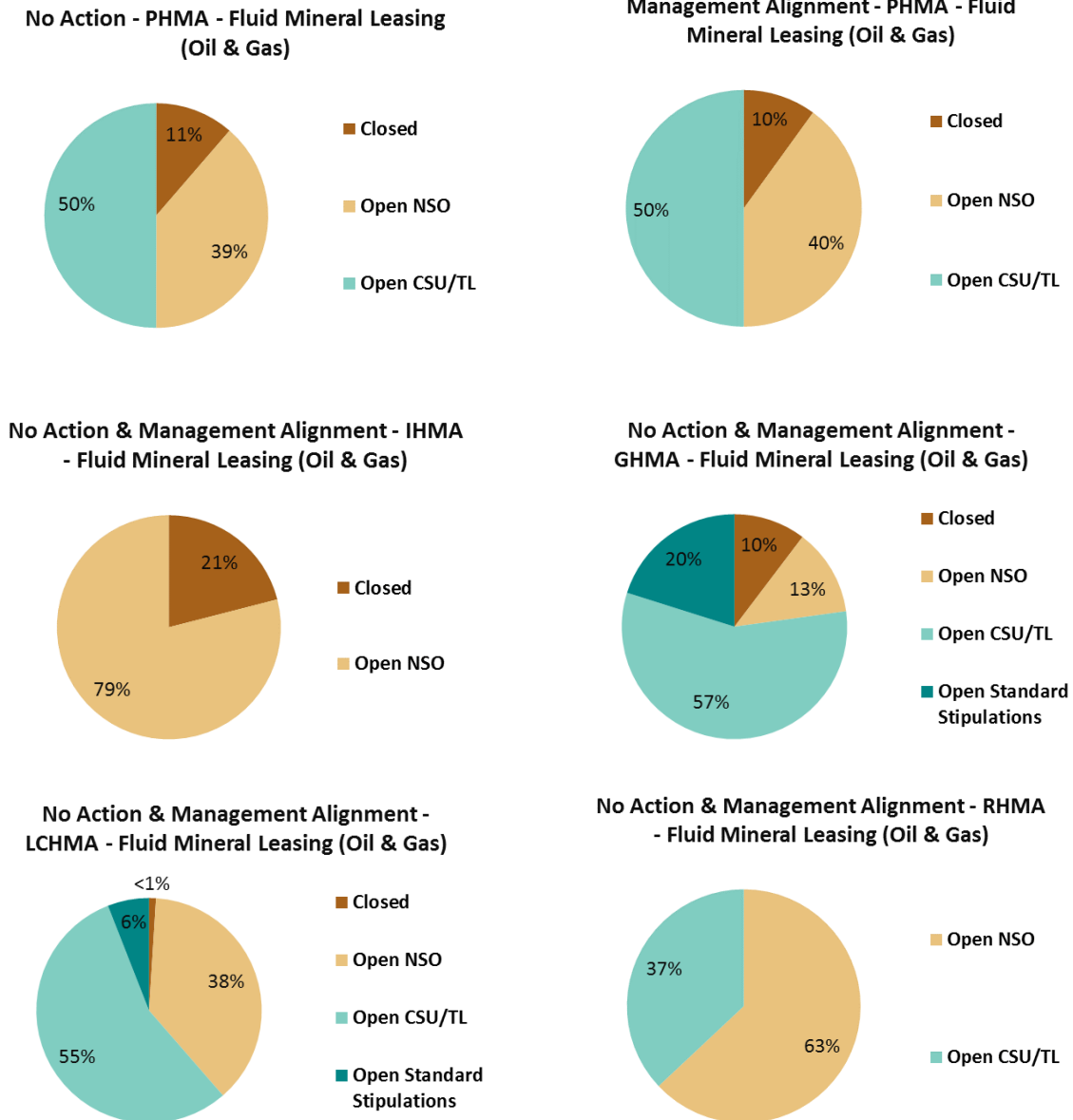
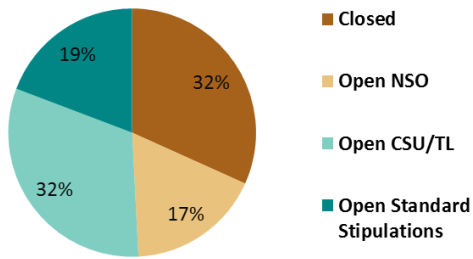
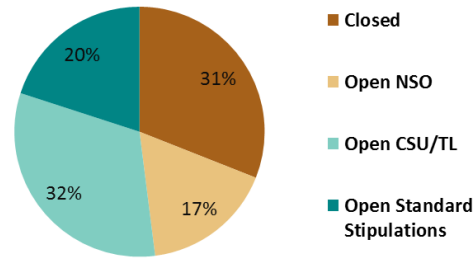


Figure 20 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Fluid Mineral Leasing
(Oil & Gas)

Management Alignment - Non-HMA - Fluid Mineral Leasing (Oil & Gas)

**Figure 20 (cont'd) – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

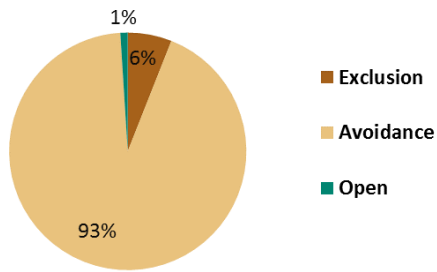
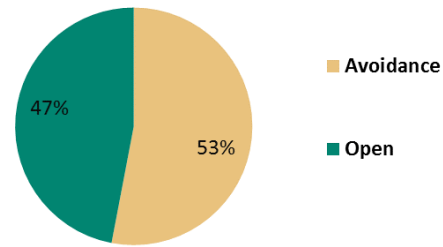
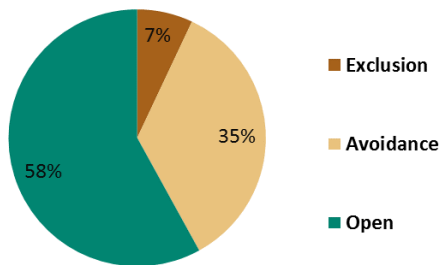
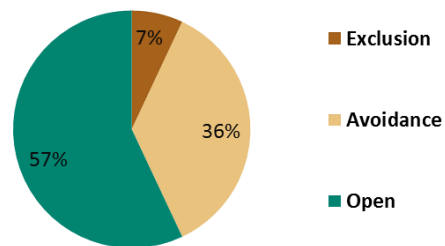
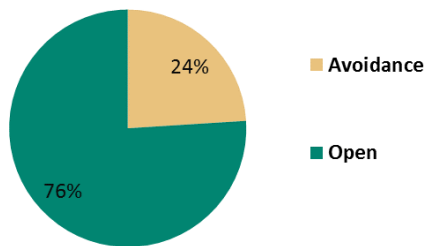
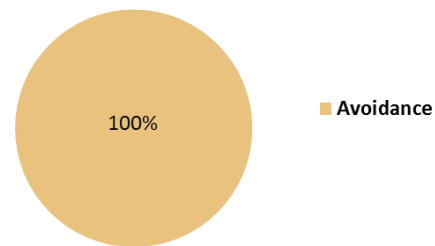
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VIII. Rights-of-Ways

Table 22 – Rights-of-Ways Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ II/VII by Habitat Management Area Type							
Rights-of-Ways	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	561,000	0	654,000	0	0	1,255,000	2,471,000
Avoidance	8,119,000	18,000	3,132,000	16,000	7,000	1,172,000	12,465,000
Open	71,000	16,000	5,256,000	51,000	0	5,067,000	10,460,000
Total	8,752,000	34,000	9,041,000	67,000	7,000	7,494,000	25,395,000
Rights-of-Ways	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	561,000	0	651,000	0	0	1,258,000	2,471,000
Avoidance	8,119,000	18,000	3,132,000	16,000	7,000	1,172,000	12,465,000
Open	71,000	16,000	4,971,000	51,000	0	5,351,000	10,460,000
Total	8,752,000	34,000	8,754,000	67,000	7,000	7,781,000	25,395,000
Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ II/VII							
Rights-of-Ways	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	6%	0%	7%	0%	0%	17%	10%
Avoidance	93%	53%	35%	24%	100%	16%	49%
Open	1%	47%	58%	76%	0%	68%	41%
Total	100%	100%	100%	100%	100%	100%	100%
Rights-of-Ways	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	6%	0%	7%	0%	0%	16%	10%
Avoidance	93%	53%	36%	24%	100%	15%	49%
Open	1%	47%	57%	76%	0%	69%	41%
Total	100%	100%	100%	100%	100%	100%	100%

**No Action & Management Alignment -
PHMA - Rights of Ways****No Action & Management Alignment - IHMA
- Rights of Ways****No Action - GHMA - Rights of Ways****Management Alignment - GHMA - Rights of
Ways****No Action & Management Alignment -
LCHMA - Rights of Ways****No Action & Management Alignment -
RHMA - Rights of Ways****Figure 21 – Rights-of-Ways Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment - Non-HMA - Rights of Ways

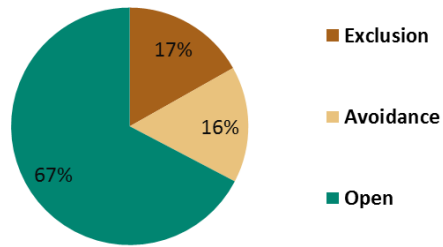


Figure 21 (cont'd) – Rights-of-Ways Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

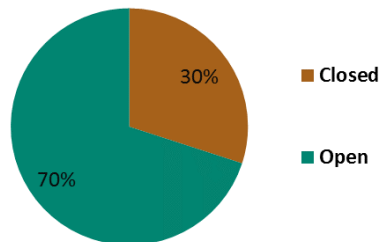
IX. Salable Minerals Materials

Table 23 – Salable Minerals Materials Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ II/VII by Habitat Management Area Type							
Salable Minerals Materials	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,241,000	0	1,401,000	27,000	0	3,592,000	8,263,000
Open	7,671,000	28,000	9,745,000	115,000	7,000	9,675,000	27,239,000
Total	10,912,000	28,000	11,145,000	142,000	7,000	13,268,000	35,502,000
Salable Minerals Materials	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,241,000	0	1,399,000	27,000	0	3,594,000	8,263,000
Open	7,671,000	28,000	9,413,000	115,000	7,000	10,006,000	27,239,000
Total	10,912,000	28,000	10,813,000	142,000	7,000	13,600,000	35,502,000
Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ II/VII							
Salable Minerals Materials	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	30%	0%	13%	19%	0%	26%	23%
Open	70%	100%	87%	81%	100%	74%	77%
Total	100%	100%	100%	100%	100%	100%	100%
Salable Minerals Materials	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	30%	0%	13%	19%	0%	27%	23%
Open	70%	100%	87%	81%	100%	73%	77%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Salable Minerals Materials



No Action & Management Alignment - IHMA
- Salable Minerals Materials

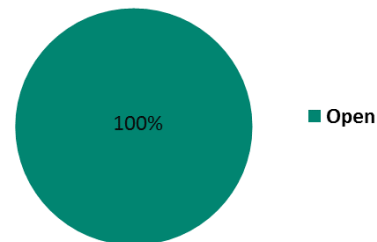


Figure 22 – Salable Minerals Materials Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

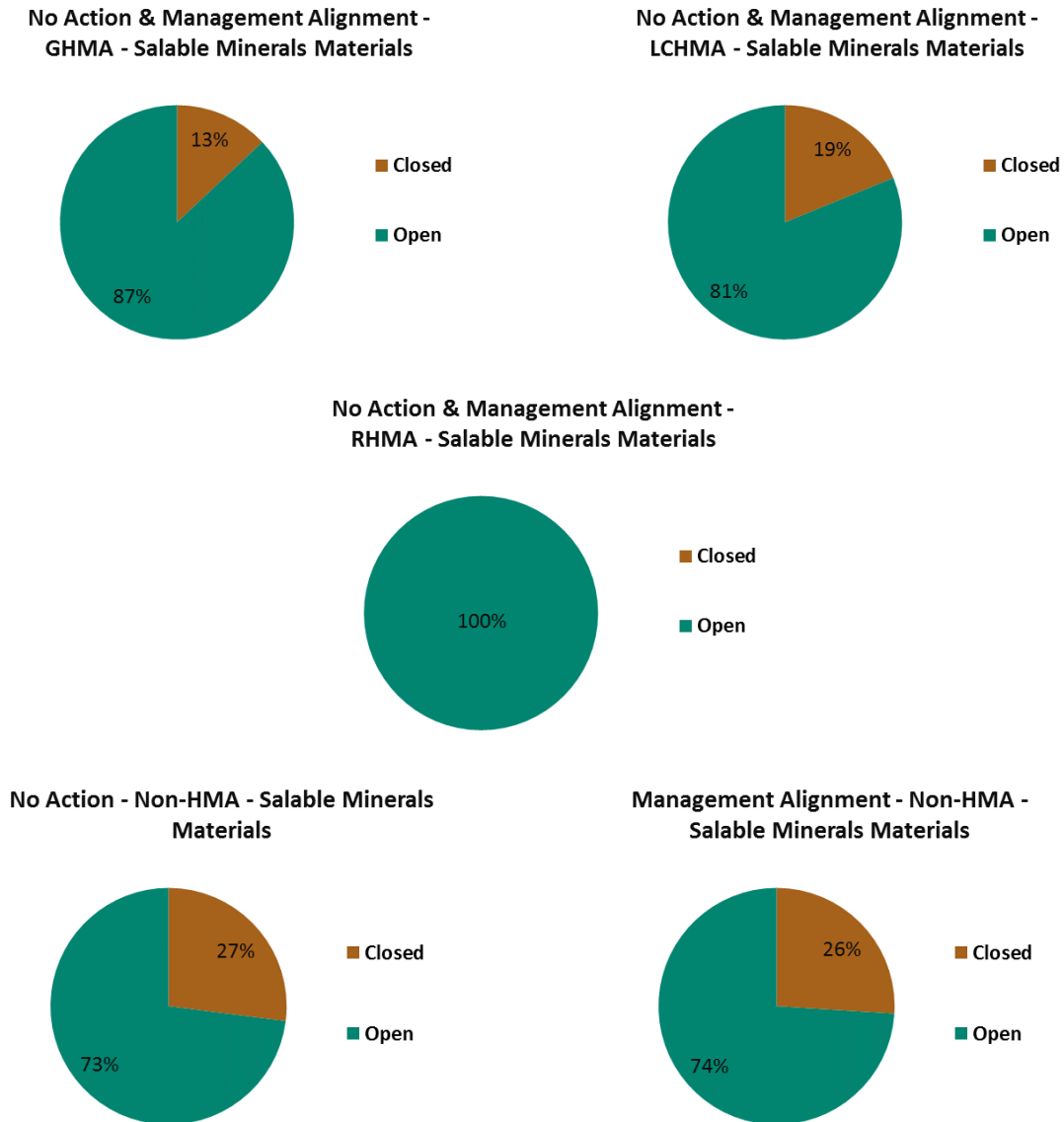


Figure 22 (cont'd) – Salable Minerals Materials Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

X. Solar Energy

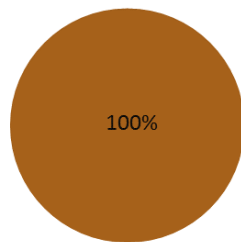
Table 24 – Solar Energy Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁸ Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

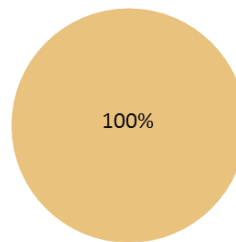
Approximate Acres of Solar Energy Decisions ⁸ in MZ II/VII by Habitat Management Area Type							
Solar Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	1,494,000	0	317,000	0	7,000	4,352,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	0	2,170,000	2,171,000
Total	1,496,000	18,000	1,082,000	83,000	7,000	7,265,000	9,950,000
Solar Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	1,494,000	0	30,000	0	7,000	4,639,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	0	2,170,000	2,171,000
Total	1,496,000	18,000	795,000	83,000	7,000	7,551,000	9,950,000
Approximate % of Habitat Management Area by Solar Energy Decision ⁸ in MZ II/VII							
Solar Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	100%	0%	29%	0%	100%	60%	62%
Avoidance	0%	100%	71%	100%	0%	10%	16%
Open	0%	0%	<1%	0%	0%	30%	22%
Total	100%	100%	100%	100%	100%	100%	100%
Solar Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	100%	0%	4%	0%	100%	61%	62%
Avoidance	0%	100%	96%	100%	0%	10%	16%
Open	0%	0%	<1%	0%	0%	29%	22%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar Energy



■ Exclusion

No Action & Management Alignment -
IHMA - Solar Energy



■ Avoidance

Figure 23 – Solar Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁸ Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

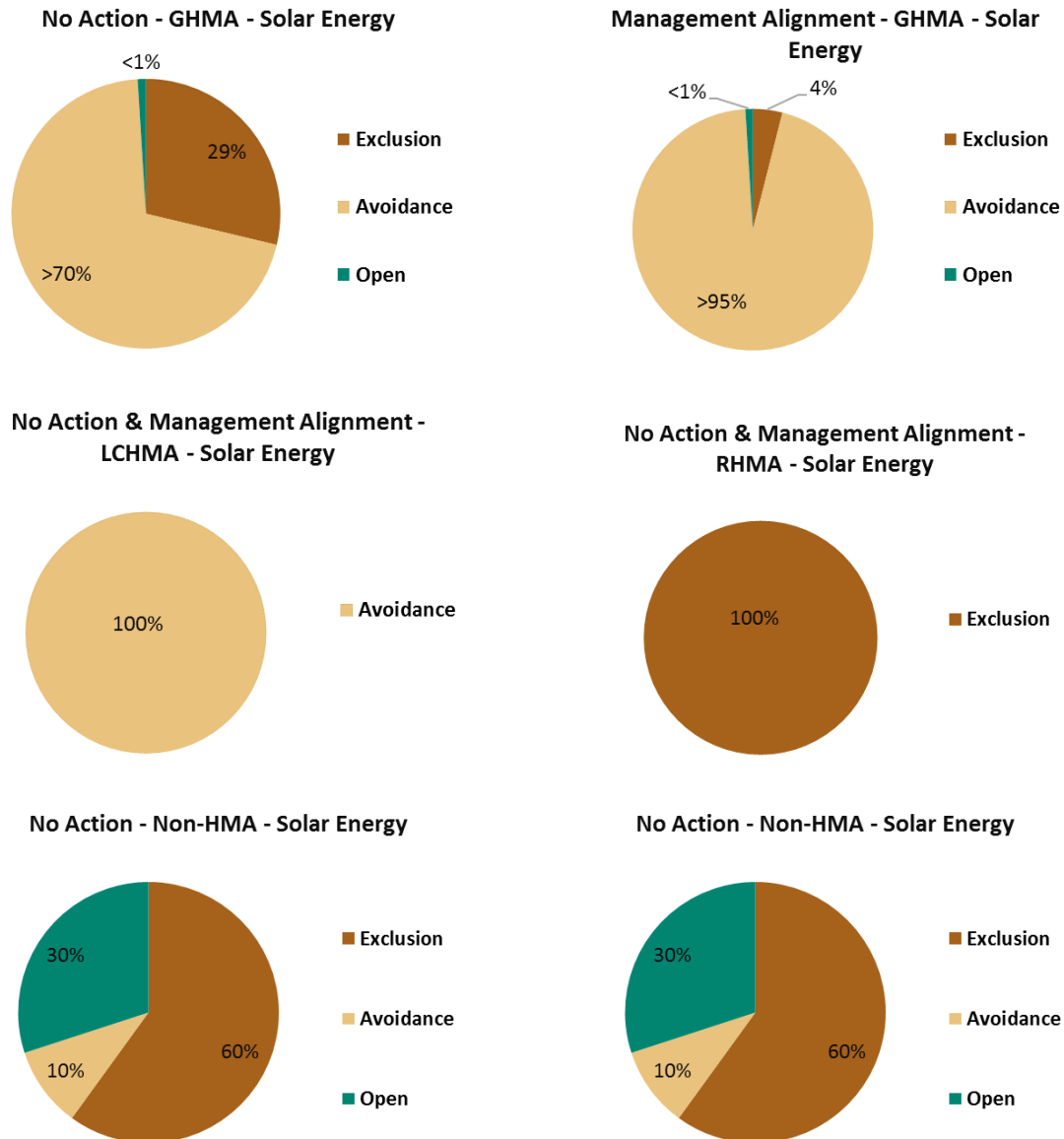


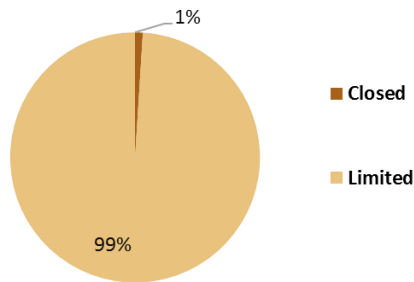
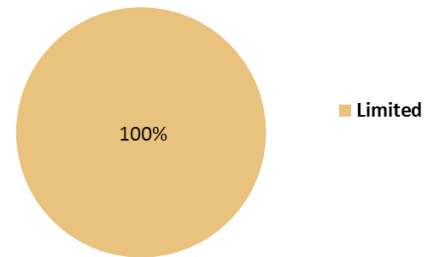
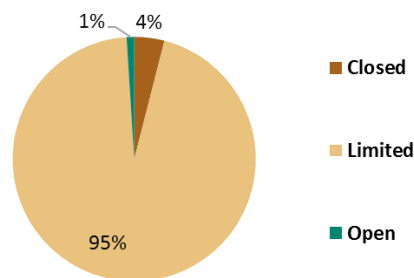
Figure 23 (cont'd) – Solar Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁸ Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

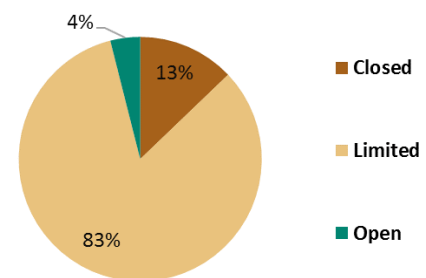
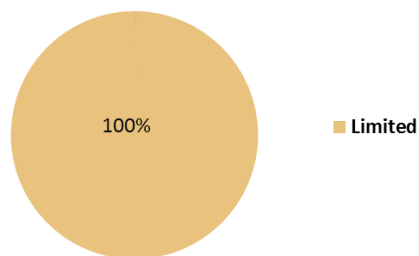
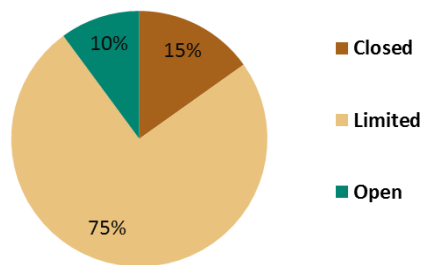
XI. Trails and Travel Management**Table 25 – Trails and Travel Management Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ II/VII by Habitat Management Area Type							
Trails and Travel Management	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	103,000	0	369,000	11,000	0	1,304,000	1,787,000
Limited	8,840,000	18,000	8,696,000	69,000	7,000	6,337,000	23,966,000
Open	4,000	0	54,000	3,000	0	891,000	953,000
Total	8,947,000	18,000	9,121,000	82,000	7,000	8,531,000	26,706,000
Trails and Travel Management	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	103,000	0	366,000	11,000	0	1,307,000	1,787,000
Limited	8,840,000	18,000	8,413,000	69,000	7,000	6,620,000	23,966,000
Open	4,000	0	54,000	3,000	0	891,000	953,000
Total	8,947,000	18,000	8,834,000	82,000	7,000	8,819,000	26,706,000
Approximate % of Habitat Management Area by Trails and Travel Management Decision in MZ II/VII							
Trails and Travel Management	No Action & Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1%	0%	4%	13%	0%	15%	7%
Limited	99%	100%	95%	84%	100%	74%	90%
Open	0%	0%	1%	4%	0%	10%	4%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment - PHMA -
Trails and Travel ManagementNo Action & Management Alignment - IHMA -
Trails and Travel ManagementNo Action & Management Alignment - GHMA
- Trails and Travel Management

No Action & Management Alignment - LCHMA - Trails and Travel Management

No Action & Management Alignment - RHMA
- Trails and Travel ManagementNo Action & Management Alignment - Non-
HMA - Trails and Travel Management**Figure 24 – Trails and Travel Management Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

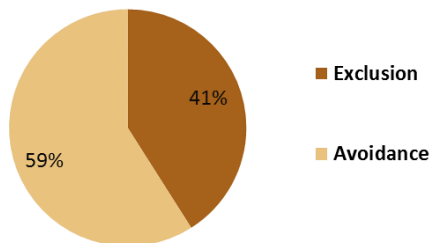
XII. Wind Energy

Table 26 – Wind Energy Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ II/VII by Habitat Management Area Type							
Wind Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	3,660,000	0	1,041,000	0	7,000	1,327,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	5,272,000	0	0	5,045,000	10,317,000
Total	8,953,000	18,000	9,119,000	83,000	7,000	7,476,000	25,656,000
Wind Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	3,660,000	0	1,038,000	0	7,000	1,330,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	4,988,000	0	0	5,329,000	10,317,000
Total	8,953,000	18,000	8,831,000	83,000	7,000	7,763,000	25,656,000
Approximate % of Habitat Management Area by Wind Energy Decision in MZ II/VII							
Wind Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	41%	0%	11%	0%	100%	18%	24%
Avoidance	59%	100%	31%	100%	0%	15%	36%
Open	0%	0%	58%	0%	0%	67%	40%
Total	100%	100%	100%	100%	100%	100%	100%
Wind Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	41%	0%	12%	0%	100%	17%	24%
Avoidance	59%	100%	32%	100%	0%	14%	36%
Open	0%	0%	56%	0%	0%	69%	40%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Wind Energy



No Action & Management Alignment - IHMA
- Wind Energy

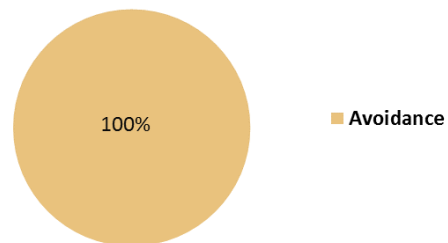


Figure 25 – Wind Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

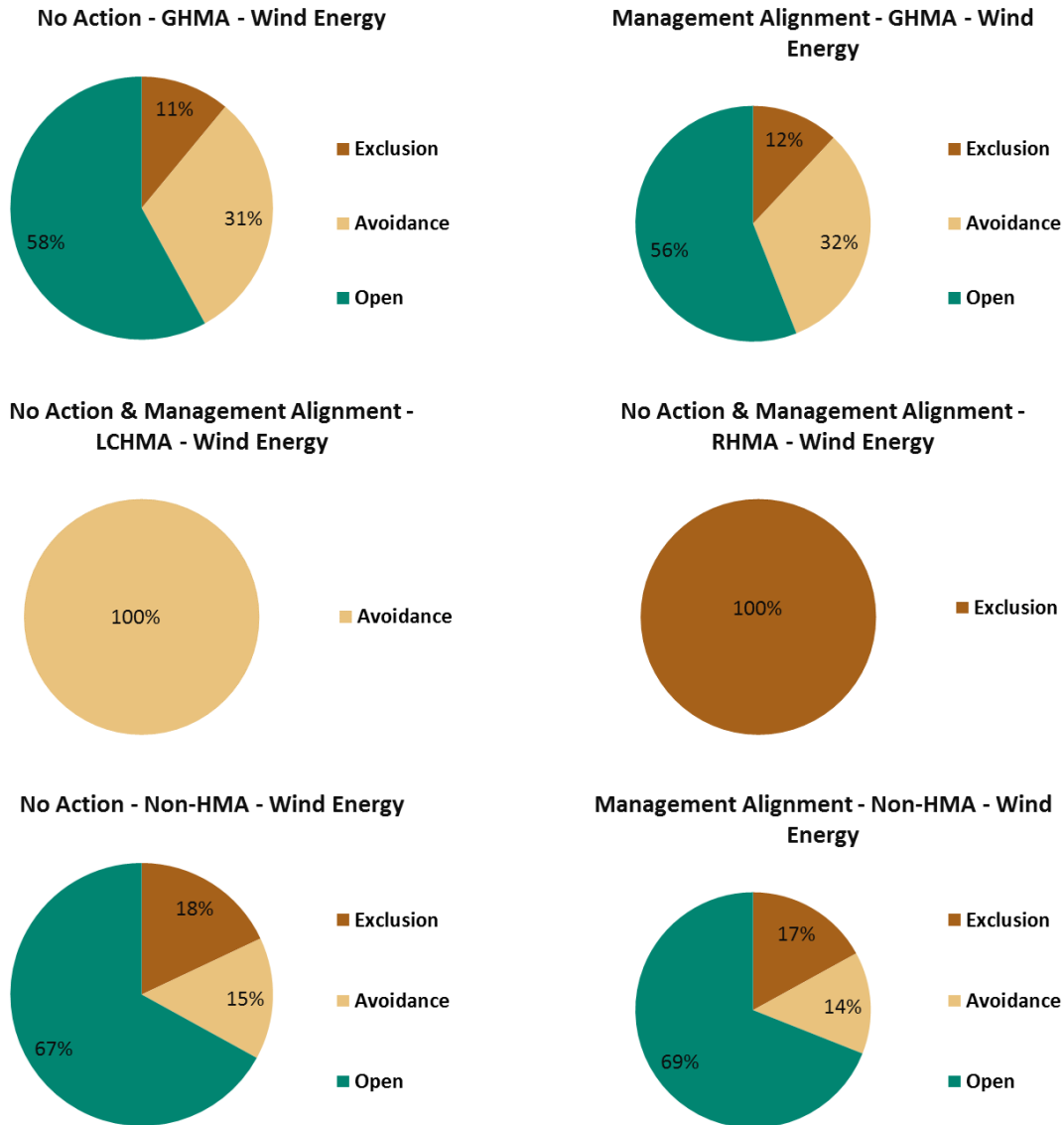


Figure 25 (cont'd) – Wind Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

D.2.3 Management Zone III – Utah, Nevada

I. Habitat Management

Table 27 – Habitat Management Areas within MZ III

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ III									
No Action					Management Alignment				
PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA
7,093,000	5,953,000	5,651,000	42,000	54,928,000	6,974,000	4,474,000	4,253,000	42,000	57,925,000
Approximate Percent of MZ III that is HMA									
No Action					Management Alignment				
PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA
10%	8%	8%	<1%	75%	9%	6%	6%	<1%	79%

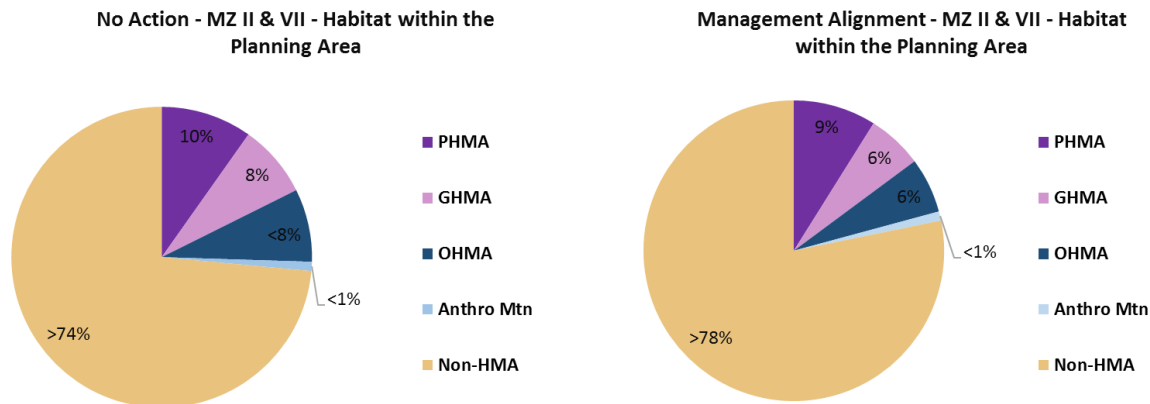


Figure 26 – Habitat Management Areas within MZ III

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

II. Geothermal Energy

Table 28 – Geothermal Energy Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Energy Decisions in MZ III by Habitat Management Area Type						
Geothermal Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	126,000	165,000	230,000	7,000	4,948,000	5,476,000
Open NSO	5,358,000	23,000	0	35,000	3,939,000	9,354,000
Open CSU/TL	0	3,628,000	0	0	2,135,000	5,763,000
Open Standard Stipulations	0	86,000	4,042,000	0	26,065,000	30,193,000
Total	5,484,000	3,902,000	4,272,000	42,000	37,087,000	50,787,000
Geothermal Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	124,000	176,000	159,000	7,000	4,990,000	5,457,000
Open NSO	5,483,000	0	0	35,000	3,961,000	9,479,000
Open CSU/TL	0	3,565,000	0	0	2,191,000	5,756,000
Open Standard Stipulations	0	0	3,534,000	0	26,554,000	30,088,000
Total	5,607,000	3,741,000	3,693,000	42,000	37,696,000	50,780,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ III						
Geothermal Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	4%	5%	17%	13%	11%
Open NSO	98%	1%	0%	83%	11%	18%
Open CSU/TL	0%	93%	0%	0%	6%	11%
Open Standard Stipulations	0%	2%	95%	0%	70%	59%
Total	100%	100%	100%	100%	100%	100%
Geothermal Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	5%	4%	17%	13%	11%
Open NSO	98%	0%	0%	83%	11%	19%
Open CSU/TL	0%	95%	0%	0%	6%	11%
Open Standard Stipulations	0%	0%	96%	0%	70%	59%
Total	100%	100%	100%	100%	100%	100%

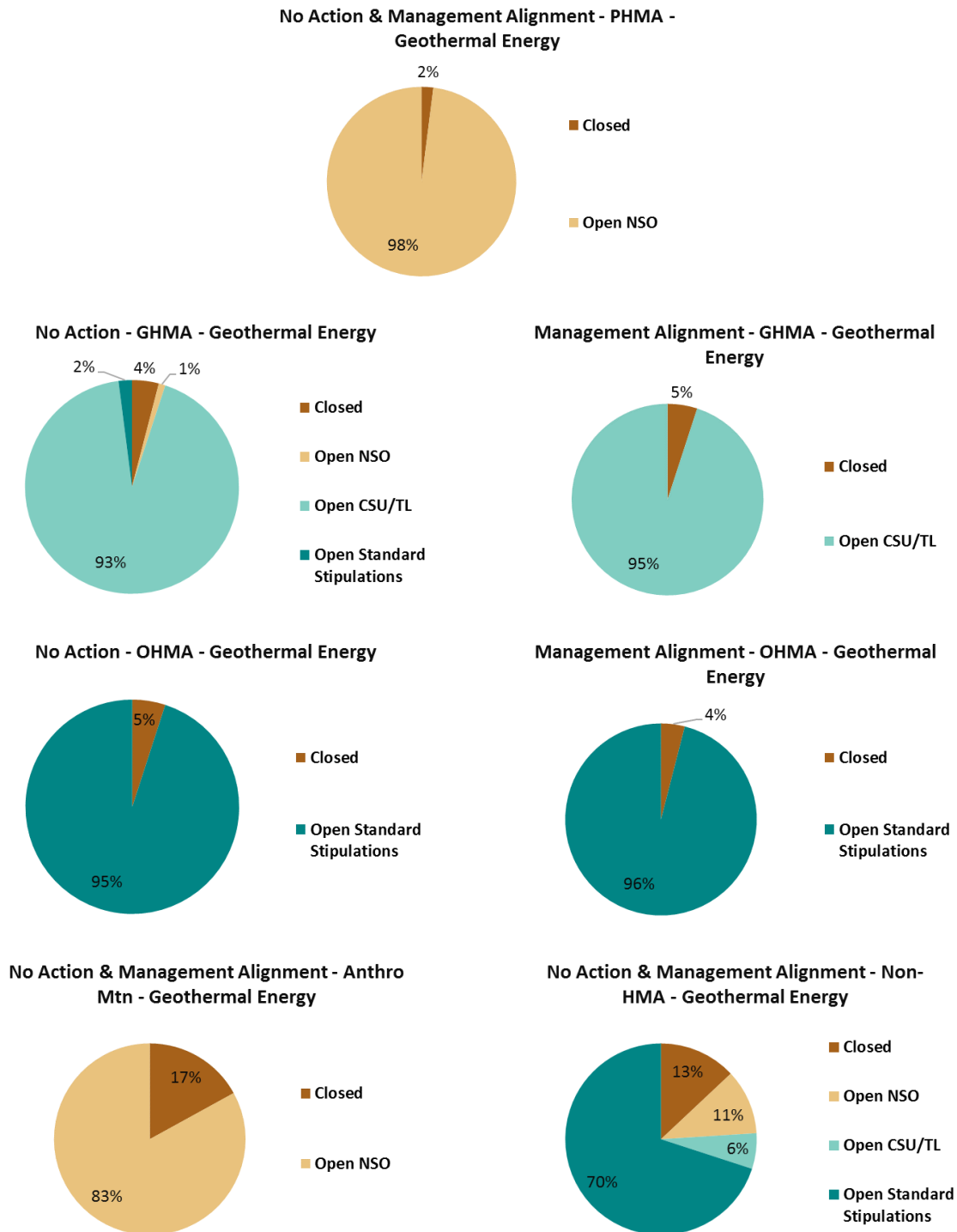


Figure 27 – Geothermal Energy Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

III. Land Tenure

Table 29 – Land Tenure Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ III by Habitat Management Area Type						
Land Tenure	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0	0	280,000	NA	2,178,000	2,458,000
Retention	4,722,000	3,875,000	3,992,000	NA	30,234,000	42,824,000
Total	4,722,000	3,875,000	4,272,000	NA	32,413,000	45,283,000
Land Tenure	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	3,000	62,000	304,000	NA	2,214,000	2,583,000
Retention	4,844,000	3,679,000	3,389,000	NA	30,782,000	42,694,000
Total	4,847,000	3,741,000	3,693,000	NA	32,996,000	45,277,000
Approximate % of Habitat Management Area by Land Tenure Decision in MZ III						
Land Tenure	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0%	0%	7%	NA	7%	5%
Retention	100%	100%	93%	NA	93%	95%
Total	100%	100%	100%	NA	100%	100%
Land Tenure	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0%	2%	8%	NA	7%	6%
Retention	100%	98%	92%	NA	93%	94%
Total	100%	100%	100%	NA	100%	100%

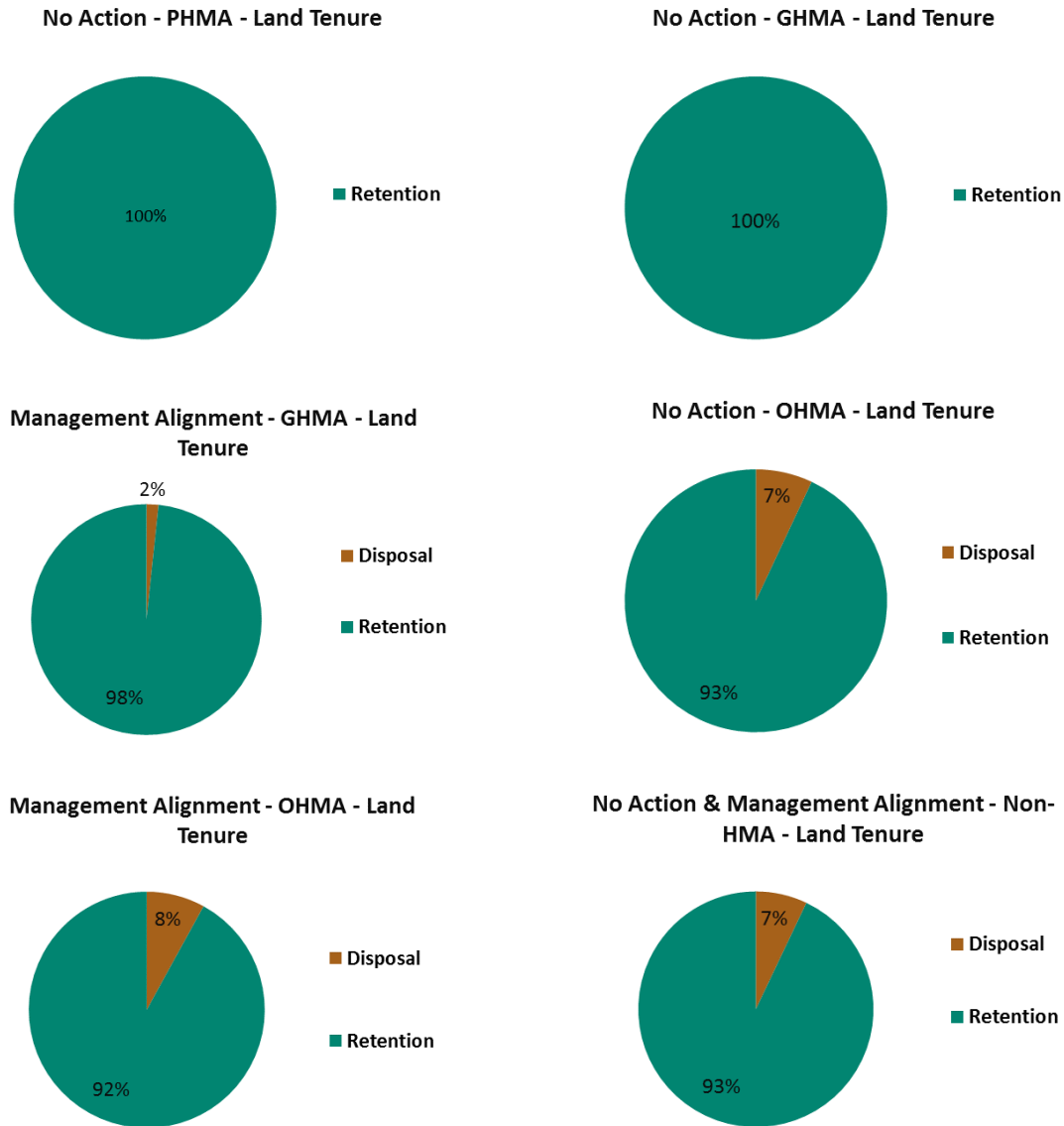


Figure 28 – Land Tenure Decisions within MZ III

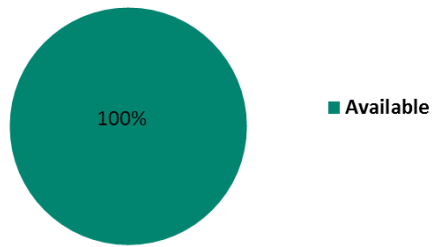
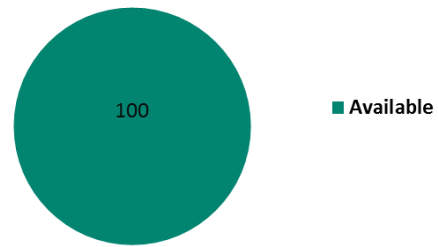
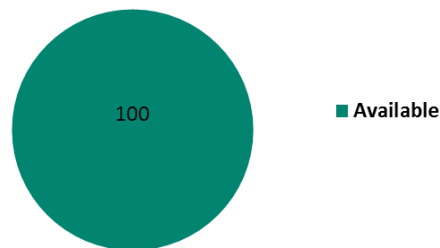
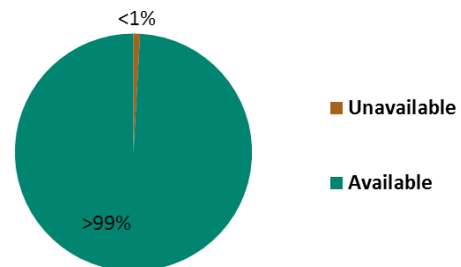
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IV. Livestock Grazing

Table 30 – Livestock Grazing Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ III by Habitat Management Area Type						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0	0	0	NA	129,000	129,000
Available	4,722,000	3,868,000	4,265,000	NA	31,559,000	44,415,000
Total	4,722,000	3,868,000	4,265,000	NA	31,688,000	44,544,000
Livestock Grazing	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0	0	0	NA	129,000	129,000
Available	4,845,000	3,741,000	3,690,000	NA	32,135,000	44,410,000
Total	4,845,000	3,741,000	3,690,000	NA	32,264,000	44,539,000
Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ III						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
Total	100%	100%	100%	NA	100%	100%
Livestock Grazing	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
Total	100%	100%	100%	NA	100%	100%

No Action & Management Alignment -
PHMA - Livestock GrazingNo Action & Management Alignment -
GHMA - Livestock GrazingNo Action & Management Alignment -
OHMA - Livestock GrazingNo Action & Management Alignment - Non-
HMA - Livestock Grazing**Figure 29 – Livestock Grazing Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

V. Locatable Minerals

Table 31 – Locatable Minerals Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Locatable Minerals Decisions in MZ III by Habitat Management Area Type						
Locatable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	56,000	143,000	52,000	0	3,350,000	3,602,000
Recommended Withdrawals	4,000	0	0	0	49,000	53,000
Open	5,429,000	3,788,000	4,219,000	42,000	34,853,000	48,332,000
Total	5,489,000	3,931,000	4,272,000	42,000	38,253,000	51,987,000
Locatable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	61,000	100,000	42,000	0	3,398,000	3,601,000
Recommended Withdrawals	4,000	0	0	0	50,000	53,000
Open	5,552,000	3,641,000	3,650,000	42,000	35,444,000	48,330,000
Total	5,617,000	3,741,000	3,693,000	42,000	38,892,000	51,985,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ III						
Locatable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	1%	4%	1%	0	9%	7%
Recommended Withdrawals	<1%	0%	0%	0%	<1%	<1%
Open	99%	96%	99%	100%	91%	93%
Total	100%	100%	100%	100%	100%	100%
Locatable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	1%	3%	1%	0%	9%	7%
Recommended Withdrawals	<1%	0%	0%	0%	0%	<1%
Open	99%	97%	99%	100%	91%	93%
Total	100%	100%	100%	100%	100%	100%

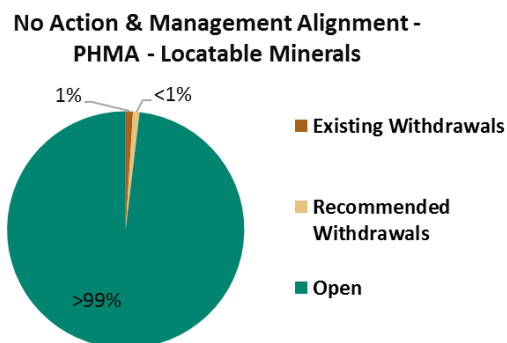


Figure 30 – Locatable Minerals Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



Figure 30 (cont'd) – Locatable Minerals Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VI. Non-Energy Leasable Minerals

Table 32 – Non-Energy Leasable Minerals Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ III by Habitat Management Area Type						
Non-Energy Leasable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	5,486,000	165,000	230,000	42,000	4,948,000	10,871,000
Open	0	3,766,000	4,042,000	0	33,308,000	41,116,000
Total	5,486,000	3,931,000	4,272,000	42,000	38,256,000	51,987,000
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	5,611,000	176,000	159,000	42,000	4,990,000	10,978,000
Open	0	3,565,000	3,534,000	0	33,904,000	41,004,000
Total	5,611,000	3,741,000	3,693,000	42,000	38,894,000	51,981,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ III						
Non-Energy Leasable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	4%	5%	100%	13%	21%
Open	0%	96%	95%	0%	87%	79%
Total	100%	100%	100%	100%	100%	100%
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	5%	4%	100%	13%	21%
Open	0%	95%	96%	0%	87%	79%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Non-Energy Leasable Minerals

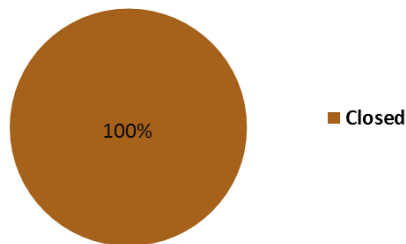


Figure 31 – Non-Energy Leasable Minerals Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

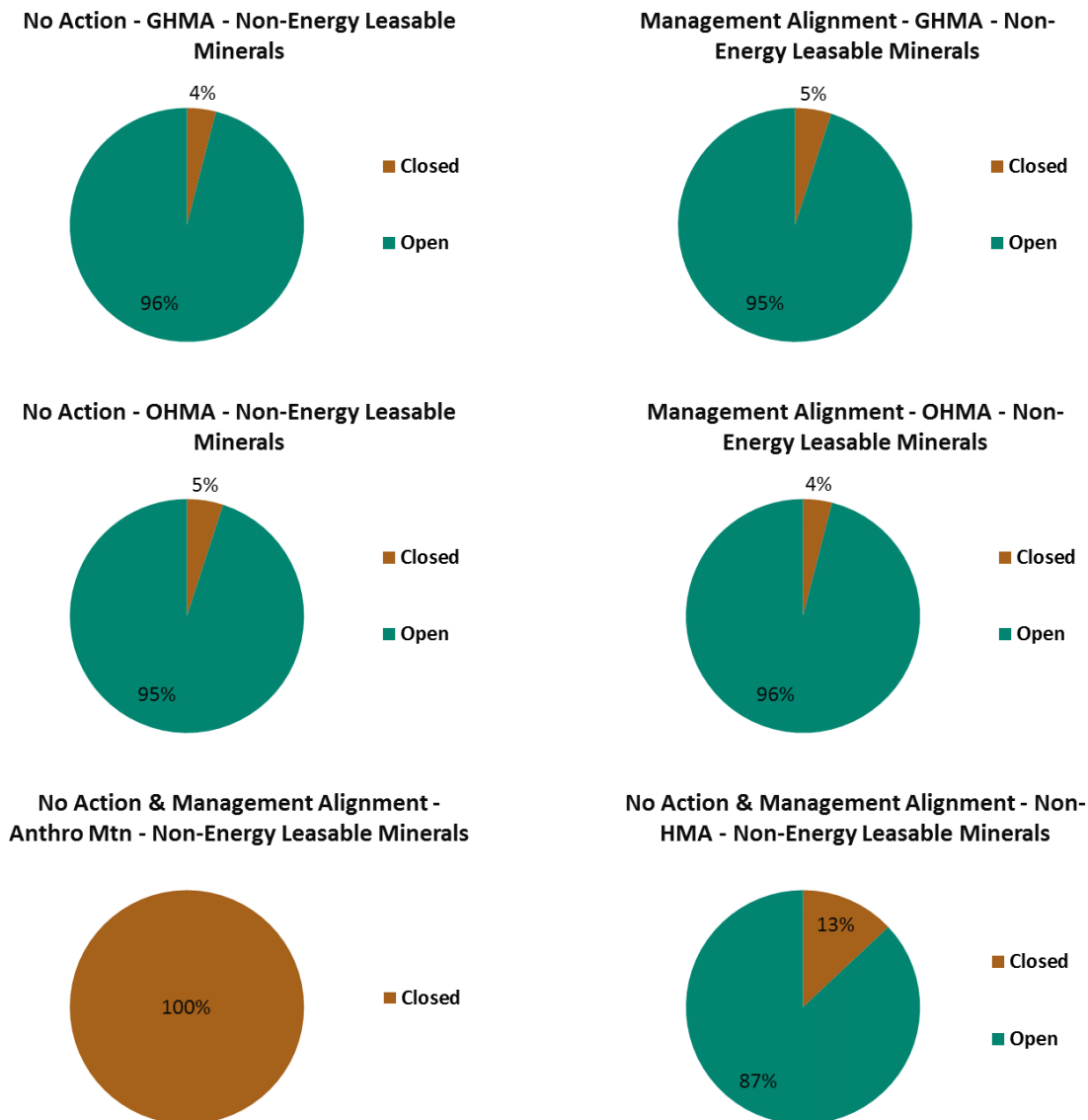


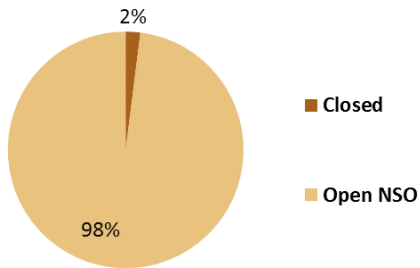
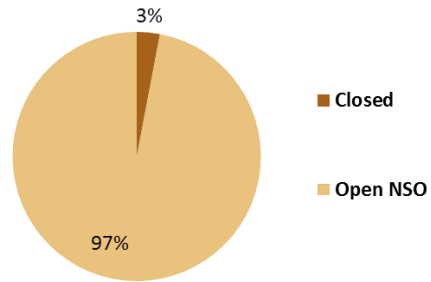
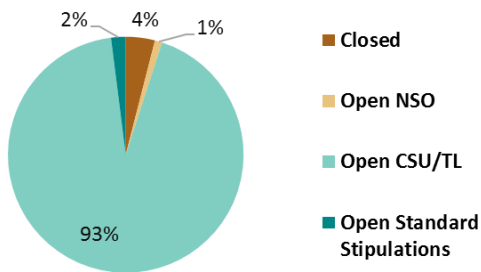
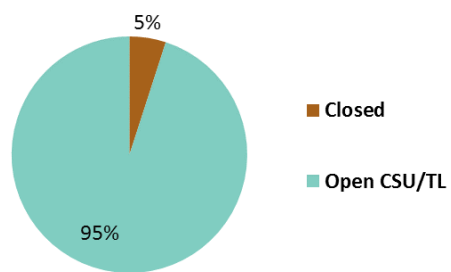
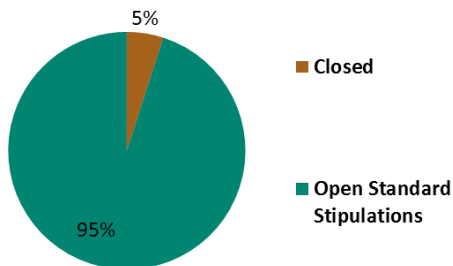
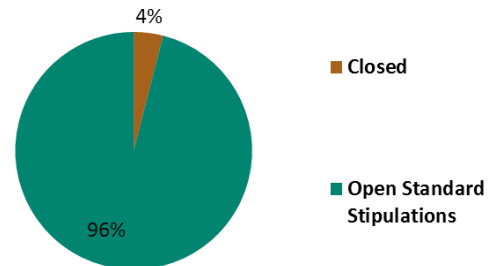
Figure 3I (cont'd) – Non-Energy Leasable Minerals Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 33 – Fluid Mineral (Oil & Gas) Decisions within MZ III**

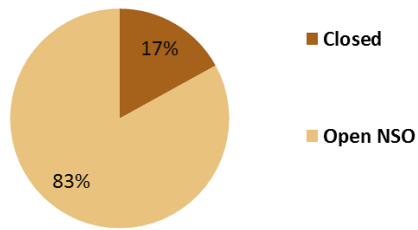
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ III by Habitat Management Area Type						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	126,000	165,000	230,000	7,000	4,948,000	5,476,000
Open NSO	5,358,000	23,000	0	35,000	3,431,000	8,847,000
Open CSU/TL	0	3,628,000	0	0	2,135,000	5,763,000
Open Standard Stipulations	0	86,000	4,042,000	0	26,502,000	30,630,000
Total	5,484,000	3,902,000	4,272,000	42,000	37,016,000	50,716,000
Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	144,000	176,000	159,000	7,000	4,990,000	5,476,000
Open NSO	5,464,000	0	0	35,000	3,454,000	8,952,000
Open CSU/TL	0	3,565,000	0	0	2,191,000	5,756,000
Open Standard Stipulations	0	0	3,534,000	0	26,991,000	30,525,000
Total	5,607,000	3,741,000	3,693,000	42,000	37,626,000	50,710,000
Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ III						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	4%	5%	17%	13%	11%
Open NSO	98%	1%	0%	83%	9%	17%
Open CSU/TL	0%	93%	0%	0%	6%	11%
Open Standard Stipulations	0%	2%	95%	0%	72%	60%
Total	100%	100%	100%	100%	100%	100%
Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	3%	5%	4%	17%	13%	11%
Open NSO	97%	0%	0%	83%	9%	18%
Open CSU/TL	0%	95%	0%	0%	6%	11%
Open Standard Stipulations	0%	0%	96%	0%	72%	60%
Total	100%	100%	100%	100%	100%	100%

No Action - PHMA - Fluid Mineral Leasing (Oil & Gas)**Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - GHMA - Fluid Mineral Leasing (Oil & Gas)****Management Alignment - GHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - OHMA - Fluid Mineral Leasing (Oil & Gas)****Management Alignment - OHMA - Fluid Mineral Leasing (Oil & Gas)****Figure 32 – Fluid Mineral (Oil & Gas) Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment -
Anthro Mtn - Fluid Mineral Leasing (Oil &
Gas)



No Action & Management Alignment - Non-
HMA - Fluid Mineral Leasing (Oil & Gas)

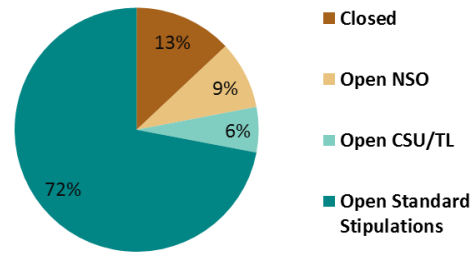


Figure 32 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VIII. Rights-of-Ways

Table 34 – Rights-of-Ways Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ III by Habitat Management Area Type						
Rights-of-Ways	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	86,000	164,000	230,000	NA	3,794,000	4,274,000
Avoidance	4,591,000	3,495,000	0	NA	799,000	8,884,000
Open	46,000	216,000	4,043,000	NA	27,890,000	32,195,000
Total	4,722,000	3,875,000	4,272,000	NA	32,483,000	45,353,000
Rights-of-Ways	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	104,000	176,000	159,000	NA	3,837,000	4,275,000
Avoidance	4,726,000	3,565,000	0	NA	373,000	8,664,000
Open	17,000	0	3,534,000	NA	28,857,000	32,408,000
Total	4,847,000	3,741,000	3,693,000	NA	33,066,000	45,348,000
Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ III						
Rights-of-Ways	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	2%	4%	5%	NA	12%	9%
Avoidance	97%	90%	0%	NA	2%	20%
Open	1%	6%	95%	NA	86%	71%
Total	100%	100%	100%	NA	100%	100%
Rights-of-Ways	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	2%	5%	4%	NA	12%	9%
Avoidance	98%	95%	0%	NA	1%	19%
Open	<1%	0%	96%	NA	87%	71%
Total	100%	100%	100%	NA	100%	100%

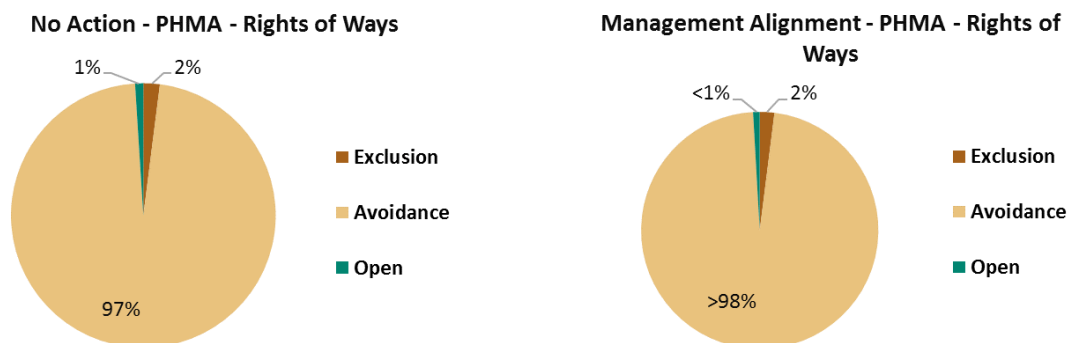


Figure 33 – Rights-of-Ways Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



Figure 33 (cont'd) – Rights-of-Ways Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IX. Salable Minerals Materials**Table 35 – Salable Minerals Materials Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ III by Habitat Management Area Type						
Salable Minerals Materials	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	4,722,000	172,000	230,000	NA	4,646,000	9,770,000
Open	0	3,707,000	4,042,000	NA	27,834,000	35,583,000
Total	4,723,000	3,878,000	4,272,000	NA	32,479,000	45,353,000
Salable Minerals Materials	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	4,847,000	176,000	159,000	NA	4,694,000	9,876,000
Open	0	3,565,000	3,534,000	NA	28,372,000	35,471,000
Total	4,847,000	3,741,000	3,693,000	NA	33,066,000	45,347,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ III						
Salable Minerals Materials	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	4%	5%	NA	14%	22%
Open	0%	96%	95%	NA	86%	78%
Total	100%	100%	100%	NA	100%	100%
Salable Minerals Materials	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	5%	4%	NA	14%	22%
Open	0%	95%	96%	NA	86%	78%
Total	100%	100%	100%	NA	100%	100%



Figure 34 – Salable Minerals Materials Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

X. Solar Energy

Table 36 – Solar Energy Decisions within MZ III

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions in MZ III by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,731,000	3,886,000	3,417,000	NA	24,421,000	36,454,000
Avoidance	2,000	4,000	857,000	NA	7,637,000	8,499,000
Open	0	0	1,000	NA	340,000	341,000
Total	4,732,000	3,889,000	4,274,000	NA	32,398,000	45,294,000
Solar Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,858,000	3,748,000	3,699,000	NA	24,867,000	37,172,000
Avoidance	0	0	0	NA	7,770,000	7,770,000
Open	0	0	0	NA	346,000	346,000
Total	4,858,000	3,748,000	3,699,000	NA	32,983,000	45,288,000
Approximate % of Habitat Management Area by Solar Energy Decision in MZ III						
Solar Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	100%	100%	80%	NA	75%	80%
Avoidance	<1%	<1%	20%	NA	24%	19%
Open	0%	0%	<1%	NA	1%	1%
Total	100%	100%	100%	NA	100%	100%
Solar Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	100%	100%	100%	NA	75%	82%
Avoidance	0%	0%	0%	NA	24%	17%
Open	0%	0%	0%	NA	1%	1%
Total	100%	100%	100%	NA	100%	100%

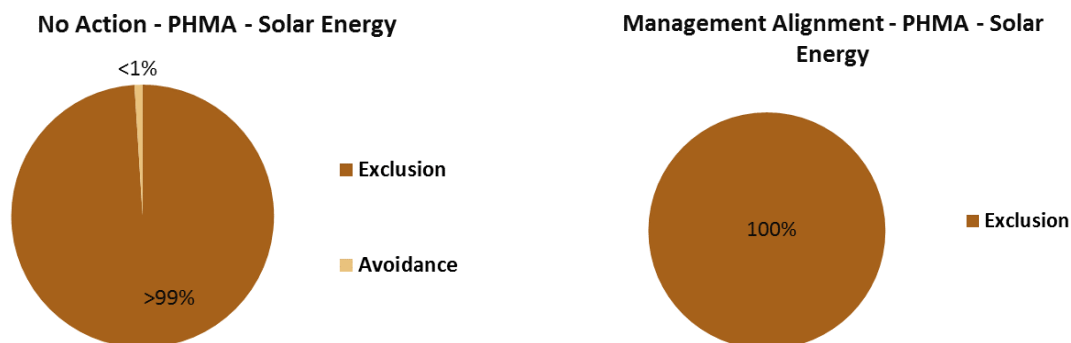


Figure 35 – Solar Energy Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

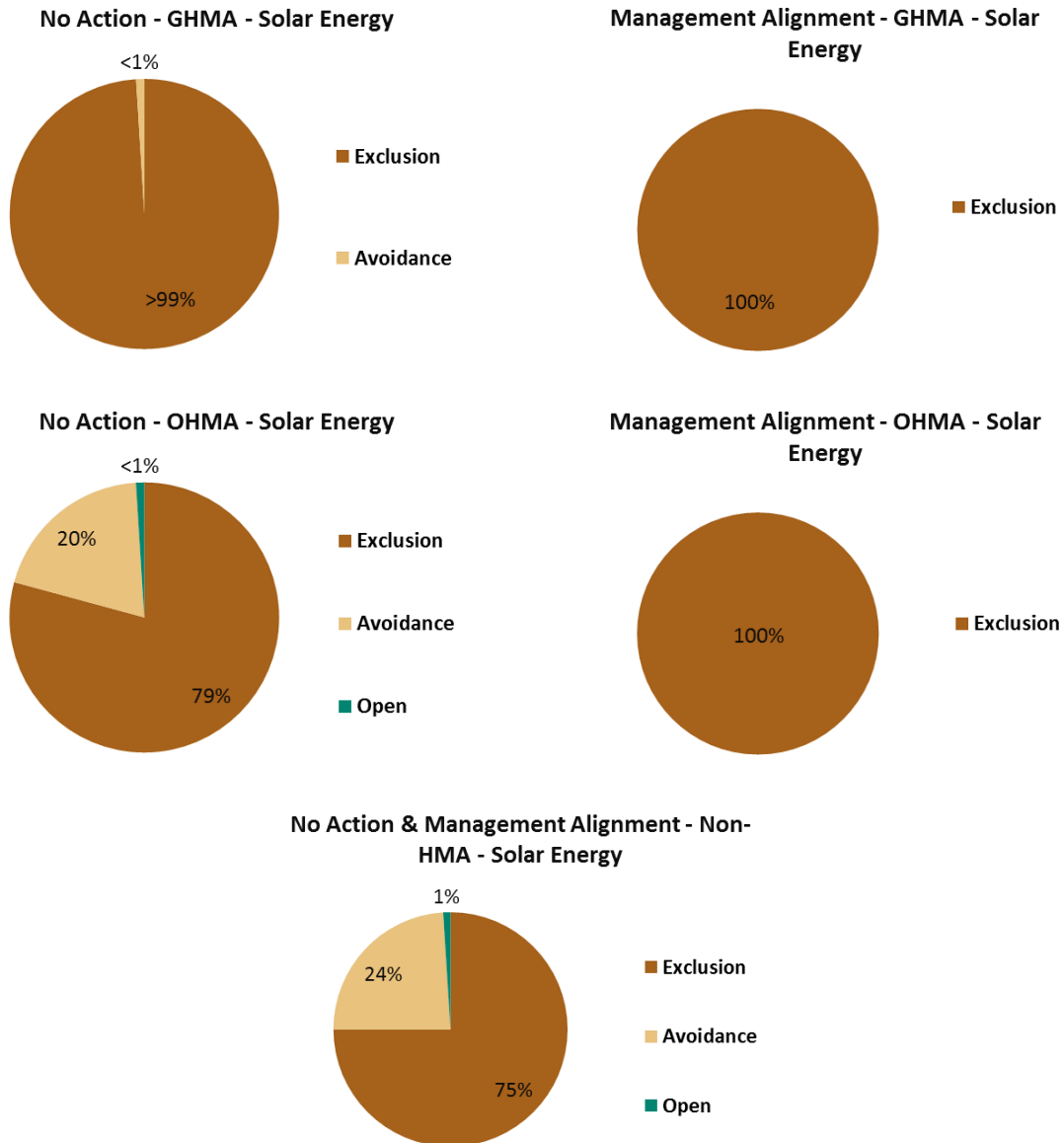


Figure 35 (cont'd) – Solar Energy Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XI. Trails and Travel Management**Table 37 – Trails and Travel Management Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ III by Habitat Management Area Type						
Trails and Travel Management Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	16,000	84,000	52,000	NA	2,517,000	2,669,000
Limited	4,702,000	3,791,000	1,000	NA	5,791,000	14,285,000
Open	0	0	4,219,000	NA	24,153,000	28,372,000
Total	4,718,000	3,875,000	4,273,000	NA	32,461,000	45,326,000
Trails and Travel Management Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	21,000	100,000	42,000	NA	2,505,000	2,668,000
Limited	4,821,000	3,642,000	14,000	NA	6,095,000	14,572,000
Open	0	0	3,637,000	NA	24,429,000	28,066,000
Total	4,842,000	3,741,000	3,693,000	NA	33,030,000	45,307,000
Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ III						
Trails and Travel Management Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	<1%	2%	1%	NA	8%	6%
Limited	100%	98%	0%	NA	18%	32%
Open	0%	0%	99%	NA	74%	63%
Total	100%	100%	100%	NA	100%	100%
Trails and Travel Management Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	<1%	3%	1%	NA	8%	6%
Limited	100%	97%	0%	NA	18%	32%
Open	0%	0%	98%	NA	74%	62%
Total	100%	100%	100%	NA	100%	100%

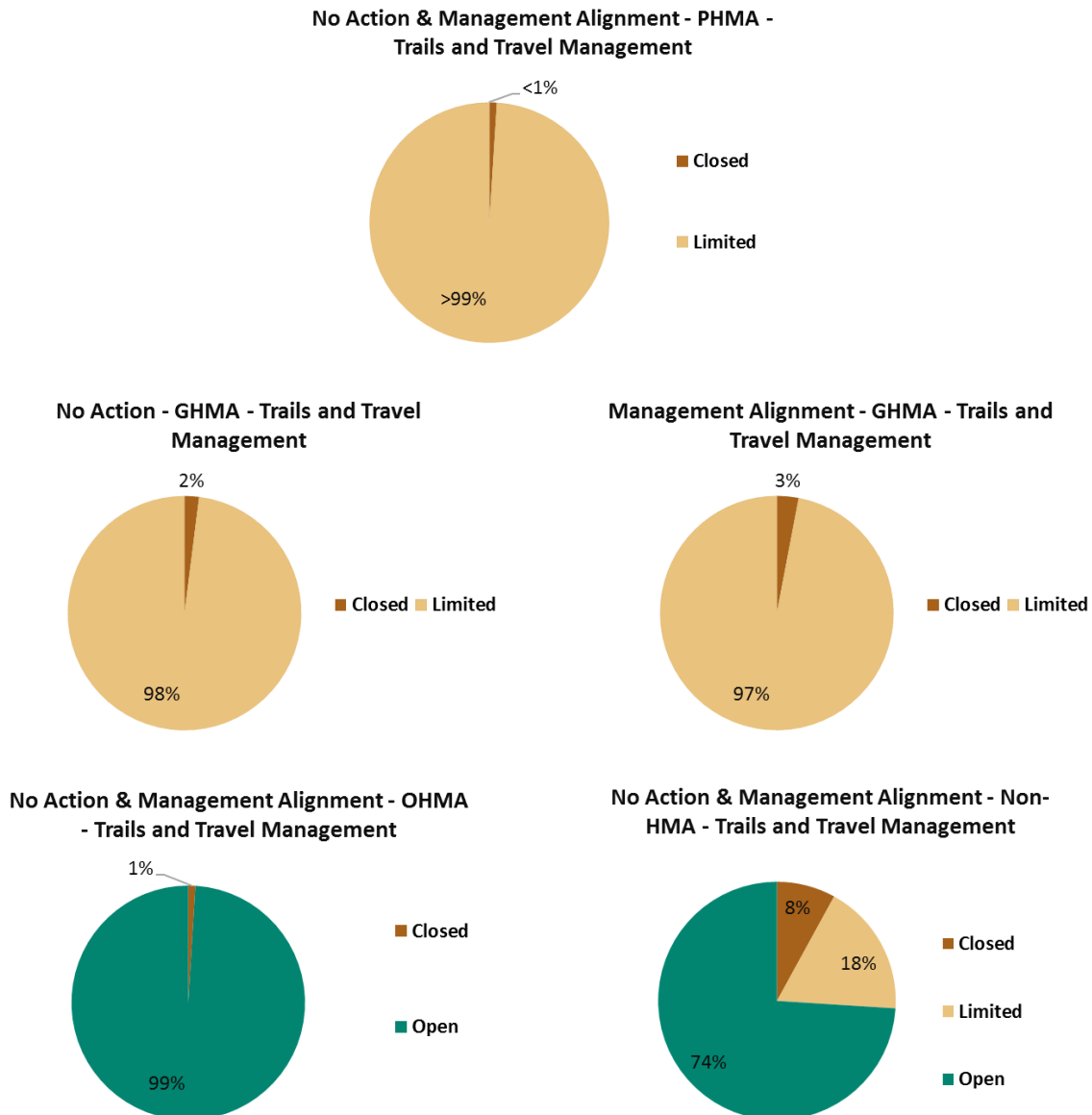


Figure 36 – Trails and Travel Management Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XII. Wind Energy**Table 38 – Wind Energy Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ III by Habitat Management Area Type						
Wind Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,669,000	166,000	230,000	NA	3,939,000	9,004,000
Avoidance	0	3,572,000	0	NA	212,000	3,784,000
Open	54,000	137,000	4,042,000	NA	28,265,000	32,498,000
Total	4,723,000	3,876,000	4,272,000	NA	32,415,000	45,286,000
Wind Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,793,000	176,000	159,000	NA	3,982,000	9,110,000
Avoidance	0	3,565,000	0	NA	212,000	3,777,000
Open	54,000	0	3,534,000	NA	28,805,000	32,393,000
Total	4,847,000	3,741,000	3,693,000	NA	32,999,000	45,280,000
Approximate % of Habitat Management Area by Wind Energy Decision in MZ III						
Wind Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	0%	92%	0%	NA	1%	8%
Avoidance	99%	4%	5%	NA	12%	20%
Open	1%	4%	95%	NA	87%	72%
Total	100%	100%	100%	NA	100%	100%
Wind Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	0%	95%	0%	NA	1%	8%
Avoidance	99%	5%	4%	NA	12%	20%
Open	1%	0%	96%	NA	87%	72%
Total	100%	100%	100%	NA	100%	100%

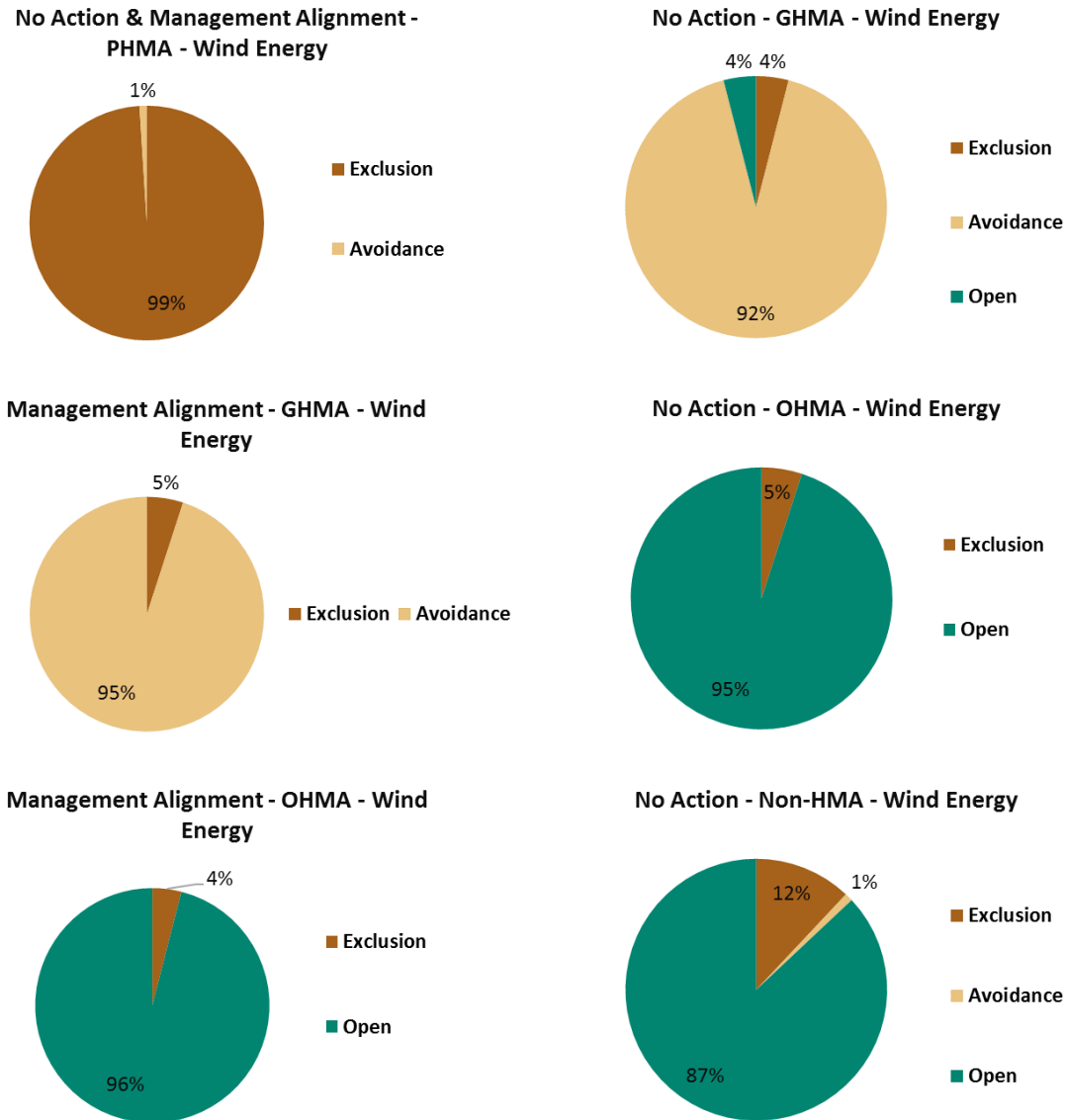


Figure 37 – Wind Energy Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

D.2.4 Management Zone IV – Idaho, Utah, Nevada, Oregon

I. Habitat Management

Table 39 – Habitat Management Areas within MZ IV

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ IV									
No Action					Management Alignment				
PHMA	IHMA	GHMA	OHMA	Non-HMA	PHMA	IHMA	GHMA	OHMA	Non-HMA
17,170,000	4,449,000	11,447,00	1,261,000	41,395,000	16,147,000	4,519,000	11,297,000	990,000	42,769,022
Approximate Percent of MZ IV that is HMA									
No Action					Management Alignment				
PHMA	IHMA	GHMA	OHMA	Non-HMA	PHMA	IHMA	GHMA	OHMA	Non-HMA
23%	6%	15%	2%	55%	21%	6%	15%	1%	56%

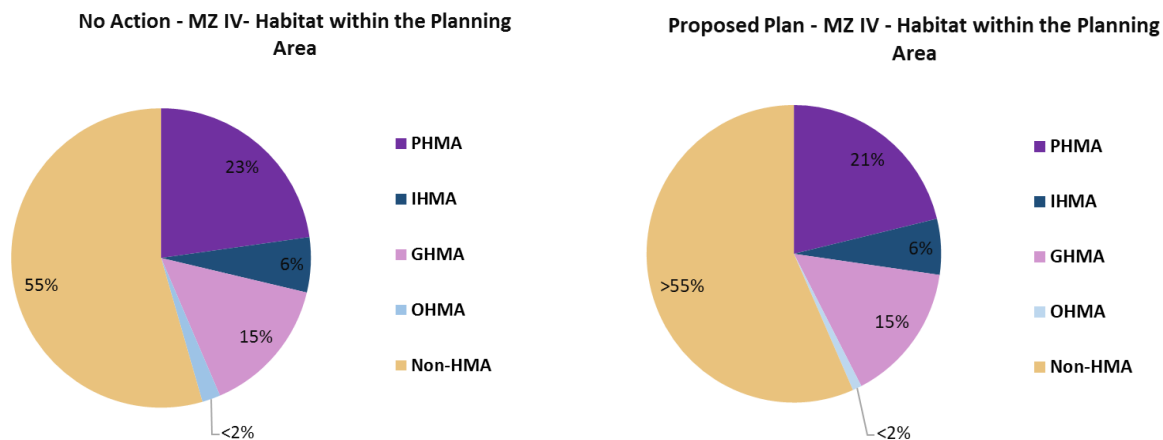


Figure 38 – Habitat Management Areas within MZ IV

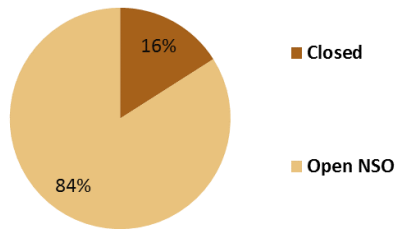
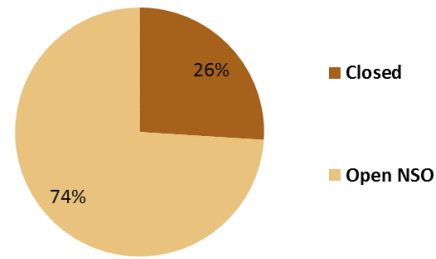
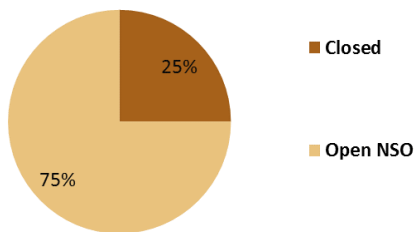
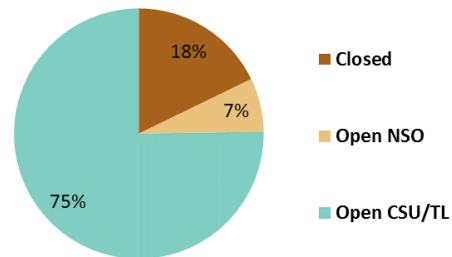
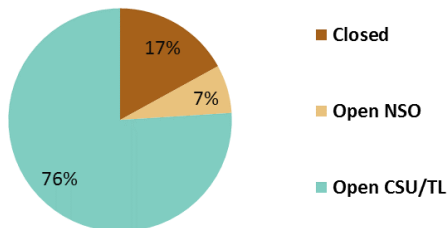
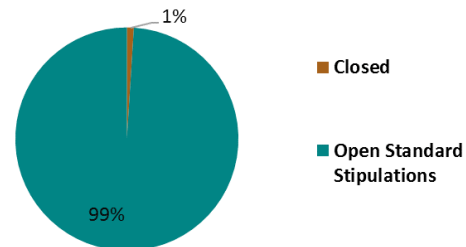
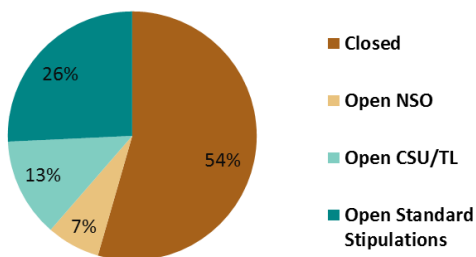
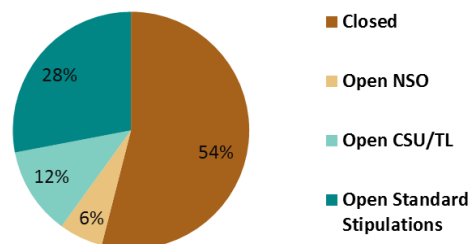
Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

II. Geothermal Energy

Table 40 – Geothermal Energy Decisions within MZ IV

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Energy Decisions in MZ IV by Habitat Management Area Type						
Geothermal Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,923,000	918,000	1,130,000	4,000	9,440,000	13,415,000
Open NSO	10,256,000	2,638,000	424,000	0	1,125,000	14,443,000
Open CSU/TL	0	0	4,881,000	0	2,196,000	7,077,000
Open Standard Stipulations	0	3,000	20,000	704,000	4,529,000	5,257,000
Total	12,178,000	3,560,000	6,455,000	708,000	17,290,000	40,191,000
Geothermal Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,913,000	918,000	1,133,000	6,000	9,439,000	13,410,000
Open NSO	9,848,000	2,702,000	424,000	0	1,125,000	14,099,000
Open CSU/TL	0	0	4,974,000	0	2,196,000	7,169,000
Open Standard Stipulations	0	3,000	20,000	616,000	4,855,000	5,494,000
Total	11,762,000	3,624,000	6,550,000	622,000	17,615,000	40,173,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ IV						
Geothermal Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	26%	18%	1%	55%	33%
Open NSO	84%	74%	7%	0%	7%	36%
Open CSU/TL	0%	0%	76%	0%	13%	18%
Open Standard Stipulations	0%	0%	0%	99%	26%	13%
Total	100%	100%	100%	100%	100%	100%
Geothermal Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	25%	17%	1%	54%	33%
Open NSO	84%	75%	6%	0%	6%	35%
Open CSU/TL	0%	0%	76%	0%	12%	18%
Open Standard Stipulations	0%	0%	0%	99%	28%	14%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment - PHMA - Geothermal Energy**No Action - IHMA - Geothermal Energy****Management Alignment - IHMA - Geothermal Energy****No Action - GHMA - Geothermal Energy****Management Alignment - GHMA - Geothermal Energy****No Action & Management Alignment - OHMA - Geothermal Energy****No Action - Non-HMA - Geothermal Energy****Management Alignment - Non-HMA - Geothermal Energy****Figure 39 – Geothermal Energy Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

III. Land Tenure

Table 4I – Land Tenure Decisions within MZ IV

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ IV by Habitat Management Area Type						
Land Tenure	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0	0	1,000	146,000	659,000	805,000
Retention	10,726,000	2,719,000	4,948,000	562,000	4,277,000	23,232,000
Total	10,727,000	2,719,000	4,949,000	708,000	4,935,000	24,038,000
Land Tenure	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	6,000	0	25,000	85,000	799,000	914,000
Retention	10,319,000	2,780,000	5,019,000	537,000	4,462,000	23,117,000
Total	10,325,000	2,780,000	5,043,000	622,000	5,261,000	24,032,000
Approximate % of Habitat Management Area by Land Tenure Decision in MZ III						
Land Tenure	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0%	0%	<1%	21%	13%	3%
Retention	100%	100%	100%	79%	87%	97%
Total	100%	100%	100%	100%	100%	100%
Land Tenure	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	<1%	0%	<1%	14%	15%	4%
Retention	100%	100%	100%	86%	85%	96%
Total	100%	100%	100%	100%	100%	100%

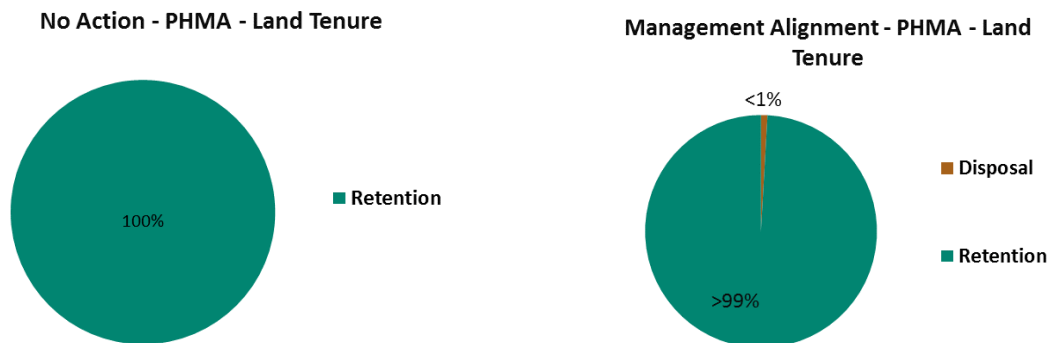
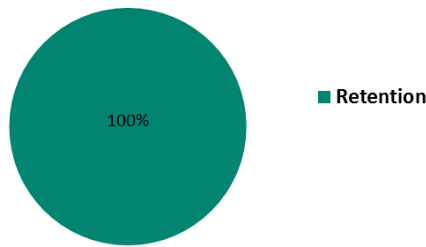
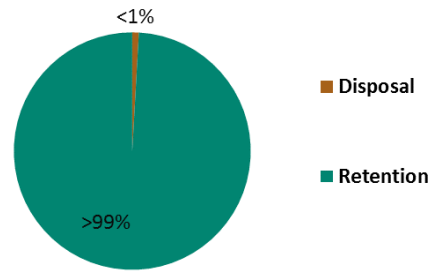


Figure 40 – Land Tenure Decisions within MZ IV

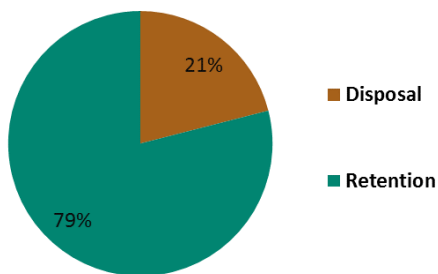
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment - IHMA
- Land Tenure

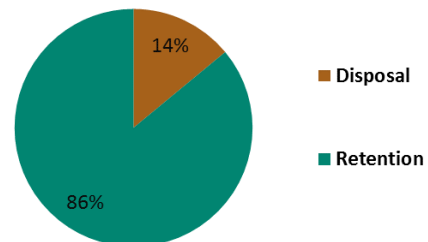
No Action & Management Alignment - GHMA - Land Tenure



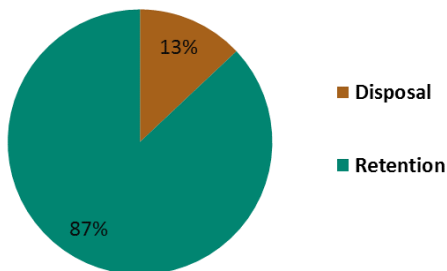
No Action - OHMA - Land Tenure



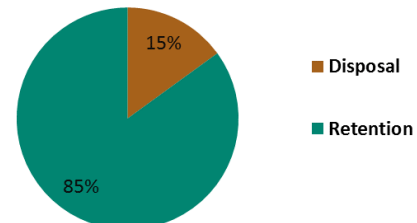
Management Alignment - OHMA - Land Tenure



No Action - Non-HMA - Land Tenure



Management Alignment - Non-HMA - Land Tenure

**Figure 40 (cont'd) – Land Tenure Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IV. Livestock Grazing**Table 42 – Livestock Grazing Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ IV by Habitat Management Area Type						
Livestock Grazing	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	182,000	18,000	43,000	0	92,000	335,000
Available	10,515,000	2,701,000	4,923,000	709,000	4,562,000	23,411,000
Total	10,697,000	2,719,000	4,966,000	709,000	4,655,000	23,746,000
Livestock Grazing	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	182,000	18,000	43,000	0	92,000	335,000
Available	10,112,000	2,762,000	5,029,000	620,000	4,883,000	23,406,000
Total	10,294,000	2,780,000	5,072,000	620,000	4,975,000	23,740,000
Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ IV						
Livestock Grazing	No Action & Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	2%	1%	1%	0%	2%	1%
Available	98%	99%	99%	100%	98%	99%
Total	100%	100%	100%	100%	100%	100%

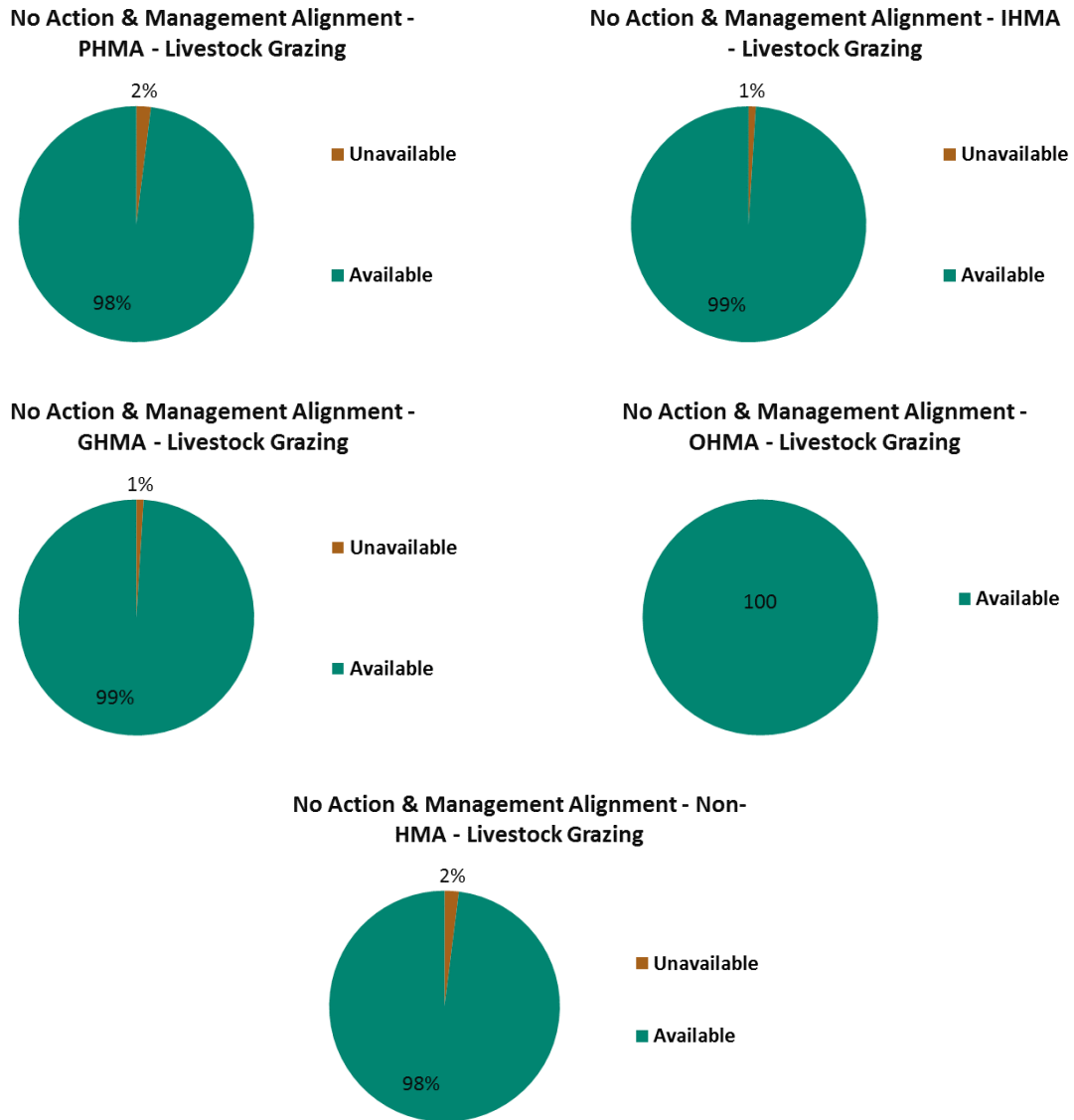


Figure 4I – Livestock Grazing Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

V. Locatable Minerals

Table 43 – Locatable Minerals Decisions within MZ IV

Acres and Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Locatable Minerals Decisions in MZ IV by Habitat Management Area Type						
Locatable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	1,079,000	442,000	432,000	0	3,606,000	5,560,000
Recommended Withdrawals	4,836,000	0	2,000	0	0	4,838,000
Open	6,074,000	2,858,000	6,055,000	708,000	13,798,000	29,492,000
Total	11,990,000	3,300,000	6,489,000	708,000	17,404,000	39,891,000
Locatable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	1,078,000	442,000	431,000	0	3,605,000	5,556,000
Recommended Withdrawals	0	0	2,000	0	0	2,000
Open	10,518,000	2,923,000	6,151,000	622,000	14,113,000	34,327,000
Total	11,597,000	3,364,000	6,584,000	622,000	17,718,000	39,885,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ IV						
Locatable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	9%	13%	7%	0%	21%	14%
Recommended Withdrawals	40%	0%	0%	0%	0%	12%
Open	51%	87%	93%	100%	79%	74%
Total	100%	100%	100%	100%	100%	100%
Locatable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	9%	13%	9%	0%	20%	14%
Recommended Withdrawals	0%	0%	<1%	0%	0%	0%
Open	91%	87%	91%	100%	80%	86%
Total	100%	100%	100%	100%	100%	100%



Figure 42 – Locatable Minerals Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

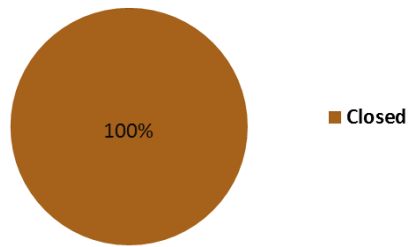
VI. Non-Energy Leasable Minerals

Table 44 – Non-Energy Leasable Minerals Decisions within MZ IV

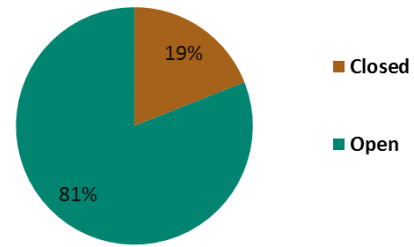
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ IV by Habitat Management Area Type						
Non-Energy Leasable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	12,180,000	682,000	1,059,000	4,000	9,139,000	23,064,000
Open	0	2,877,000	5,413,000	704,000	8,375,000	17,369,000
Total	12,180,000	3,559,000	6,472,000	708,000	17,514,000	40,433,000
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,775,000	682,000	1,062,000	6,000	9,138,000	22,663,000
Open	0	2,941,000	5,505,000	616,000	8,701,000	17,763,000
Total	11,775,000	3,624,000	6,567,000	622,000	17,839,000	40,426,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ IV						
Non-Energy Leasable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	19%	16%	1%	52%	57%
Open	0%	81%	84%	99%	48%	43%
Total	100%	100%	100%	100%	100%	100%
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	19%	16%	1%	51%	56%
Open	0%	81%	84%	99%	49%	44%
Total	100%	100%	100%	100%	100%	100%

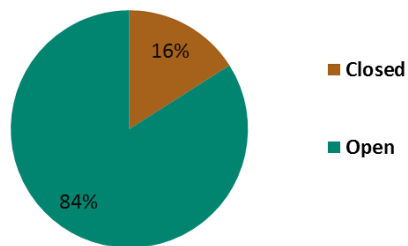
No Action & Management Alignment - PHMA - Non-Energy Leasable Minerals



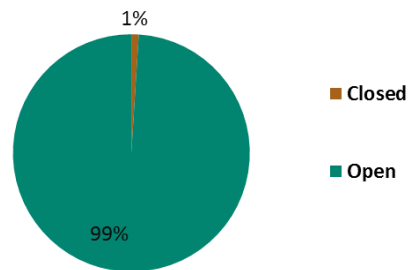
Management Alignment - IHMA - Non-Energy Leasable Minerals



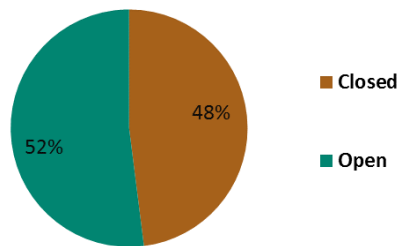
Management Alignment - GHMA - Non-Energy Leasable Minerals



Management Alignment - OHMA - Non-Energy Leasable Minerals



No Action - Non-HMA - Non-Energy Leasable Minerals



Management Alignment - Non-HMA - Non-Energy Leasable Minerals

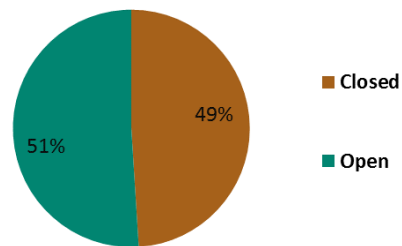


Figure 43 – Non-Energy Leasable Minerals Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 45 – Fluid Mineral (Oil & Gas) Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ IV by Habitat Management Area Type						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,924,000	1,136,000	1,136,000	4,000	9,542,000	13,523,000
Open NSO	10,245,000	436,000	436,000	0	1,164,000	14,493,000
Open CSU/TL	18,000	4,947,000	4,947,000	0	2,266,000	7,230,000
Open Standard Stipulations	1,000	3,000	3,000	704,000	4,729,000	5,437,000
Total	12,187,000	6,522,000	6,522,000	708,000	17,701,000	40,683,000
Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,917,000	917,000	1,138,000	6,000	9,541,000	13,520,000
Open NSO	9,846,000	2,712,000	436,000	0	1,176,000	14,171,000
Open CSU/TL	17,000	0	5,039,000	0	2,266,000	7,322,000
Open Standard Stipulations	1,000	0	3,000	616,000	5,043,000	5,663,000
Total	11,782,000	3,629,000	6,616,000	622,000	18,027,000	40,676,000
Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ IV						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	26%	17%	1%	54%	33%
Open NSO	84%	74%	7%	0%	7%	36%
Open CSU/TL	<1%	0%	76%	0%	13%	18%
Open Standard Stipulations	<1%	0%	<1%	99%	27%	13%
Total	100%	100%	100%	100%	100%	100%
Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	25%	17%	1%	53%	33%
Open NSO	84%	75%	7%	0%	7%	35%
Open CSU/TL	<1%	0%	76%	0%	13%	18%
Open Standard Stipulations	<1%	0%	<1%	99%	28%	14%
Total	100%	100%	100%	100%	100%	100%

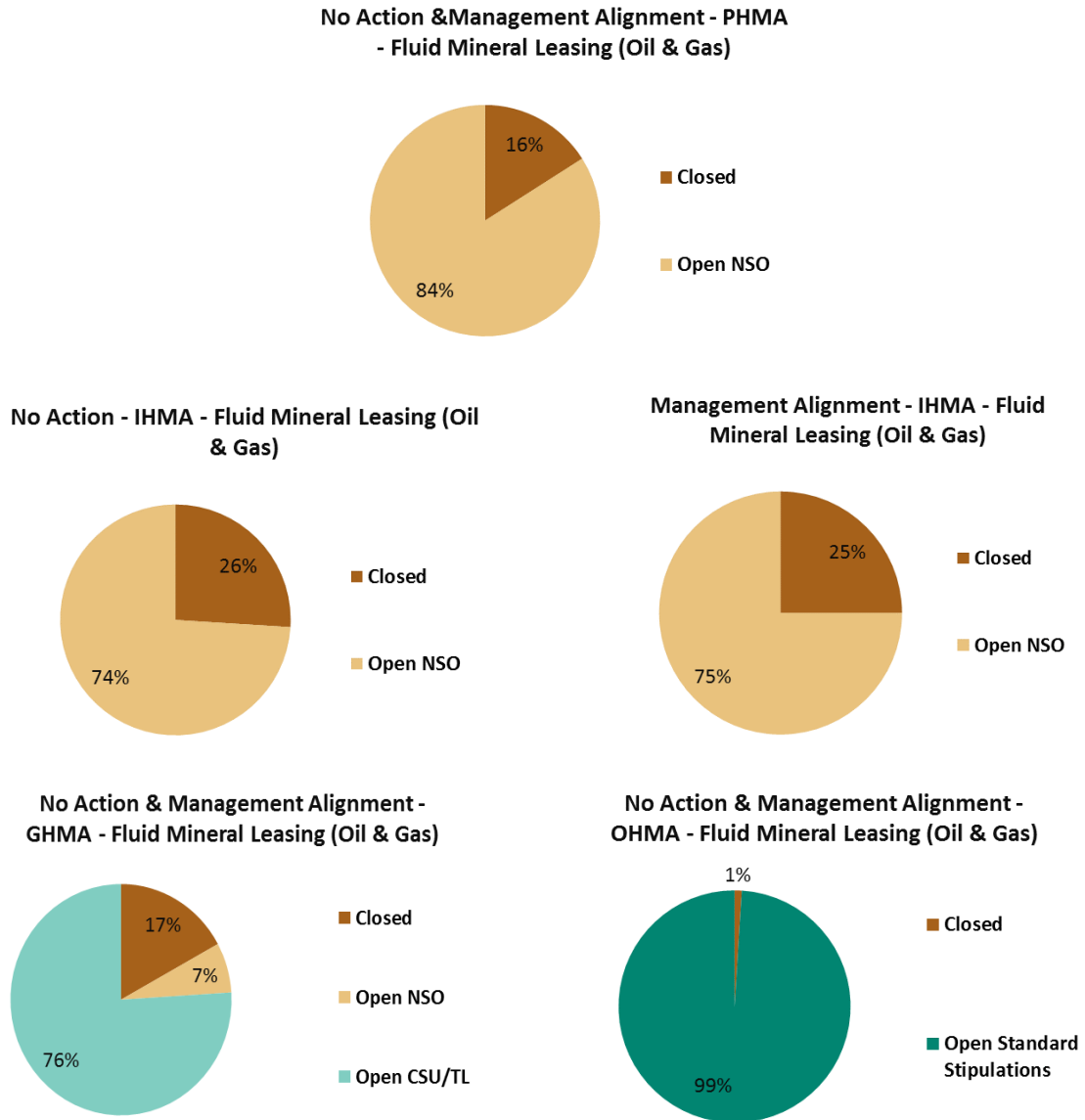
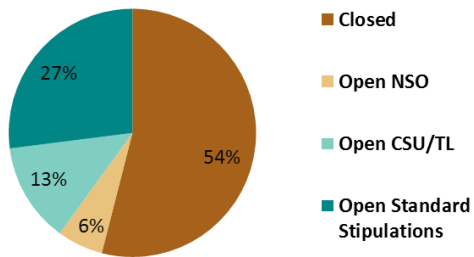
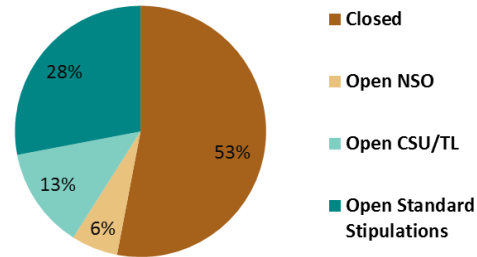


Figure 44 – Fluid Mineral (Oil & Gas) Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Fluid Mineral Leasing
(Oil & Gas)

Management Alignment - Non-HMA - Fluid Mineral Leasing (Oil & Gas)

**Figure 44 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ IV**

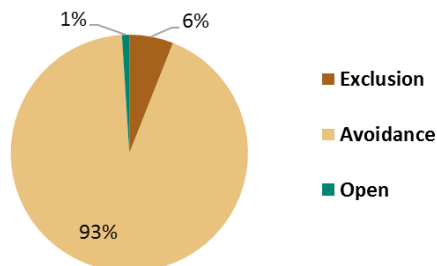
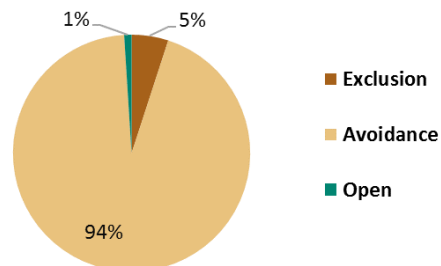
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VIII. Rights-of-Ways

Table 46 – Rights-of-Ways Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ IV by Habitat Management Area Type						
Rights-of-Ways	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	637,000	131,000	269,000	3,000	244,000	1,283,000
Avoidance	9,993,000	2,565,000	3,095,000	0	463,000	16,117,000
Open	98,000	24,000	1,827,000	705,000	4,381,000	7,035,000
Total	10,728,000	2,719,000	5,192,000	708,000	5,088,000	24,435,000
Rights-of-Ways	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	631,000	131,000	272,000	6,000	245,000	1,285,000
Avoidance	9,623,000	2,626,000	3,204,000	0	475,000	15,928,000
Open	68,000	24,000	1,810,000	615,000	4,700,000	7,217,000
Total	10,322,000	2,780,000	5,286,000	621,000	5,420,000	24,429,000
Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ IV						
Rights-of-Ways	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	6%	5%	5%	0%	5%	5%
Avoidance	93%	94%	60%	0%	9%	65%
Open	1%	1%	35%	100%	86%	29%
Total	100%	100%	100%	100%	100%	100%
Rights-of-Ways	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	6%	5%	5%	1%	4%	5%
Avoidance	93%	94%	61%	0%	9%	65%
Open	1%	1%	34%	99%	87%	30%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment - PHMA - Rights of Ways**No Action & Management Alignment - IHMA - Rights of Ways****Figure 45 – Rights-of-Ways Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

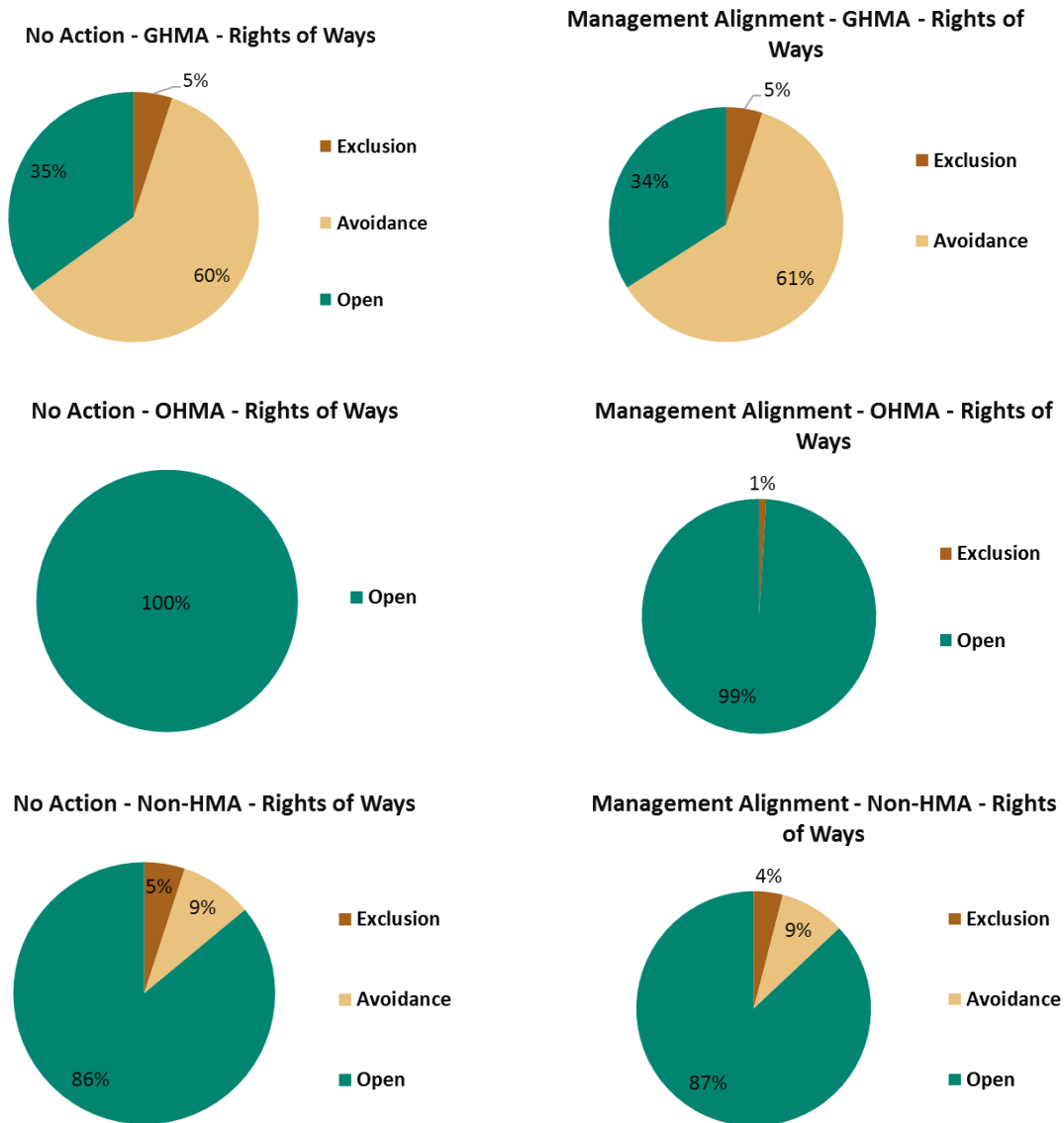


Figure 45 (cont'd) – Rights-of-Ways Decisions within MZ IV

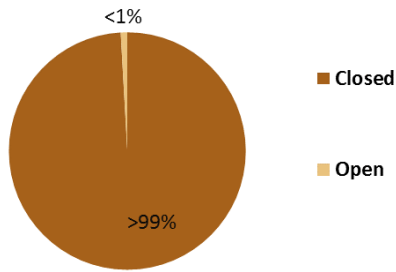
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IX. Salable Minerals Materials**Table 47 – Salable Minerals Materials Decisions within MZ IV**

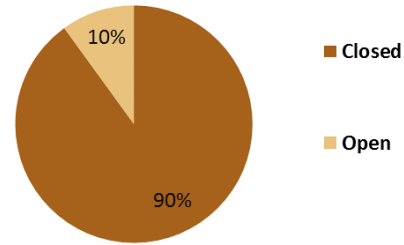
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ IV by Habitat Management Area Type						
Salable Minerals Materials	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,494,000	313,000	682,000	4,000	830,000	13,323,000
Open	4,000	2,878,000	5,250,000	704,000	5,504,000	14,339,000
Total	11,497,000	3,191,000	5,932,000	708,000	6,334,000	27,662,000
Salable Minerals Materials	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,089,000	313,000	684,000	6,000	829,000	12,922,000
Open	4,000	2,942,000	5,343,000	616,000	5,830,000	14,734,000
Total	11,093,000	3,255,000	6,027,000	622,000	6,659,000	27,656,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ IV						
Salable Minerals Materials	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	10%	11%	1%	13%	48%
Open	<1%	90%	89%	99%	87%	52%
Total	100%	100%	100%	100%	100%	100%
Salable Minerals Materials	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	10%	11%	1%	12%	47%
Open	<1%	90%	89%	99%	88%	53%
Total	100%	100%	100%	100%	100%	100%

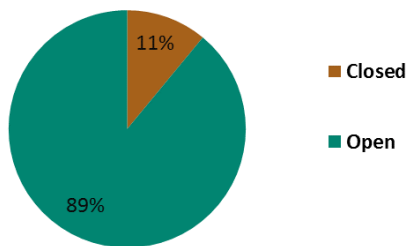
No Action & Management Alignment -
PHMA - Salable Minerals Materials



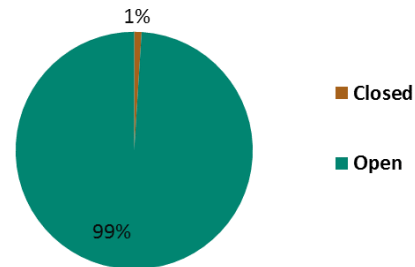
No Action & Management Alignment - IHMA
- Salable Minerals Materials



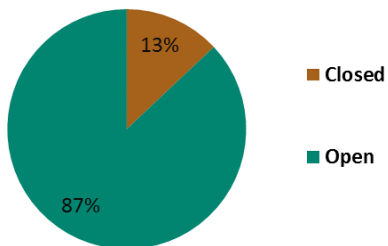
No Action & Management Alignment -
GHMA - Salable Minerals Materials



No Action & Management Alignment -
OHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals
Materials



Management Alignment - Non-HMA -
Salable Minerals Materials

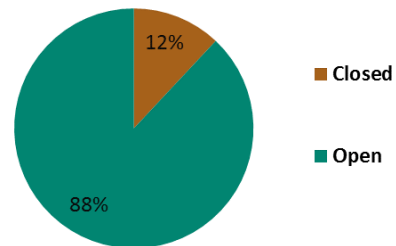


Figure 46 – Salable Minerals Materials Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

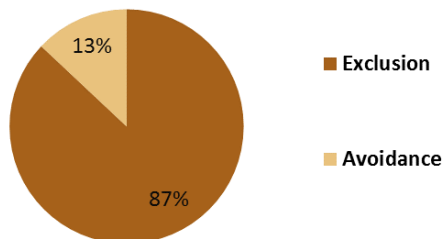
X. Solar Energy

Table 48 – Solar Energy Decisions within MZ IV

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions in MZ IV by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,341,000	363,000	1,210,000	706,000	2,275,000	13,895,000
Avoidance	1,390,000	2,357,000	2,235,000	0	123,000	6,105,000
Open	0	0	1,500,000	1,000	2,521,000	4,022,000
Total	10,731,000	2,719,000	4,945,000	707,000	4,919,000	24,021,000
Solar Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	8,937,000	363,000	1,304,000	622,000	2,605,000	13,831,000
Avoidance	1,390,000	2,417,000	2,235,000	0	123,000	6,165,000
Open	0	0	1,500,000	0	2,520,000	4,020,000
Total	10,326,000	2,780,000	5,039,000	622,000	5,248,000	24,015,000
Approximate % of Habitat Management Area by Solar Energy Decision in MZ IV						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	24%	100%	46%	58%
Avoidance	13%	87%	45%	0%	3%	25%
Open	0%	0%	30%	0%	51%	17%
Total	100%	100%	100%	100%	100%	100%
Solar Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	26%	100%	50%	58%
Avoidance	13%	87%	44%	0%	2%	26%
Open	0%	0%	30%	0%	48%	17%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar Energy



No Action & Management Alignment -
IHMA - Solar Energy

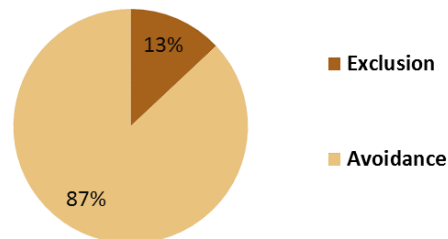


Figure 47 – Solar Energy Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

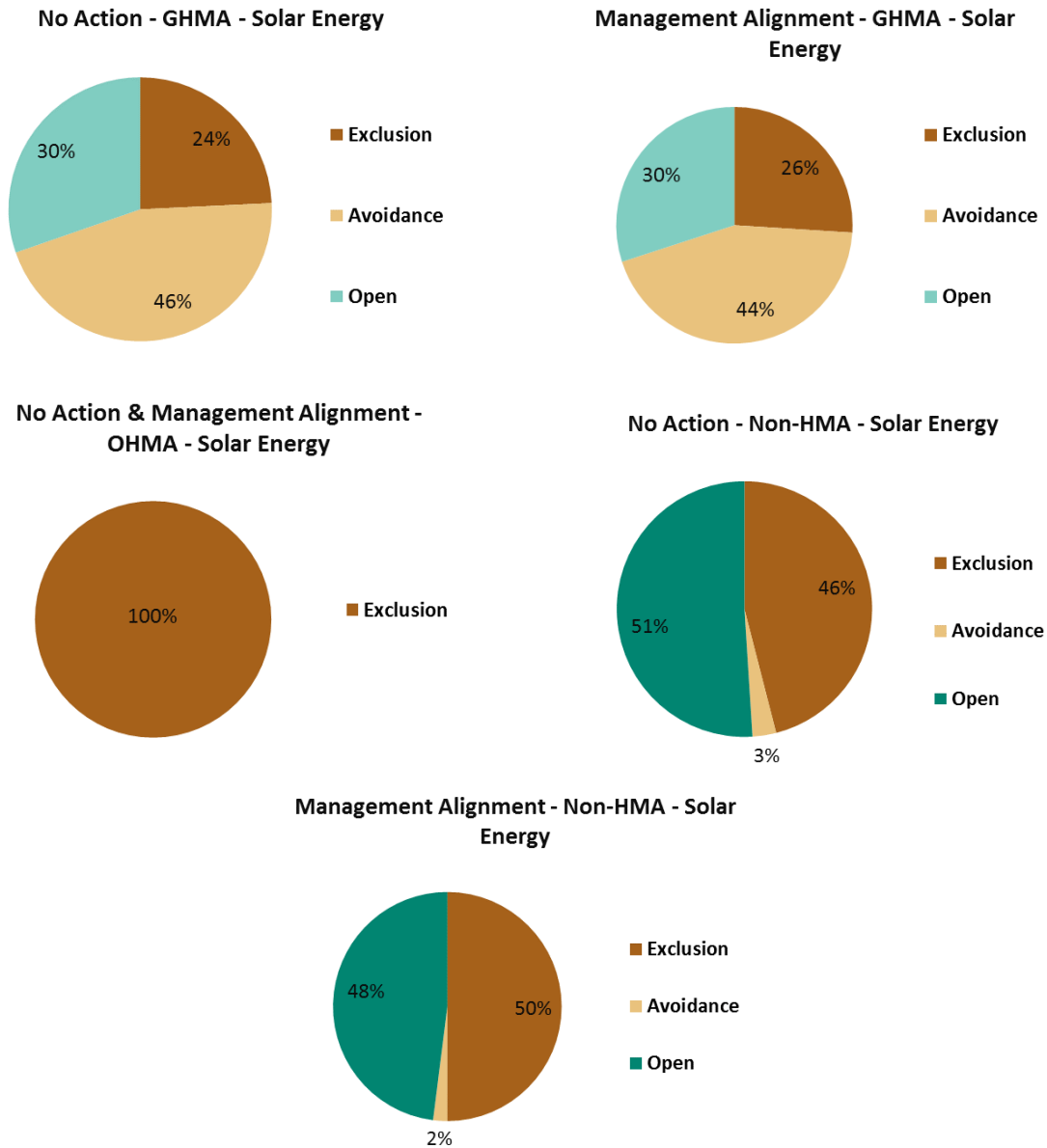


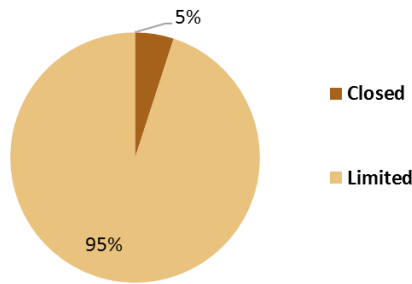
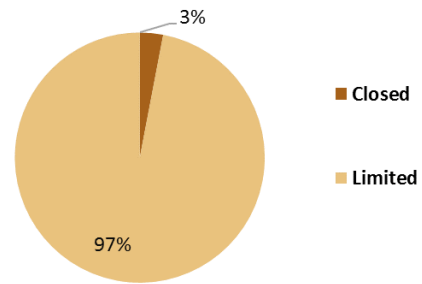
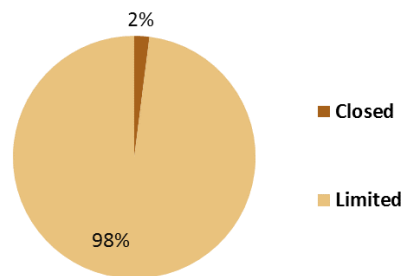
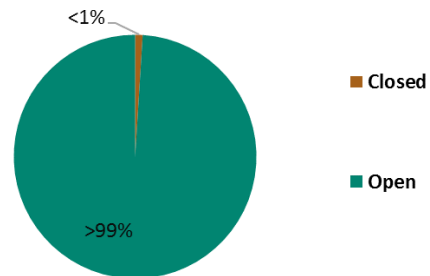
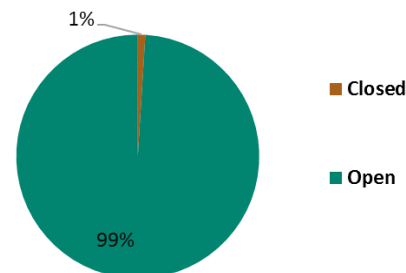
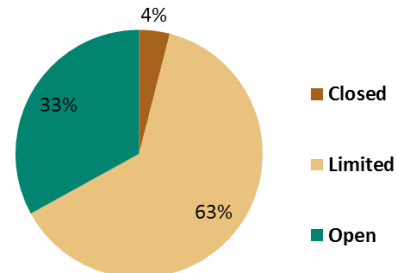
Figure 47 (cont'd) – Solar Energy Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

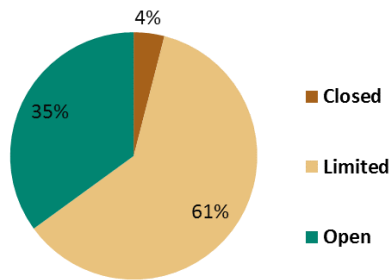
XI. Trails and Travel Management**Table 49 — Trails and Travel Management Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ IV by Habitat Management Area Type						
Trails and Travel Management Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	560,000	83,000	85,000	1,000	215,000	943,000
Limited	10,169,000	2,633,000	4,866,000	1,000	3,101,000	20,770,000
Open	0	3,000	0	707,000	1,619,000	2,329,000
Total	10,729,000	2,719,000	4,951,000	708,000	4,935,000	24,042,000
Trails and Travel Management Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	559,000	83,000	84,000	0	214,000	940,000
Limited	9,768,000	2,694,000	4,961,000	5,000	3,188,000	20,617,000
Open	0	3,000	0	617,000	1,859,000	2,479,000
Total	10,327,000	2,780,000	5,046,000	622,000	5,261,000	24,036,000
Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ IV						
Trails and Travel Management Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	3%	2%	<1%	4%	4%
Limited	95%	97%	98%	<1%	63%	86%
Open	0%	<1%	0%	100%	33%	10%
Total	100%	100%	100%	100%	100%	100%
Trails and Travel Management Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	3%	2%	0%	4%	4%
Limited	95%	97%	98%	1%	61%	86%
Open	0%	0%	0%	99%	35%	10%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment - PHMA - Trails and Travel Management**No Action & Management Alignment - IHMA - Trails and Travel Management****No Action & Management Alignment - GHMA - Trails and Travel Management****No Action - OHMA - Trails and Travel Management****Management Alignment - OHMA - Trails and Travel Management****No Action - Non-HMA - Trails and Travel Management****Figure 48 – Trails and Travel Management Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Management Alignment- Non-HMA - Trails and Travel Management**Figure 48 (cont'd) – Trails and Travel Management Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XII. Wind Energy**Table 50 – Wind Energy Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ IV by Habitat Management Area Type						
Wind Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,339,000	363,000	392,000	4,000	1,035,000	11,133,000
Avoidance	1,390,000	2,357,000	3,051,000	0	123,000	6,920,000
Open	0	0	1,501,000	704,000	3,769,000	5,973,000
Total	10,728,000	2,719,000	4,944,000	708,000	4,926,000	24,026,000
Wind Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	8,938,000	363,000	395,000	6,000	1,046,000	10,748,000
Avoidance	1,390,000	2,417,000	3,144,000	0	123,000	7,073,000
Open	0	0	1,501,000	616,000	4,083,000	6,199,000
Total	10,327,000	2,780,000	5,039,000	622,000	5,252,000	24,020,000
Approximate % of Habitat Management Area by Wind Energy Decision in MZ IV						
Wind Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	8%	1%	21%	46%
Avoidance	13%	87%	62%	0%	2%	29%
Open	0%	0%	30%	99%	77%	25%
Total	100%	100%	100%	100%	100%	100%
Wind Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	8%	1%	20%	45%
Avoidance	13%	87%	62%	0%	2%	29%
Open	0%	0%	30%	99%	78%	26%
Total	100%	100%	100%	100%	100%	100%

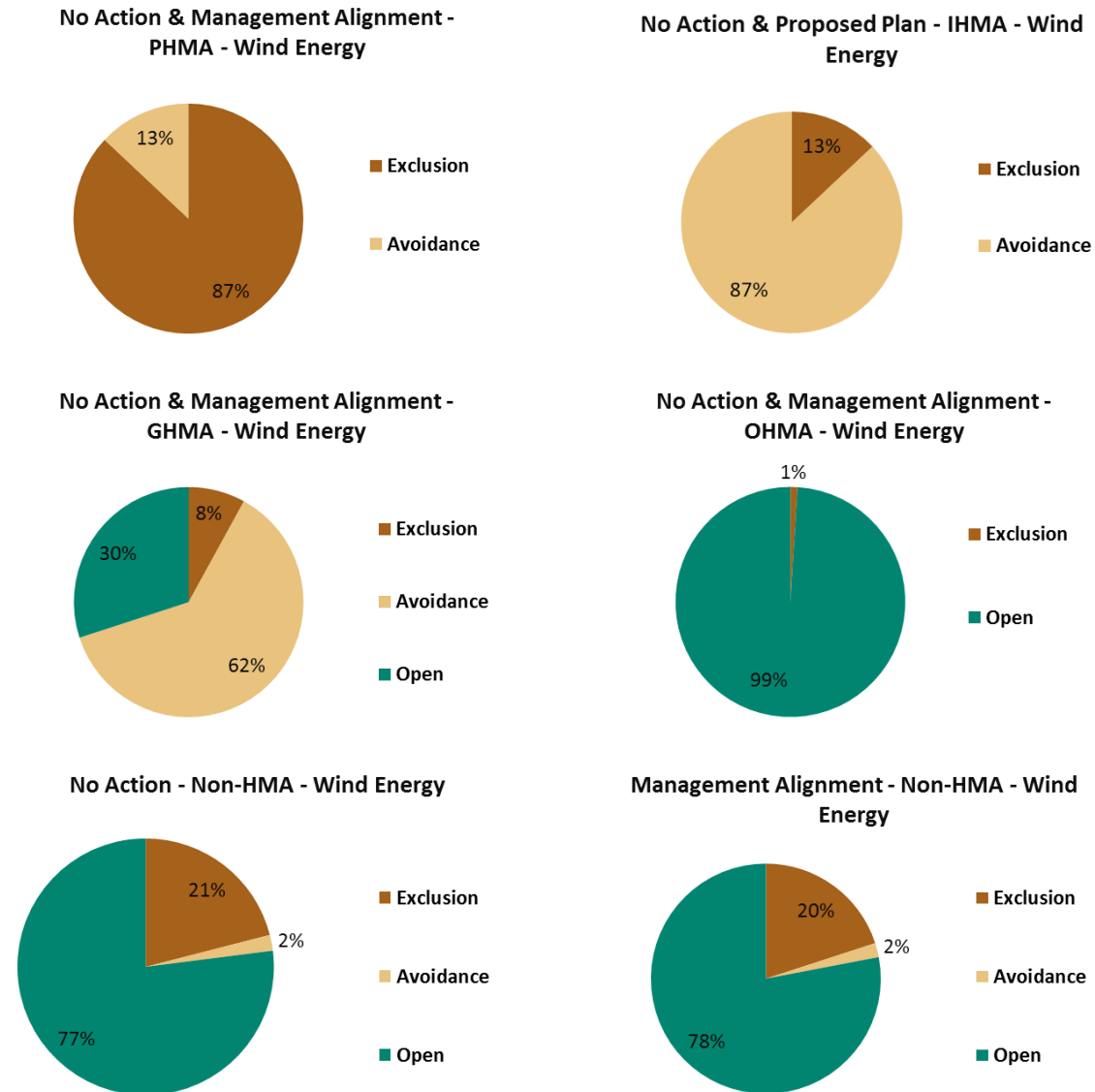


Figure 49 – Wind Energy Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

D.2.5 Management Zone V – Oregon, Nevada, California

I. Habitat Management

Table 51 – Habitat Management Areas within MZ V

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ V							
No Action				Management Alignment			
PHMA	GHMA	OHMA	Non-HMA	PHMA	GHMA	OHMA	Non-HMA
6,510,000	7,323,000	1,932,000	15,519,000	6,567,000	6,846,000	1,142,000	16,727,000
Approximate Percent of MZ I that is HMA							
No Action				Management Alignment			
PHMA	GHMA	OHMA	Non-HMA	PHMA	GHMA	OHMA	Non-HMA
21%	23%	6%	50%	21%	22%	4%	53%

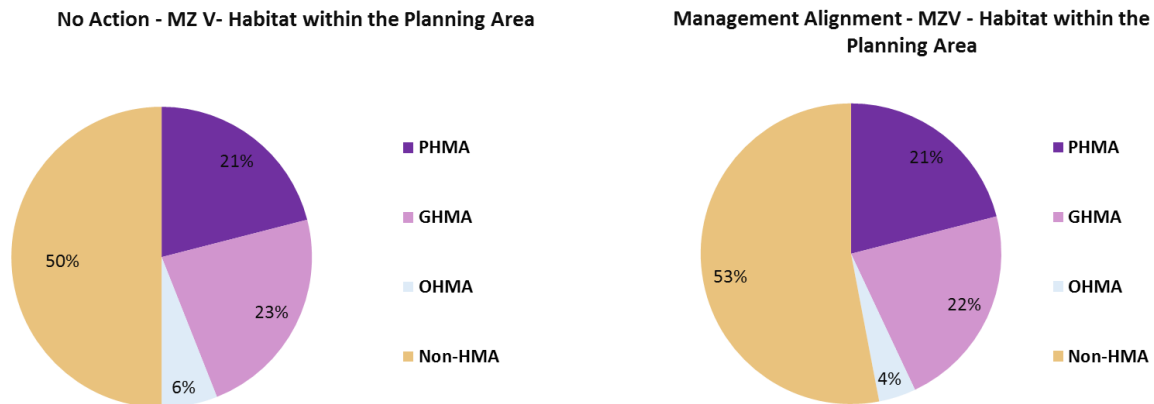


Figure 50 – Habitat Management Areas within MZ V

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

II. Geothermal Energy

Table 52 – Geothermal Energy Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Energy Decisions in MZ V by Habitat Management Area Type					
Geothermal Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,626,000	1,359,000	158,000	898,000	4,042,000
Open NSO	3,350,000	379,000	0	164,000	3,893,000
Open CSU/TL	0	3,287,000	0	335,000	3,622,000
Open Standard Stipulations	5,000	0	744,000	2,367,000	3,117,000
Total	4,982,000	5,026,000	903,000	3,764,000	14,674,000
Geothermal Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,569,000	1,373,000	141,000	935,000	4,018,000
Open NSO	3,566,000	379,000	0	164,000	4,110,000
Open CSU/TL	0	3,185,000	0	335,000	3,520,000
Open Standard Stipulations	0	0	423,000	2,598,000	3,021,000
Total	5,136,000	4,937,000	564,000	4,032,000	14,668,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V					
Geothermal Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	33%	27%	17%	24%	28%
Open NSO	67%	8%	0%	4%	27%
Open CSU/TL	0%	65%	0%	9%	25%
Open Standard Stipulations	<1%	0%	82%	63%	21%
Total	100%	100%	100%	100%	100%
Geothermal Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	31%	28%	25%	23%	27%
Open NSO	69%	8%	0%	4%	28%
Open CSU/TL	0%	65%	0%	8%	24%
Open Standard Stipulations	0%	0%	75%	64%	21%
Total	100%	100%	100%	100%	100%

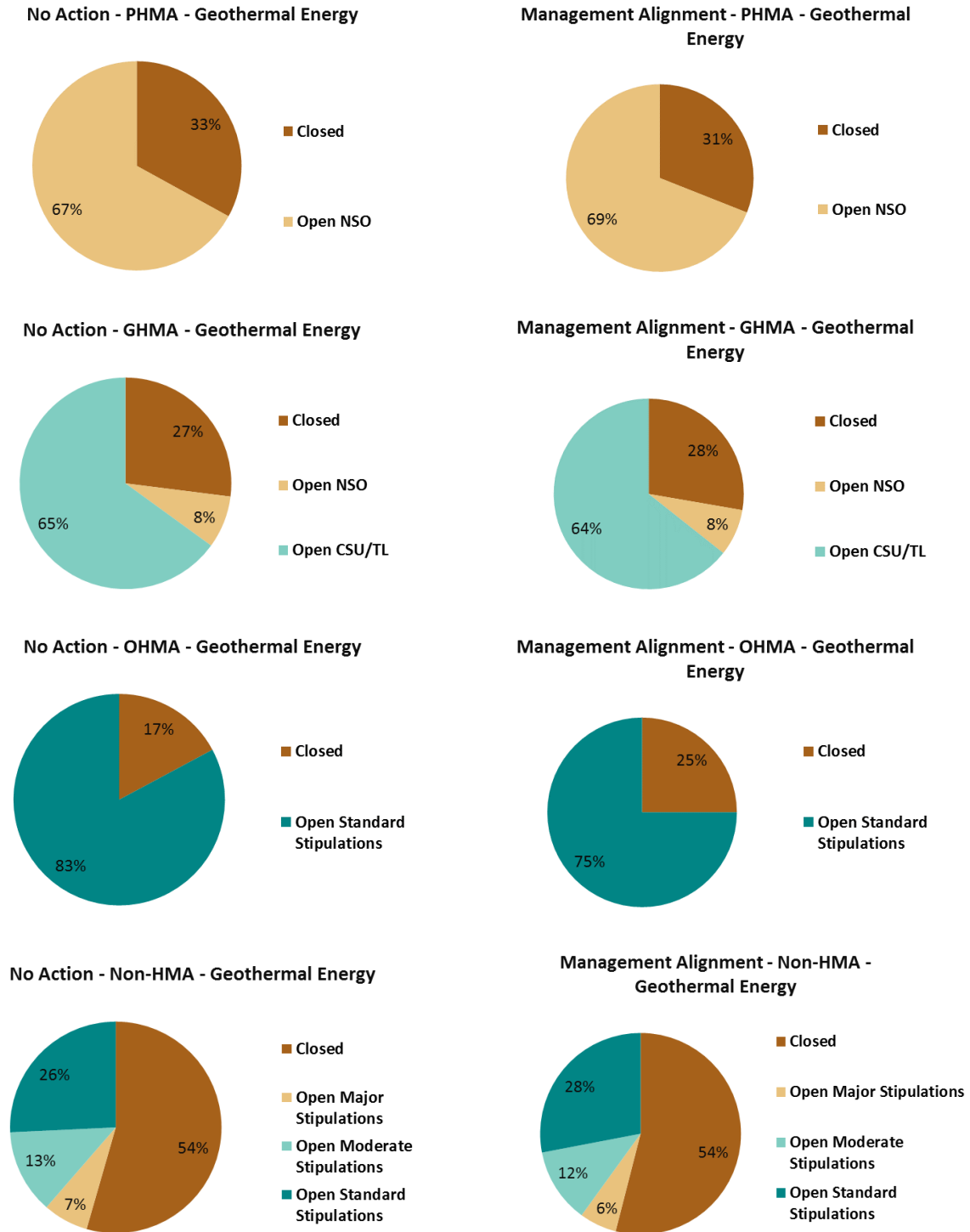


Figure 5I – Geothermal Energy Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

III. Land Tenure

Table 53 – Land Tenure Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ V by Habitat Management Area Type					
Land Tenure	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0	0	79,000	521,000	600,000
Retention	4,649,000	4,896,000	822,000	3,044,000	13,410,000
Total	4,649,000	4,896,000	901,000	3,565,000	14,011,000
Land Tenure	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	2,000	19,000	32,000	592,000	644,000
Retention	4,802,000	4,787,000	530,000	3,241,000	13,360,000
Total	4,804,000	4,806,000	562,000	3,833,000	14,005,000
Approximate % of Habitat Management Area by Land Tenure Decision in MZ III					
Land Tenure	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0%	0%	9%	15%	4%
Retention	100%	100%	91%	85%	96%
Total	100%	100%	100%	100%	100%
Land Tenure	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	<1%	<1%	6%	15%	5%
Retention	100%	100%	94%	85%	95%
Total	100%	100%	100%	100%	100%

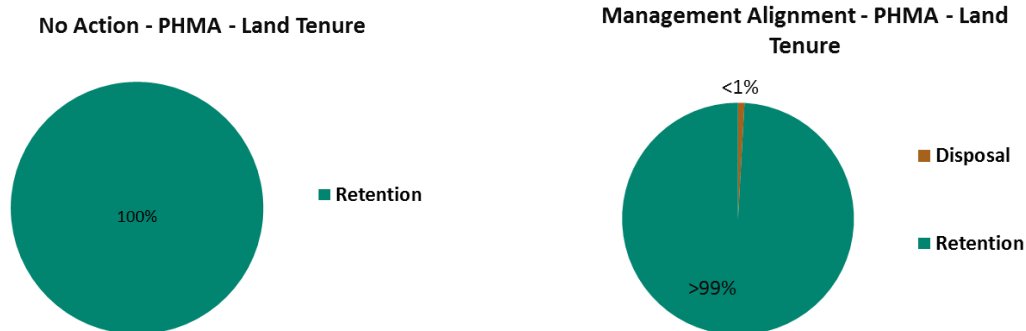


Figure 52 – Land Tenure Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



Figure 52 (cont'd) – Land Tenure Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IV. Livestock Grazing

Table 54 – Livestock Grazing Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ V by Habitat Management Area Type					
Livestock Grazing	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	47,000	102,000	0	84,000	232,000
Available	4,582,000	4,762,000	883,000	3,233,000	13,461,000
Total	4,629,000	4,864,000	883,000	3,317,000	13,694,000
Livestock Grazing	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	47,000	102,000	0	84,000	232,000
Available	4,736,000	4,671,000	550,000	3,493,000	13,450,000
Total	4,783,000	4,772,000	550,000	3,577,000	13,682,000
Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ V					
Livestock Grazing	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	1%	2%	0%	3%	2%
Available	99%	98%	100%	97%	98%
Total	100%	100%	100%	100%	100%
Livestock Grazing	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	1%	2%	0%	2%	2%
Available	99%	98%	100%	98%	98%
Total	100%	100%	100%	100%	100%



Figure 53 – Livestock Grazing Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

V. Locatable Minerals

Table 55 – Locatable Minerals Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Locatable Minerals Decisions in MZ V by Habitat Management Area Type					
Locatable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	631,000	687,000	59,000	486,000	1,864,000
Recommended Withdrawals	435,000	5,000	0	0	440,000
Open	3,885,000	4,329,000	842,000	3,048,000	12,104,000
Total	4,951,000	5,022,000	901,000	3,534,000	14,408,000
Locatable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	626,000	687,000	64,000	487,000	1,864,000
Recommended Withdrawals	12,000	5,000	0	0	17,000
Open	4,469,000	4,240,000	499,000	3,314,000	12,522,000
Total	5,106,000	4,932,000	562,000	3,801,000	14,403,000
Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V					
Locatable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	13%	14%	7%	14%	13%
Recommended Withdrawals	9%	0%	0%	0%	3%
Open	78%	86%	93%	86%	84%
Total	100%	100%	100%	100%	100%
Locatable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	12%	14%	11%	13%	13%
Recommended Withdrawals	0%	0%	0%	0%	0%
Open	88%	86%	89%	87%	87%
Total	100%	100%	100%	100%	100%

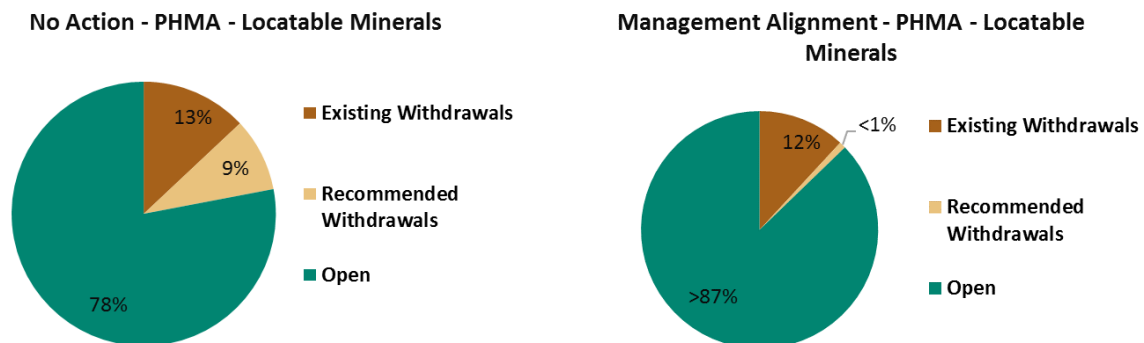


Figure 54 – Locatable Minerals Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



Figure 54 (cont'd) – Locatable Minerals Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VI. Non-Energy Leasable Minerals**Table 56 – Non-Energy Leasable Minerals Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ V by Habitat Management Area Type					
Non-Energy Leasable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4,980,000	1,388,000	158,000	898,000	7,423,000
Open	0	3,635,000	744,000	2,866,000	7,247,000
Total	4,980,000	5,024,000	903,000	3,764,000	14,671,000
Non-Energy Leasable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5,135,000	1,402,000	141,000	935,000	7,613,000
Open	0	3,532,000	423,000	3,097,000	7,052,000
Total	5,135,000	4,934,000	564,000	4,032,000	14,665,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ V					
Non-Energy Leasable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	17%	24%	51%
Open	0%	72%	82%	76%	49%
Total	100%	100%	100%	100%	100%
Non-Energy Leasable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	25%	23%	52%
Open	0%	72%	75%	77%	48%
Total	100%	100%	100%	100%	100%

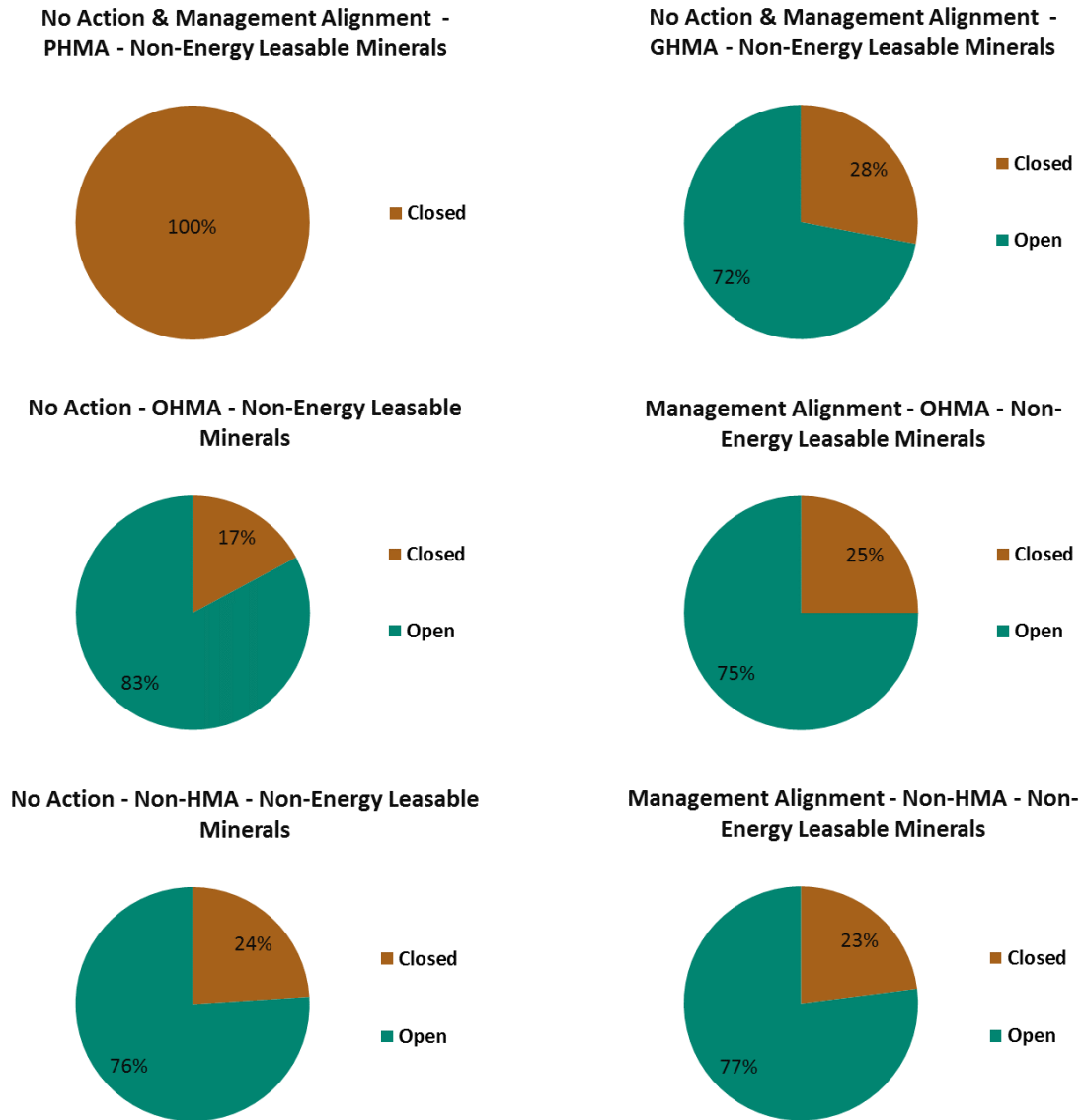


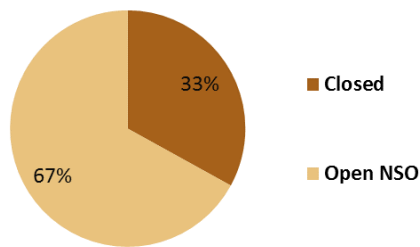
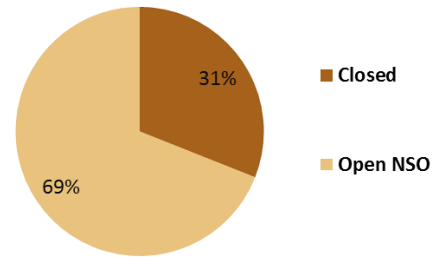
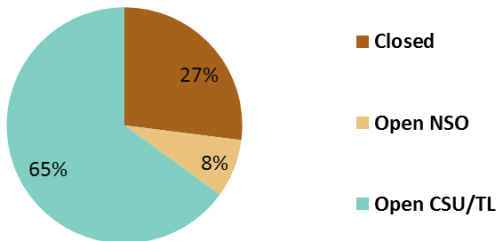
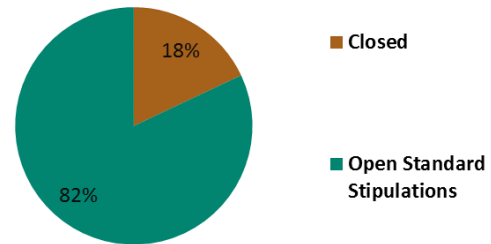
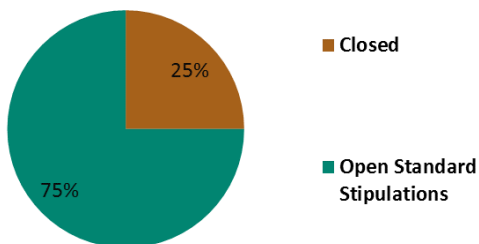
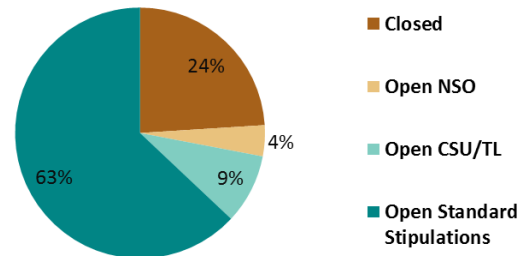
Figure 55 – Non-Energy Leasable Minerals Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 57 – Fluid Mineral (Oil & Gas) Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ V by Habitat Management Area Type					
Fluid Mineral (Oil & Gas) Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,590,000	1,373,000	141,000	935,000	4,039,000
Open NSO	3,542,000	379,000	0	164,000	4,085,000
Open CSU/TL	0	3,184,000	0	335,000	3,519,000
Open Standard Stipulations	0	0	423,000	2,598,000	3,021,000
Total	5,133,000	4,936,000	564,000	4,032,000	14,664,000
Fluid Mineral (Oil & Gas) Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,626,000	1,359,000	158,000	898,000	4,042,000
Open NSO	3,354,000	379,000	0	164,000	3,898,000
Open CSU/TL	0	3,287,000	0	335,000	3,622,000
Open Standard Stipulations	0	0	743,000	2,365,000	3,108,000
Total	4,981,000	5,026,000	902,000	3,762,000	14,670,000
Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ V					
Fluid Mineral (Oil & Gas) Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	33%	27%	18%	24%	28%
Open NSO	67%	8%	0%	4%	27%
Open CSU/TL	0%	65%	0%	9%	25%
Open Standard Stipulations	0%	0%	82%	63%	21%
Total	100%	100%	100%	100%	100%
Fluid Mineral (Oil & Gas) Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	31%	28%	25%	23%	28%
Open NSO	69%	8%	0%	4%	28%
Open CSU/TL	0%	65%	0%	8%	24%
Open Standard Stipulations	0%	0%	75%	64%	21%
Total	100%	100%	100%	100%	100%

**No Action - PHMA - Fluid Mineral Leasing
(Oil & Gas)****Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)****No Action & Management Alignment -
GHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - OHMA - Fluid Mineral Leasing
(Oil & Gas)****Management Alignment - OHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - Non-HMA - Fluid Mineral Leasing
(Oil & Gas)****Figure 56 – Fluid Mineral (Oil & Gas) Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

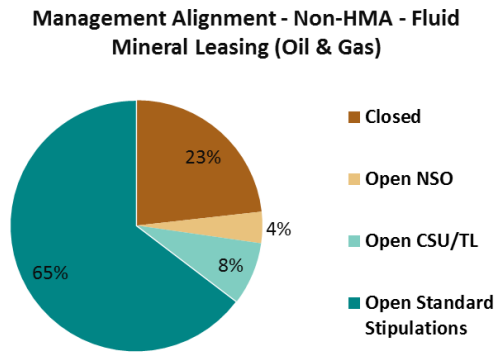


Figure 56 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ V

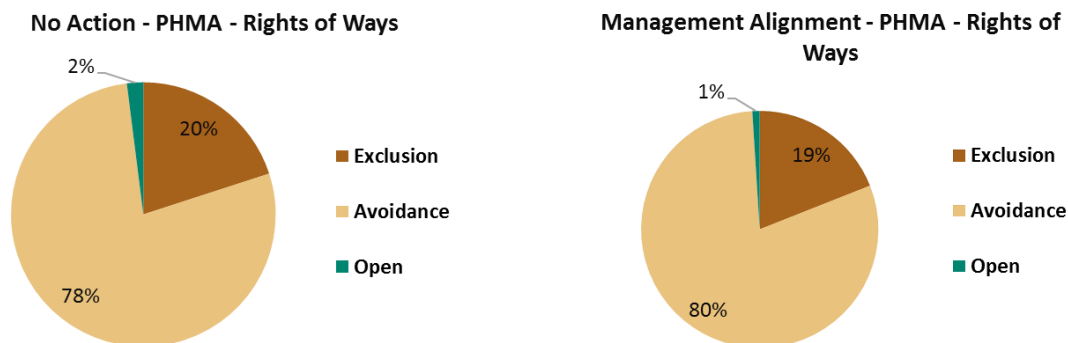
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VIII. Rights-of-Ways

Table 58 – Rights-of-Ways Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ V by Habitat Management Area Type					
Rights-of-Ways	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	956,000	445,000	158,000	787,000	2,347,000
Avoidance	3,634,000	4,349,000	0	325,000	8,307,000
Open	87,000	106,000	744,000	2,449,000	3,386,000
Total	4,677,000	4,900,000	902,000	3,561,000	14,040,000
Rights-of-Ways	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	922,000	459,000	141,000	824,000	2,346,000
Avoidance	3,854,000	4,281,000	0	325,000	8,460,000
Open	51,000	69,000	423,000	2,685,000	3,228,000
Total	4,827,000	4,809,000	564,000	3,834,000	14,034,000
Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ V					
Rights-of-Ways	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	78%	89%	0%	9%	59%
Avoidance	20%	9%	18%	22%	17%
Open	2%	2%	82%	69%	24%
Total	100%	100%	100%	100%	100%
Rights-of-Ways	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	80%	89%	0%	8%	60%
Avoidance	19%	10%	25%	21%	17%
Open	1%	1%	75%	70%	23%
Total	100%	100%	100%	100%	100%

**Figure 57 – Rights-of-Ways Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

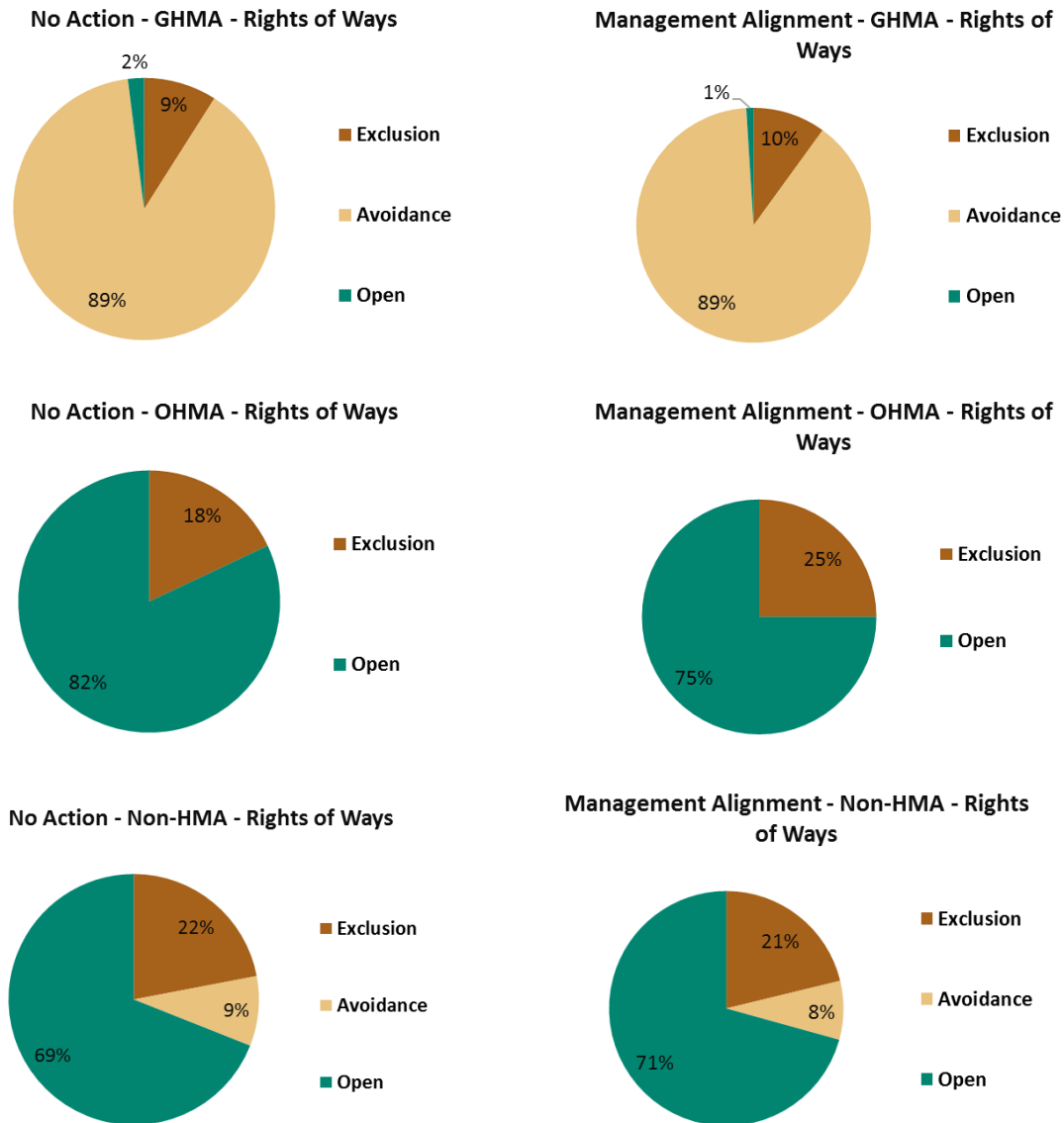


Figure 57 (cont'd) – Rights-of-Ways Decisions within MZ V

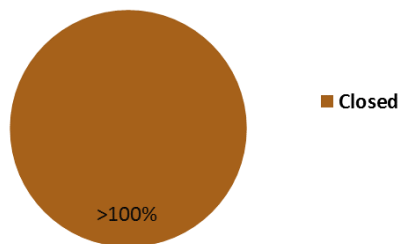
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IX. Salable Minerals Materials**Table 59 – Salable Minerals Materials Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ V by Habitat Management Area Type					
Salable Minerals Materials	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4,980,000	1,402,000	158,000	935,000	7,475,000
Open	1,000	3,621,000	744,000	2,827,000	7,194,000
Total	4,980,000	5,024,000	903,000	3,762,000	14,669,000
Salable Minerals Materials	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5,135,000	1,416,000	141,000	972,000	7,664,000
Open	0	3,518,000	423,000	3,057,000	6,998,000
Total	5,135,000	4,934,000	564,000	4,030,000	14,663,000
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ V					
Salable Minerals Materials	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	17%	25%	51%
Open	<1%	72%	83%	75%	49%
Total	100%	100%	100%	100%	100%
Salable Minerals Materials	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	29%	25%	24%	52%
Open	0%	71%	75%	76%	48%
Total	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Salable Minerals Materials

**Figure 58 – Salable Minerals Materials Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



Figure 58 (cont'd) – Salable Minerals Materials Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

X. Solar Energy

Table 60 – Solar Energy Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions in MZ V by Habitat Management Area Type					
Solar Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	3,932,000	1,466,000	897,000	2,191,000	8,487,000
Avoidance	750,000	3,438,000	1,000	348,000	4,537,000
Open	0	0	4,000	1,032,000	1,036,000
Total	4,683,000	4,904,000	903,000	3,571,000	14,060,000
Solar Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	4,088,000	1,373,000	564,000	2,457,000	8,483,000
Avoidance	750,000	3,438,000	0	349,000	4,537,000
Open	0	0	0	1,034,000	1,035,000
Total	4,838,000	4,810,000	564,000	3,841,000	14,054,000
Approximate % of Habitat Management Area by Solar Energy Decision in MZ V					
Solar Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	30%	99%	61%	60%
Avoidance	16%	70%	<1%	10%	32%
Open	0%	0%	<1%	29%	7%
Total	100%	100%	100%	100%	100%
Solar Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	29%	100%	64%	60%
Avoidance	16%	71%	0%	9%	32%
Open	0%	0%	0%	27%	7%
Total	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar Energy

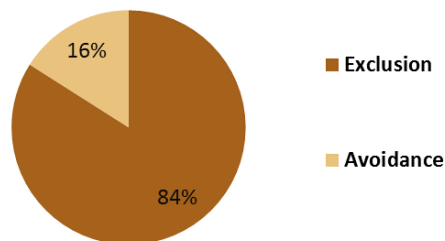


Figure 59 – Solar Energy Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

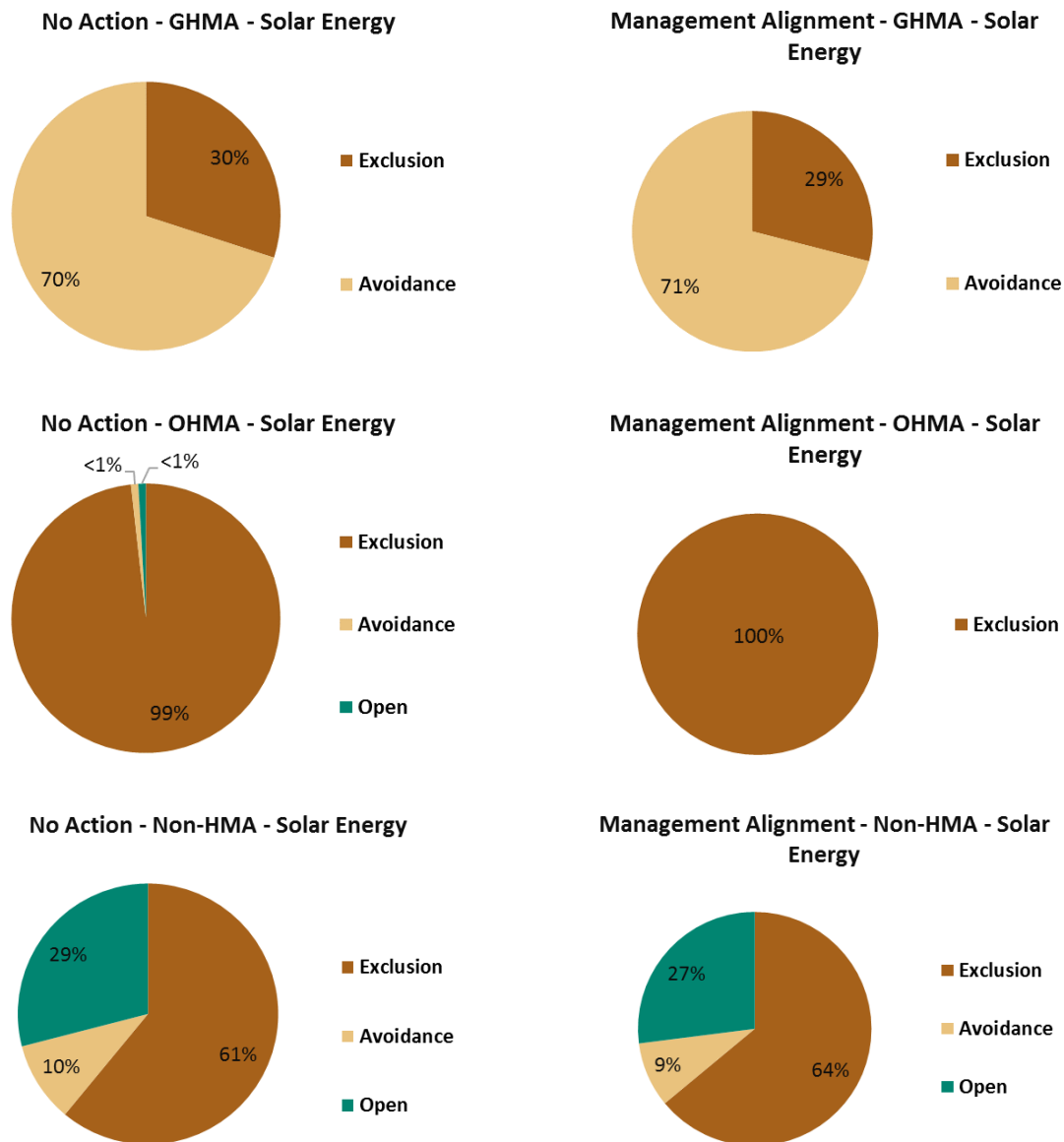


Figure 59 (cont'd) – Solar Energy Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XI. Trails and Travel Management**Table 61 – Trails and Travel Management Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ V by Habitat Management Area Type					
Trails and Travel Management Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	220,000	215,000	59,000	423,000	917,000
Limited	4,452,000	4,681,000	428,000	1,257,000	10,818,000
Open	0	2,000	414,000	1,888,000	2,304,000
Total	4,672,000	4,897,000	901,000	3,568,000	14,038,000
Trails and Travel Management Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	215,000	214,000	64,000	424,000	917,000
Limited	4,613,000	4,591,000	290,000	1,280,000	10,774,000
Open	0	2,000	209,000	2,131,000	2,342,000
Total	4,828,000	4,807,000	562,000	3,836,000	14,032,000
Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ V					
Trails and Travel Management Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	4%	7%	12%	7%
Limited	95%	96%	48%	35%	77%
Open	0%	<1%	46%	53%	16%
Total	100%	100%	100%	100%	100%
Trails and Travel Management Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4%	4%	11%	11%	7%
Limited	96%	96%	52%	33%	77%
Open	0%	<1%	37%	56%	17%
Total	100%	100%	100%	100%	100%

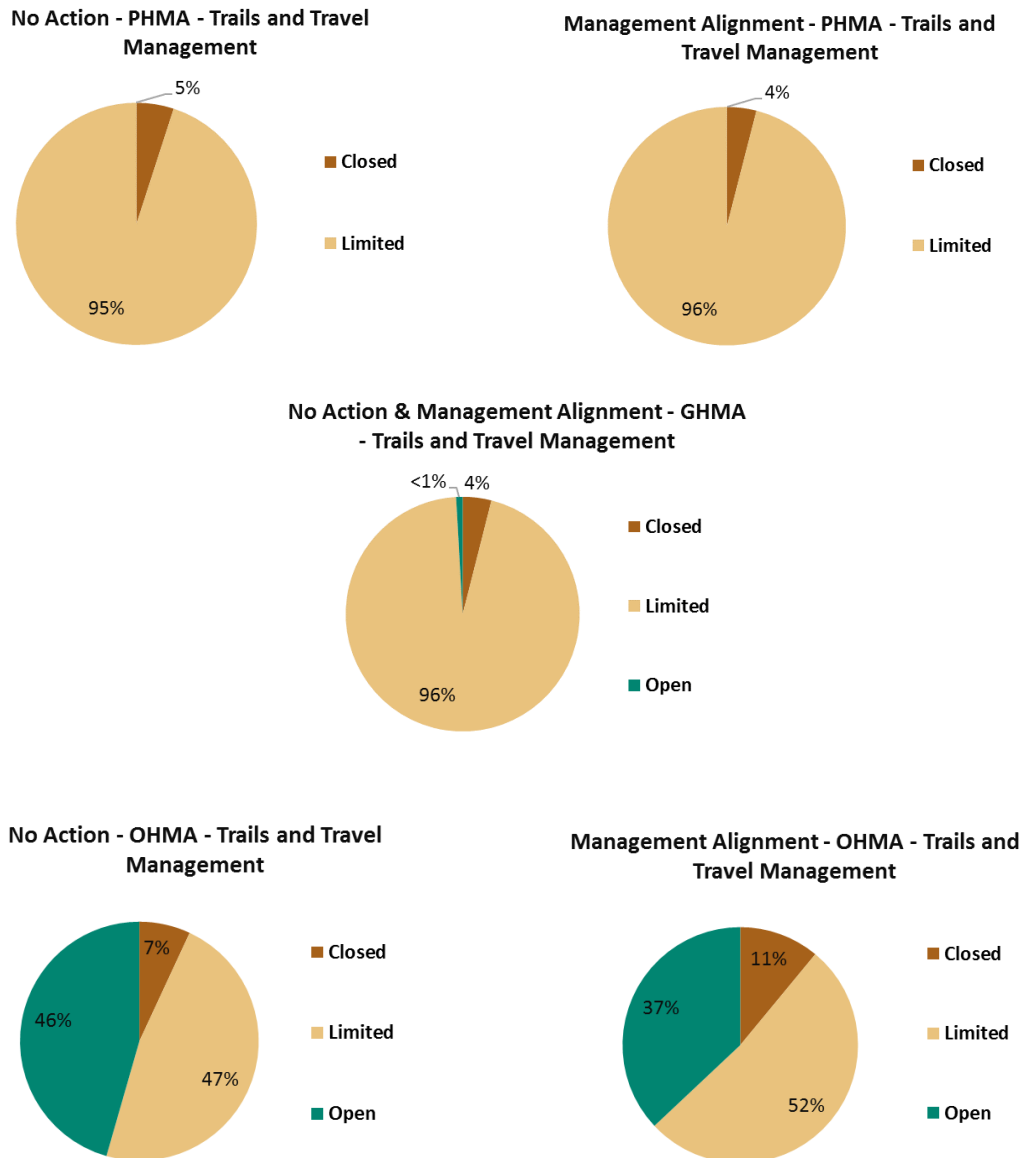
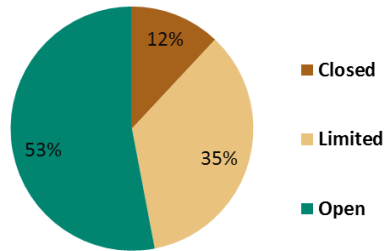
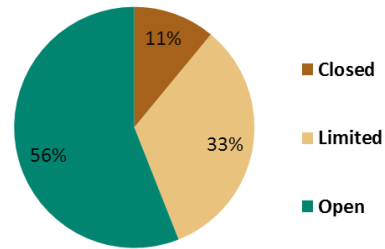


Figure 60 – Trails and Travel Management Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Trails and Travel Management**Management Alignment- Non-HMA - Trails and Travel Management****Figure 60 (cont'd) – Trails and Travel Management Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XII. Wind Energy

Table 62 – Wind Energy Decisions within MZ V

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ V by Habitat Management Area Type					
Wind Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	3,927,000	454,000	158,000	792,000	5,330,000
Avoidance	750,000	4,445,000	0	321,000	5,516,000
Open	1,000	0	744,000	2,456,000	3,201,000
Total	4,678,000	4,900,000	903,000	3,568,000	14,048,000
Wind Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	4,083,000	467,000	141,000	829,000	5,520,000
Avoidance	750,000	4,341,000	0	321,000	5,412,000
Open	0	0	423,000	2,686,000	3,110,000
Total	4,833,000	4,809,000	564,000	3,836,000	14,042,000
Approximate % of Habitat Management Area by Wind Energy Decision in MZ V					
Wind Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	9%	17%	22%	38%
Avoidance	16%	91%	0%	9%	39%
Open	<1%	0%	82%	69%	23%
Total	100%	100%	100%	100%	100%
Wind Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	10%	25%	22%	39%
Avoidance	16%	90%	0%	8%	39%
Open	0%	0%	75%	70%	22%
Total	100%	100%	100%	100%	100%

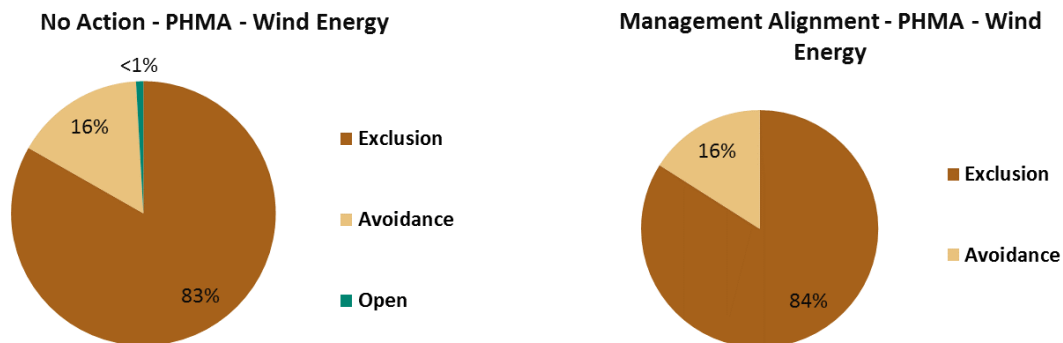


Figure 61 – Wind Energy Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

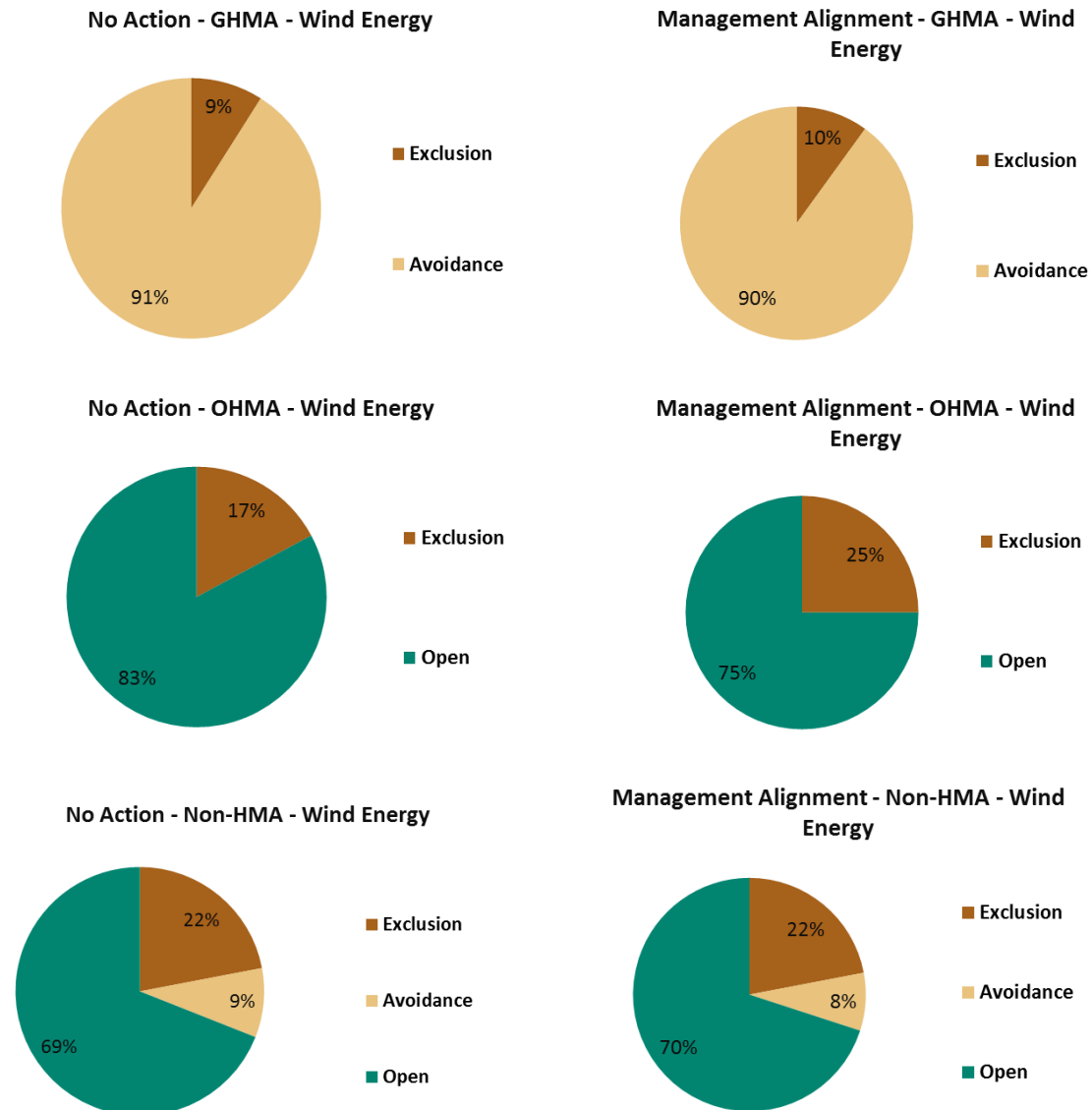


Figure 6I (cont'd) – Wind Energy Decisions within MZ V

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Appendix E

Response to Substantive Comments
on the Draft EIS

Appendix E. Response to Substantive Comments on the Draft EIS

This appendix is split up into four sections: Rangewide Comment Responses; Wyoming-Specific Comment Responses; Rangewide Comments; and Wyoming-Specific Comments. The Rangewide Comment Responses section contains a summary of comments received that apply mostly rangewide. The BLM recognizes that not all of these comments apply to all states, but they do apply across multiple states. This section also contains a response to the summaries of comments. The Wyoming-Specific Comment Responses section contains a summary of comments received specific to Wyoming and responses to those comments. The full text of parsed comments received both rangewide and Wyoming-specific can be found in the respective sections.

E.1 RANGEWIDE COMMENT RESPONSES

E.1.1 Adaptive Management

Summary: The “hard” and “soft” triggers identified in the 2015 plan amendments should be maintained in the current planning amendments.

Response: BLM is focused on aligning its management with the states. BLM’s stated purpose and need is to promote consistency and alignment with each State’s management for Greater Sage-Grouse. The adaptive management triggers have been maintained. However, they have been modified to align with the State’s management for Greater Sage-Grouse and with consideration for local circumstances. See individual state plans for the modified adaptive management.

Summary: Priority Habitat Management Area (PHMA) should be expanded to include additional areas.

Response: BLM is focused on aligning its management with the states. BLM’s stated purpose and need is to promote consistency and alignment with each State’s management for Greater Sage-Grouse. The habitat areas identified in the Draft RMPAs are based, in part, on the information provided by the State agencies and the latest available science and information regarding habitat for GRSG. The habitat designations in the plans can be modified based on established criteria to address habitat changes, new information, and site-specific conditions. Core area and winter habitat needs to coordinate response with Wyoming.

E.1.2 Alternatives - Other

Summary: West Nile virus is a material threat to sage-grouse, and retention ponds and infiltration ponds contribute to this risk.

Response: Where West Nile virus has been identified as a threat, the 2015 plans identified required design features specifically designed to reduce the risk of West Nile Virus. Further analyzing impacts of West Nile are outside the scope and do not meet the purpose and need of the 2018 plan amendment.

E.1.3 Assumptions and Methodology

Summary: The analysis assumes that there are sufficient resources to implement the plan, which is not a supported assumption. The analysis makes unrealistic assumptions about the capacity for restoration.

Response: Department workforce reduction actions are speculative at this time and not specific to BLM or GRSG related staff. To date the BLM has treated 1,505,326 acres; 1,159,247 of those acres since 2015. Further, specific Congressional appropriations have provided the funds allowing the BLM to treat more acres every fiscal year, highlighting both Congressional and the BLM's commitment to GRSG conservation. BLM is committed to the continued implementation of sage-grouse habitat and sagebrush steppe management.

Summary: The analysis assumes that project-level activities will undergo additional environmental review, but the use of Categorical Exclusions (CXs) and Determinations of NEPA Adequacy contradicts this assumption.

Response: If additional project level analysis is needed the BLM will conduct it at the appropriate stage. If the existing NEPA relevant to future actions is sufficient to support the decision maker, the BLM will document this in a Determination of NEPA Adequacy. If an action is categorically excluded and no extraordinary circumstances are present, the BLM expects to use a Categorical Exclusion. The list of DOI and BLM Categorical Exclusions is included in Appendices 3 and 4 of the BLM NEPA Handbook (H-1790-1). In addition, Section 390 of the Energy Policy Act of 2005 established five statutory Categorical Exclusions that apply only to oil and gas exploration and development pursuant to the Mineral Leasing Act.

Summary: The analysis assumes impacts will primarily occur on federal lands, but there is research that suggests otherwise.

Response: The decisions in the RMPAs apply only to BLM-administered lands and federal mineral estate. To the extent that these decisions affect non-BLM-administered lands, the effects are disclosed in the EIS. However, much of the direct and indirect effects of the decisions are confined to BLM-administered lands and federal mineral estate.

Summary: The analysis assumes use of best available science, but key studies are missing.

Response: The BLM coordinated with states, federal agencies and cooperating agencies to identify how the affected environment for sage-grouse management has changed. BLM specifically partnered with USGS to review the best available information published between January 2015 and January 2018 and incorporate the management implications of that information into this EIS. The report from USGS is available [here](#) and referenced throughout the EIS. Please review the Data and Science response in this section for more information.

E.1.4 Cumulative Impacts

Summary: Because the scope of the current amendments isn't narrower than the 2015 amendments, tiering isn't appropriate. Incorporation of the Cumulative Effects Analysis (CEA) by reference is allowable, but the summary of the CEA is insufficient as written.

Response: BLM is using incorporation by reference, not tiering, to streamline our analysis consistent with Administrative priorities. Incorporation of the 2015 EIS by reference is allowable under BLM regulations and is appropriate in this circumstance because the purpose of this action builds upon the goals and objectives of the 2015 EIS.

Summary: The incorporation by reference of the 2015 CEA impedes public review.

Response: BLM is adding quantitative analysis of the cumulative impacts from planning decisions for each management zone to the FEISs to address rangewide issues and trends.

Summary: The CEA failed to account for a number of relevant activities, such as oil and gas projects in Wyoming and other scheduled lease sales.

Response: The BLM will update the past, present, and reasonably foreseeable actions as needed to reflect all current projects in the FEIS.

E.1.5 Data and Science

Summary: The public submitted studies for consideration by the BLM.

Response: BLM specifically partnered with USGS to review the best available information and incorporate the management implications of that information into this EIS. The report from USGS is available [here](#) and referenced throughout the EIS.

The BLM places great import on the best available information, including new scientific studies and government reports that indicate a potential change in our assumptions or conditions related to a land use planning effort. The BLM has to balance reviewing new information with determining what information is relevant to a decision in light of the BLM's purpose and need. Many commenters highlighted information and studies to the BLM to consider, and the BLM has reviewed each source submitted. Further, the BLM asked the USGS to participate in the review, and to verify if information was included in the USGS synthesis report that was developed for the Draft EIS. Many suggested articles were already included for analysis in the USGS report, and may have been missed by commenters in the initial review of the synthesis report and DEIS.

Both known and new studies were reviewed by BLM staff, including scientists and NEPA specialists, and each BLM State Office reviewed each study specific to how it informed their planning decisions and environmental conditions. The BLM has included, where appropriate, updates to analysis in the appropriate EISs. Overall, submitted studies did not offer information that changed the analysis of the plans/EISs and did not offer any new conditions or other information the BLM had not considered already. The BLM has reviewed all new information and suggested studies from comments received rangewide, and in specific states. Further, the BLM takes new information seriously, and identified 11 articles from the studies suggested in comments. These 11 studies are sorted below by whether they were review by the BLM by being cited in the USGS Report, being references in the bibliography of the USGS Report, or by the BLM considering them during the RMP Amendment development and review of comments. Articles not specifically addressed below were still reviewed during comment response development.

Cited in USGS Synthesis Report

Baumgardt, J. A., Reese, K. P., Connelly, J. W., & Garton, E. O. (2017). Visibility bias for sage-grouse lek counts. *Wildlife Society Bulletin*, 41(3), 461-470.

Smith, K. T., Beck, J. L., & Pratt, A. C. (2016). Does Wyoming's Core Area Policy protect winter habitats for greater sage-grouse?. *Environmental Management*, 58(4), 585-596.

- Dinkins, J. B., Smith, K. T., Beck, J. L., Kirol, C. P., Pratt, A. C., & Conover, M. R. (2016). Microhabitat conditions in Wyoming's Sage-grouse Core Areas: effects on nest site selection and success. *PloS one*, 11(3), e0150798.
- Green, A. W., Aldridge, C. L., & O'donnell, M. S. (2017). Investigating impacts of oil and gas development on greater sage-grouse. *The Journal of Wildlife Management*, 81(1), 46-57.
- Edmunds, D. R., Aldridge, C. L., O'Donnell, M. S., & Monroe, A. P. (2018). Greater sage-grouse population trends across Wyoming. *The Journal of Wildlife Management*, 82(2), 397-412.
- Gamo, R.S. & Beck, J.L. *Environmental Management* (2017) 59: 189. <https://doi.org/10.1007/s00267-016-0789-9>.
- Not cited, but considered and in USGS Synthesis Report Bibliography*
- Spence, E. S., Beck, J. L., & Gregory, A. J. (2017). Probability of lek collapse is lower inside sage-grouse Core Areas: Effectiveness of conservation policy for a landscape species. *PloS one*, 12(11), e0185885.
- Juliussan, L. M., & Doherty, K. E. (2017). Oil and gas development exposure and conservation scenarios for Greater sage-grouse: Combining spatially explicit modeling with GIS visualization provides critical information for management decisions. *Applied geography*, 80, 98-111.
- Not included in USGS Report, but considered by BLM in review (this includes the new WAFWA and USFS studies that were not published before the DEISs)*
- WAFWA Gap Analysis 2018
- Cross, T. B., Schwartz, M. K., Naugle, D. E., Fedy, B. C., Row, J. R., & Oyler-McCance, S. J. (2018). The genetic network of greater sage-grouse: Range-wide identification of keystone hubs of connectivity. *Ecology and Evolution*, 8(11), 5394-5412.s
- Kitzberger, T., Falk, D. A., Westerling, A. L., & Swetnam, T. W. (2017). Direct and indirect climate controls predict heterogeneous early-mid 21st century wildfire burned area across western and boreal North America. *PloS one*, 12(12), e0188486

E.1.6 Disturbance and Density Caps

Summary: NSO in priority habitat should be maintained

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for Greater Sage-Grouse, including the approach to implementing actions to reduce threats to sage-grouse. The analysis and decisions in the RMPs are based on the information provided by the State agencies and are based on the latest available science and information regarding GRSG.

Summary: Existing disturbance caps should be maintained

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for Greater Sage-Grouse, including the approach to implementing actions to reduce threats to sage-grouse. The analysis and decisions in the

RMPs are based on the information provided by the State agencies and are based on the latest available science and information regarding GRSG.

Summary: Disturbance caps are inadequate because they permit severe localized impacts

Response: The BLM analyzed the impacts of the disturbance cap in 2015 and in 2018, where appropriate, and disclosed the potential for localized impacts. Mitigation is designed to reduce some of these impacts to a level below the thresholds established in the plans.

Summary: Disturbance caps don't account for fragmentation

Response: The BLM recognizes the risk that habitat fragmentation poses to greater sage-grouse and its habitats. The BLM analyzed the impacts, including fragmentation, of the disturbance cap in 2015 and in 2018, where appropriate, and disclosed the potential for fragmentation. Disturbance caps are one tool in a broader management strategy that BLM employs to minimize habitat fragmentation. The density cap is designed to reduce some of these impacts to below the thresholds established in the plans. Further, the BLM also addresses fragmentation through mechanisms other than disturbance caps. For example, the conservation measures that apply in PHMA address threats to GRSG, including fragmentation. Those measures include, but are not limited to, disturbance and density caps.

E.1.7 Fire and Invasive Species

Summary: The approach to managing noxious and invasive weeds needs to be more specific. The analysis should also include the 2018 Western Association of Fish and Wildlife Agencies (WAFWA) Gap Report.

Response: BLM has comprehensive strategies to address invasive species and has been implementing those strategies. Improving invasive species management did not emerge as an issue during scoping to increase management alignment or flexibility.

E.1.8 General Habitat Management Areas

Summary: The public submitted studies for consideration by the BLM in support of maintaining protections for General Habitat Management Areas (GHMA). The importance of GHMA to genetic conservation was not given sufficient attention in the analysis

Response: Removing GHMA is being evaluated as a potential way to better align federal management with that of the state. The BLM reviewed the best available science and finds that while there is evidence that gene-flow and connectivity is facilitated by GHMA, presents a sufficiently low risk to species persistence that additional analysis of this impact related to GHMA removal, beyond that in the draft EIS, is not warranted.

E.1.9 Guidance and Policy

Summary: Discretionary waivers and modifications create uncertainty in the application of protections that was not adequately analyzed.

Response: Under the Proposed Plan, waivers, exemptions and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when

considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: BLM should tailor policies closer to state policy rather than providing general discretion.

Response: BLM implementation actions must conform with plan goals and objectives. The details of implementation are guided by current policy which are discretionary and open to change based on amendments to RMPs.

Summary: Secretarial Orders referenced in the DEISs need additional clarifying language for how they are guiding the direction of the DEISs.

Response: BLM is ensuring this planning effort conforms with the guidance and direction contained in Secretary's Orders, including SO 3353, Greater Sage-Grouse Conservation and Cooperation with Western States. The Proposed Plan explains the relationship between various SOs and this planning process in greater detail. The BLM will continue to manage public lands in conformance with its approved land use plans, while future policies and Secretary's Orders may provide guidance and direction about how BLM implements those plans.

E.1.10 Habitat Boundary/Habitat Management Area Designations

Summary: BLM should use a strict 3% area threshold on administrative boundary changes. Changes to habitat boundaries exceeding 3% in area should require a new plan amendment.

Response: The thresholds for amending plans are defined in BLM's planning handbook and often depend on specific context. The BLM is committed to streamlined and effective processes using plan maintenance and other measures when appropriate. Habitat boundaries are adjusted according to specific criteria and whether modified via plan maintenance or amendment will be determined at the appropriate time. Public participation will be commensurate with the level of planning and BLM policy.

Summary: Discretionary waivers and modifications introduce uncertainty to protections that were not adequately analyzed.

Response: Under the Proposed Plan, waivers, exemptions and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: Secretarial Orders referenced in the DEISs need additional clarifying language for how they are guiding the direction of the DEISs

Response: The BLM is ensuring this planning effort conforms with the guidance and direction contained in Secretary's Orders, including SO 3353, Greater Sage-Grouse Conservation and Cooperation with Western States. The Proposed Plan explains the relationship between various SOs and this planning process in greater detail. The BLM will continue to manage public lands in conformance with its

approved land use plans, while future policies and Secretary's Orders may provide guidance and direction about how BLM implements those plans

E.1.11 Habitat Management Areas

Summary: The spatial extent of habitat management areas should not be modified.

Response: HMAs reflect habitat which is mapped based on best available information. If BLM and the state finds that habitat was not reflected correctly in light of new information, plan maintenance or an amendment can be used to update boundaries to reflect the change in information.

Summary: The management prescriptions associated with habitat management areas should not be modified.

Response: The purpose of these plan amendments is to increase consistency with state management. In some cases that may result in changes to management within the HMAs..

Summary: Restoration targets for Priority Habitat Management Areas (PHMA) should be developed and incorporated into the plans.

Response: While BLM has not developed specific restoration targets, the BLM has committed to significant restoration and recovery actions. The BLM spent considerable time and energy on the development of the FIATs that identify specific areas for specific types of actions and used that as a basis for requesting funding from Congress. Some targets have been developed, but are not included in the plans for reasons such as uncertainty of funding to implement the actions to reach the targets.

E.1.12 Habitat Objectives

Summary: BLM should more closely align its specific habitat objectives with the 2018 USGS report.

Response: BLM's habitat objectives reflect the best available information defining habitat conditions that sage-grouse preferentially select. The USGS report confirms BLM's assumption that such understanding may change over time. BLM has developed the flexibility in the plans to modify seasonal habitat objectives based on new science or site-specific information.

E.1.13 Lands and Realty

Summary: BLM should not dispose of lands with sage-grouse because transferring lands out of federal ownership introduces regulatory uncertainty and risks reducing habitat connectivity.

Response: BLM disposes of lands based on programmatic guidance and policy, and following specific criteria. Land and realty actions are often implementation level decisions that must conform with the sage-grouse goals and objectives identified in these RMP amendments.

E.1.14 Lek Buffers

Summary: Lek buffers should be maintained to protect leks.

Response: The BLM agrees that lek buffers are one of many important conservation tools available to manage sagebrush habitat and protect Greater Sage-Grouse. The BLM is retaining, and in some instances modifying/clarifying the application of lek buffers as a management tool.

Summary: Lek buffers should be larger than prescribed in the plan amendments.

Response: As applicable, each RMPA has an appendix that addresses lek buffers and allows the BLM to adjust lek buffers based on the best available science, this would allow the BLM to adjust the buffers based on new information as well. Further, some states are clarifying the approach in this RMPA effort, or adjusting to better align with their individual State's management. For more specific information, please refer to the individual plans and their associated lek buffer appendix.

Summary: The public submitted studies for consideration by the BLM in support of larger lek buffers.

Response: The BLM reviewed all submitted studies, and additional information. Please see the response to Data and Science comments for a response to this study.

E.1.15 Mitigation

Summary: Mitigation provisions in the 2015 plans were relied on in the USFWS 2015 finding. Mitigation should follow consistent principles. Mitigation could benefit from different strategies in different states. Mitigation provides stronger, faster decisions on project authorizations

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. The BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize, and otherwise mitigate impacts to the extent that federal law allows. A principal component of GRSG management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to implement its compensatory mitigation strategy.

Summary: Mandatory net-gain and compensatory mitigation is supported by some commenters, and objected to by others.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (Instruction Memorandum No. 2018-093, *Compensatory Mitigation*, July 24, 2018). However, the BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize, and otherwise mitigate impacts to the extent that federal law allows. A principal component of GRSG management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to implement its compensatory mitigation strategy.

Summary: Various commenters argued that the "net conservation gain" standard should be retained, modified or eliminated. Many commenters requested clarification of the BLM's authority to impose compensatory mitigation.

Response: Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation to offset environmental effects beyond the proponents level of impact. The Proposed Plan seeks to clarify that the mitigation standard applies not at the project level, but rather as a planning-level goal and objective unless specifically required under a state management authority. The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan.

Summary: Various commenters argued that recent changes in mitigation policy and the applicability to sage-grouse warrant additional analysis, public review, or a SEIS.

Response: Public input on implementing mitigation, "including alternative approaches to requiring compensatory mitigation in BLM land use plans," was explicitly requested as part of the public comment period on the 2018 Draft EIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: Many commenters stated the BLM should clarify how it will implement compensatory mitigation.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

E.1.16 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals

Summary: One-time exceptions should be preferred over more expansive exceptions

Response: Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this

amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: Waivers should be narrowly defined.

Response: Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: There should be opportunity for public notice and comment for certain types of waivers, exceptions, or modifications.

Response: The BLM will comply with 43 CFR 3101.1-4 regarding public notification of waivers, exceptions, or modifications, which includes a 30-day public notification period. An exception is a limited type of waiver and therefore is subject to 43 CFR 3101.1-4.

E.1.17 Noise Management Outside of PHMA

Summary: Noise restrictions should be stronger. The public submitted studies for consideration by the BLM in support of stronger restrictions on noise. The public suggested changes to the noise measurement methods.

Response: BLM has determined the noise restrictions are adequate to balance best available information with the goals and objectives of the Proposed Plan and to meet the Purpose and Need.

E.1.18 Preferred Alternative

Summary: The preferred alternative should be the No Action Alt because it was relied on for the 2015 listing decisions.

Response: The proposed plan was chosen based on the BLM's stated purpose and need, coordination with cooperating agencies, and public comment. The no action was not the sole factor USFWS relied upon when reaching its 2015 listing determination. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering the selection of a proposed plan. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

E.1.19 Prioritization of Mineral Leasing

Summary: No summary—implementation-level decision

E.1.20 Range of Alternatives

Summary: The range of alternatives is unreasonably narrow.

Response: The range is adequate to address the agency's purpose and need for considering these amendments. And by incorporating the 2015 plans by reference, BLM avails itself of a larger range of

management options previously analyzed in a broadly distributed EIS. Further, BLM considered a number of alternatives and issues during scoping that the agency determined not to carry forward.

Summary: The no-action alternative does not reflect a proper baseline.

Response: The No-Action Alternative represents the current management plan as it is implemented on the ground across 11 states and over 90 RMPs, including US Forest Service lands, thereby reflecting a management baseline that is well understood by BLM.

E.1.21 Recreation

Summary: Recreation and its socioeconomic benefits are tied to sagebrush ecosystems

Response: The BLM agrees and ensures that recreation-related projects and actions in sage-grouse habitats conform with management goals and objectives from the 2015 management plans.

E.1.22 Required Design Features (RDFs)

Summary: NSO stipulations should be maintained in priority habitats.

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for greater sage-grouse. In most cases, the proposed plan maintains NSO restrictions and other management prescriptions. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. The impact to sage-grouse from disturbance and habitat fragmentation is well documented in the 2015 EIS.

E.1.23 Sagebrush Focal Areas (SFAs)

Summary: Sagebrush focal areas (SFAs) should not be removed. Inconsistency in retention and removal of SFA across states is arbitrary and capricious. BLM is not legally required to remove SFA. Justifications for eliminating SFAs are inadequate.

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for greater sage-grouse. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. BLM has determined that SFA designations provide a redundant layer of resource protection and land use prioritization within PHMA and is acting within its discretion to remove SFA designation. Further, the BLM canceled the proposed withdrawal of SFAs through a publication in the Federal Register on October 11, 2017 (82 Fed. Reg. 47,248) and findings in the Sagebrush Focal Area Draft EIS noted that there was broadly low potential for locatable minerals within the recommended withdrawal area, so the withdrawal would not have provided additional protection to GRSG.

E.1.24 Sage-Grouse

Summary: Regulatory changes and regulatory uncertainty increase the likelihood of listing of the species under the ESA. The impacts analysis is deficient. Protections afforded by the plans aren't sufficient to prevent listing of the species.

Response: BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility and alignment when considering changes to the 2015 plans. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

E.1.25 Statutes and Regulations

Summary: The BLM must respect valid existing rights, including those reflected in oil and gas leases issued under the Mineral Leasing Act. The BLM also implements land use planning decisions differently with respect to uses related to the Mining Law of 1872.

Response: All proposed actions contained in the RMPA will be subject to valid existing rights, including those associated with leases issued under the Mineral Leasing Act of 1920. Accordingly, the BLM will ensure that its implementation of the management actions in the RMPA is consistent with the terms and conditions in existing leases or existing contracts. For example, if the BLM previously issued an oil and gas lease with standard lease terms and conditions, and the lessee submits an application for permit to drill, the BLM will ensure that any management actions from the RMPA will be applied in a manner that is consistent with the terms and conditions of the underlying oil and gas lease.

The BLM also recognizes that it has limited authority to impose conditions on certain uses related to the Mining Law of 1872 through land use planning decisions. Accordingly, the BLM will apply management actions in the RMPA only to the extent that they are consistent with the Mining Law of 1872 and the BLM's regulations.

Summary: The purpose and need is unreasonably narrow.

Response: The agency's purpose and need for considering these amendments was carefully drawn to promote alignment with the State's plans and policies while satisfying the BLM's responsibilities under FLPMA, other applicable laws, and BLM policy. This planning effort also builds off the comprehensive 2015 planning and NEPA process; incorporates the 2015 Final EIS analysis by reference in its entirety, including its alternatives; and has been informed by a scoping process that has identified specific opportunities to improve alignment with state plans.

Summary: The purpose and need is driven solely by applicant objectives.

Response: The planning and NEPA process does not respond to any applications submitted to the BLM. The BLM's intention is to build upon the 2015 plans by improving access and management flexibility by better aligning our management plans with the States' management plans. The purpose and need reflects this intent consistent with the agency's mission and Administration's priorities.

Summary: The BLM inappropriately tiered to a document of equal scope. The BLM failed to summarize and relate applicability of material incorporated by reference to the new plans.

Response: BLM is using incorporation by reference to streamline our analysis consistent with Administrative priorities. Incorporation of the 2015 EIS by reference is allowable under BLM regulations and is appropriate in this circumstance because the purpose of this action builds upon the goals and objectives of the 2015 EIS. Further, the CEQ 40 Questions, Question 24c, states that, "Tiering is a procedure which allows an agency to avoid duplication of paperwork through the incorporation by

reference of the general discussions and relevant specific discussions from an environmental impact statement of broader scope into one of lesser scope or vice versa.” The BLM has summarized and referenced applicable aspects of the 2015 EIS throughout the 2018 EIS, but especially in Chapters 2 and 4.

Summary: The BLM failed to consider and designate Areas of Critical Environmental Concern (ACECs).

Response: BLM properly considered and analyzed the designation of ACECs in 2015. No new information suggests it is necessary to reconsider those decisions and BLM has determined the issue of ACECs to fall outside the scope of this effort to better align federal management with state management plans.

Summary: The BLM fails to incorporate an appropriate Analysis of Management Situation.

Response: The BLM analyzed the management situation in full compliance with its regulations and policies. The BLM evaluated inventory and other data and information, partnering with USGS and coordinating extensively with States, to help provide a basis for formulating reasonable alternatives. The BLM described this process in its Report to the Secretary in response to SO 3353 (Aug. 4, 2017). Among other things, the Report describes how the BLM coordinated “with each State to gather information related to the [Secretary’s] Order, including State-specific issues and potential options for actions with respect to the 2015 GRSG Plans and IMs to identify opportunities to promote consistency with State plans.” (Report to the Secretary at 3.) This process overlapped to some degree with the BLM’s scoping process, which also assisted the BLM in identifying the scope of issues to be addressed and significant issues, and with coordination with the States occurring after the Report. In addition, as described in DEIS Chapter 3, the BLM determined that the current management situation is similar in condition to that assessed in 2015.

E.1.26 Travel and Transportation Management

Summary: Travel plans should be part of the plan amendments.

Response: Travel management planning is a crucial aspect in implementing land use plans. Ongoing travel management decisions in sage-grouse habitat are guided by the 2015 plans, with clarifications in the 2018 plan. Those BLM offices with travel plans in GRSG habitat would also conform with the goals and objectives, and planning decisions in these amendments.

E.1.27 Waivers, Exceptions, and Modifications

Summary: The uncertainty with how waivers, exceptions, and modifications will be used introduces uncertainty to protections that aren’t fully analyzed. Criteria for the use of waivers, exceptions, and modifications should be more narrowly prescribed.

Response: Under the Proposed Plan, waivers, exemptions and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM’s proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: BLM should monitor the use of waivers, exceptions, and modifications.

Response: BLM currently monitors and tracks disturbance in Greater Sage-Grouse habitats. Some BLM states, through the fluid minerals program, track waivers, exceptions, and modifications. The BLM is currently reviewing how to apply these best management practices at the national level.

E.2 WYOMING-SPECIFIC COMMENT RESPONSES

E.2.1 Purpose and Need

Summary: The Purpose and Need statement is unreasonably narrow.

Response: The Purpose and Need clearly identifies the reasons this planning effort. It cites specifically to the FLPMA-specified roles of State agencies in managing non-listed wildlife species. It does not require complete alignment with state plans, since law and regulation requires consistency to the extent such “are also consistent with the purposes, policies, and programs of Federal laws and regulations” (43 CFR 1610.3-2). The purpose and need of this planning effort has been to focus on aligning the plan with State agencies’ management of sage-grouse. Language has been added to the purpose and need to recognize that some of the changes considered correspond to incorporating local research, which is also consistent with the State of Wyoming’s plans

Summary: The basic need for the ARMPAs should be clearer.

Response: The purpose and need of this DEIS was developed to improve alignment with the State of Wyoming and BLM Policy. Based on this purpose and need statement only certain aspects of the 2015 ARMPA are subject to change.

E.2.2 Livestock Grazing Management

Summary: The BLM should prioritize review and processing of grazing permits in sage-grouse habitat.

Response: Prioritization of range permits is an implementation level decision that is appropriately addressed as an independent action or through department policy.

Summary: Rangeland health evaluations are ineffective at correcting impacts of livestock.

Response: BLM’s use of rangeland health assessments are a science-based approach to land health that is consistent with BLM’s regulatory and policy requirements. BLM is required to analyze, under appropriate NEPA, the renewal of livestock grazing permits. The effect of grazing and rangeland infrastructure is evaluated in the analysis.

Summary: Rangeland health standards are a good indicator of range conditions and have a record of 25 years of data. Attainment of rangeland health standards should be the basis of management.

Response: The impetus for the BLM’s sage-grouse plans were to adjust management to afford protections for the species that weren’t secured by routine management under FLPMA and rangeland health standards. The BLM is using rangeland health standards as one of several land health monitoring tools to maintain appropriate protections for the species while enabling stronger alignment with State management strategy.

Summary: Livestock compete for forage with sage-grouse.

Response: The effect of grazing on greater sage-grouse and habitat is provided for in the 2015 Final EISs and is incorporated by reference into this document. In addition, additional studies do not clearly provide information which would change the conclusions the BLM came to in 2015 and in this current planning effort.

Summary: Rangeland infrastructure is a risk to sage-grouse.

Response: The effect of grazing on greater sage-grouse and habitat is provided for in the 2015 FEISs and is incorporated by reference into this document. In addition, additional studies do not clearly provide information which would change the conclusions the BLM came to in 2015 and in this current planning effort.

Summary: Residual grass height standards are scientifically valid.

Response: Based on comments received from stakeholders and cooperating agencies, the BLM has decided to adjust the language regarding the 7 inches. The BLM has determined that using a site's potential as a mechanism will be more effective in ensuring greater sage-grouse habitat. This will better facilitate the use of new or better data as it becomes available.

Summary: Monitoring is underfunded and therefore not a reliable basis to detect population declines.

Response: The BLM does not base management decisions on budget. If monitoring is viewed as problematic, then identification of more specific shortcomings would be more constructive.

Summary: The science and reports that the BLM relied on to develop the NTT and HAF are faulty, biased, or incomplete.

Response: Neither the NTT report nor the information provided from the NTT Report in the 2015 plans is currently being considered for change. This is out of scope.

Summary: Because HAF is unsupported, the BLM should not use HAF as an assessment tool or standard.

Response: This comment is outside of the scope of this analysis. The HAF is just one part of the Greater Sage-Grouse habitat assessment that is used during land health evaluations. In addition, the HAF represents the best available tool for assessing and evaluating Greater Sage-Grouse habitats. As stated in the 2015 ARMPA, the BLM and permittee should be using the best available tool to assess and monitor.

Summary: The DEIS fails to address the potential benefits of grazing to sage-grouse.

Response: The BLM's analysis provides a high-level overview of the research on impacts of livestock to sage-grouse. The effect of grazing on greater sage-grouse and habitat is provided for in the 2015 FEISs and is incorporated by reference into this document. In addition, additional studies do not clearly provide information which would change the conclusions the BLM came to in 2015. The record of research shows that while in some circumstances the relationship of livestock grazing and sage-grouse

may be positive, there is not enough data to make a clear conclusion that grazing generally benefits sage-grouse.

Summary: Impacts on habitat from WHB and other ungulates are either inappropriately attributed to livestock grazing or not adequately addressed.

Response: The effect of grazing (from ungulates and other grazers) on greater sage-grouse and habitat is provided for in the 2015 FEISs and is incorporated by reference into this document. In addition, additional studies do not clearly provide information which would change the conclusions the BLM came to in 2015 and in this current planning effort.

Summary: The effect of mosquitoes on sage-grouse isn't accurately discussed.

Response: The impact of mosquitoes on sage-grouse was analyzed in 2015, and the the BLM has determined that the conclusions still hold sufficiently to not warrant additional detailed analysis of how these impacts would affect the species under the Management Alignment Alternative.

Summary: The BLM should more clearly define "significant causal factor," particularly what constitutes "significant"

Response: The term "significant causal factor" is defined in policy and based in regulation. No change is needed.

Summary: The BLM should clarify what it means by "previous management" on ES-7.

Response: Previous management for ES-7 can be located in the 2015 plans.

Summary: The impact analysis of MD LG 8 is inaccurate (p.4-17).

Response: Text has been updated.

Summary: The BLM should give more consideration to impacts on nesting and early-brood rearing habitat, especially in the riparian/upland ecotone.

Response: The impact analysis has been updated.

Summary: The BLM should remove the term "late" from MD LG 10.

Response: Text has been updated.

E.2.3 Habitat Boundary/Habitat Management Area Designations

Summary: Current designations of PHMA do not include all key sage-grouse habitats, such as all PACs, winter habitat, winter concentration areas, or all populations.

Response: The habitat areas identified in the RMPs are based on the information provided by the State of Wyoming's Game and Fish Department and are based on the latest available science and information regarding habitat for Greater Sage-Grouse in Wyoming..

Summary: Existing habitat designations do not adequately account for connectivity.

Response: The habitat management areas identified in the RMPs are based on the core/non-core designations developed by the State of Wyoming's Game and Fish Department. The BLM believes the existing habitat designations adequately account for connectivity based on the analysis provided in the FEIS (2015). No change.

Summary: Removal of protections from GHMA makes it a meaningless habitat designation.

Response: The BLM is not proposing to remove protections from GHMA. The same land use allocations and restrictions associated with GHMA in the 2015 plans are not being proposed for change in this planning process.

Summary: Proposed changes to habitat designations removes the regulatory mechanism supporting FWS's not warranted finding.

Response: BLM is focused on aligning its management with the State of Wyoming. BLM's goal is to promote consistency and alignment with the State of Wyoming's management for greater sage-grouse. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. BLM has determined that SFA designations provide a redundant layer of resource protection and land use prioritization within PHMA and is acting within its discretion to remove SFA designation. Further, the BLM canceled the proposed withdrawal of SFAs through a publication in the Federal Register on October 11, 2017 (82 Fed. Reg. 47,248) and findings in the Sagebrush Focal Area DEIS noted that there was broadly low potential for locatable minerals within the recommended withdrawal area, so the withdrawal would not have provided additional protection to Greater Sage-Grouse. Existing management direction under the 2015 plans (the No Action Alternative) was not the sole factor USFWS relied upon when reaching its 2015 listing determination. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering the selection of a proposed plan. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: The numerous exceptions make stipulations meaningless.

Response: The BLM is not proposing changes to exception criteria. The BLM would continue to work with the WGFD to ensure that exceptions are only granted when appropriate.

Summary: The BLM should designate priority habitat as ACECs.

Response: In the 2015 planning process, the BLM fully and sufficiently considered the potential designation of potential ACECs in both Alternative B and Alternative C. The BLM is not considering the designation of additional ACECs in this current planning process. The supporting analysis in the 2015 FEIS explains why ACECs were not carried forward into the 2015 decisions.

Summary: Core Areas identified by the State misses important sage-grouse populations from its boundaries (suggested additions provided).

Response: The State of Wyoming, the WGFD, the SGIT, and LWGs work with the public and interested parties to identify areas that are most critical and sensitive for Greater Sage-Grouse. These areas are identified as core areas, and to provide additional consistency in management of Greater Sage-Grouse the BLM has incorporated these State identified areas as HMAs. There is no difference between the BLM's PHMA and Core areas in Wyoming. The transparent and public process by which the State of Wyoming identifies these habitat areas is the forum under which the public can propose changes to the habitat boundaries.

Summary: PHMA should include all lands within 5.3 miles of a Core Area lek.

Response: The management areas HMAs in the BLM's plans are based on the State identified habitat areas (core/non-core). If changes to the State's management areas are desired, the State of Wyoming has a process under which the public can propose changes to the habitat boundaries.

Summary: Application of waivers, exceptions, and modifications may ultimately lead to downgrading of habitat designation from habitat degradation due to the waiver, exception, or modification.

Response: The BLM has adequately analyzed the impact of the application of exceptions, waivers, and modifications to the Greater Sage-Grouse in the 2015 Final EIS. The granting of waivers or modifications would only occur consistent with the regulations at 43 C.F.R.3101.1-4 and following coordination with the WGFD and a determination that the population would not be affected.

Summary: Changes in habitat boundary designations should only be used to increase protection until the species has recovered.

Response: Changes in habitat boundary designations, at this time, are under the purview of the State of Wyoming - not the BLM. The transparent and public process by which the State of Wyoming identifies these habitat areas is the forum under which the public can propose changes to the habitat boundaries.

Summary: Prioritizing development outside PHMA may further degrade important connectivity habitat.

Response: The BLM plans identify connectivity habitat as PHMA; similar restrictions on development and disturbance as are applied in PHMA are also applied in connectivity areas.

Summary: The BLM should add explicit language that previously permitted activities are exempt from PHMA restrictions.

Response: In the planning criteria in Chapter I, the BLM states that valid existing rights will be honored. The BLM will continue to work with Operators and lease developers in protecting Greater Sage-Grouse habitat, but no new lease stipulations would be applied to existing leases.

Summary: Boundary changes beyond a certain size will require new NEPA analyses.

Response: Please see updated text.

Summary: The BLM should clarify that plan maintenance will be the mechanism used to update boundaries, including for BSUs, and what constitutes a "major change" requiring NEPA analyses.

Response: The BLM is unable at this time to identify what a “major” change would look like regarding changes in habitat management areas. This will need to be considered on a case-by-case basis, depending on the factors that are resulting in the proposed change from the State of Wyoming.

Summary: The BLM should ensure consistency between State maps and BLM maps, including adopting state terminology.

Response: The BLM is proposing to stay current with State maps following appropriate NEPA documentation. However, the terminology is not proposed for change as the BLM’s terminology is consistent across BLM-managed lands in Greater Sage-Grouse habitat in multiple states.

Summary: The BLM should prioritize development outside of PHMA and increase lek buffers.

Response: The BLM is working with the State of Wyoming regarding prioritization of development outside of PHMA. However, increases in lek buffers are not currently being considered in this planning process as the BLM is attempting to align with the State’s management strategy. The current EO regarding Greater Sage-Grouse management is not proposing changes to lek buffers at this time.

Summary: The BLM should clarify if reference to crucial winter range habitat is for big game (p.4-15).

Response: Text has been updated.

Summary: The BLM should clarify the effect of updating mapping (p.4-15).

Response: Text has been updated.

Summary: The BLM should defer any stipulations in winter concentration areas pending further research.

Response: The BLM will continue to work with the WGFD regarding the application of stipulations in winter concentration areas.

E.2.4 Sagebrush Focal Area Designations

Summary: Removing SFA designation will harm sage-grouse by allowing mining.

Response: The BLM analysis in the 2016 SFA withdrawal DEIS concluded that minimal conservation benefit would result from the recommended withdrawal. BLM considered the designation unnecessary and is proposing to remove the designation and recommended withdrawal. In addition, in Wyoming, SFA is managed as PHMA. Therefore, restrictions and constraints associated with PHMA would still apply to areas formerly identified as SFA.

E.2.5 Habitat Objectives

Summary: Science does not support Tables 2-2 and 2-3; the BLM should remove these tables.

Response: Based on comments received from stakeholders and cooperating agencies, the BLM has decided to adjust the language regarding the 7 inches but not remove the Tables in their entirety as

stakeholders have identified that there is value in maintaining the tables and clarifying that they are only objectives, and not standards that must be met.

Summary: Habitat objectives should be site specific (e.g., ESDs).

Response: Please see updated text The BLM would continue to work with the permittee to determine the site potential and, if appropriate, using the ESD.

Summary: Stated modifications are ambiguous as written.

Response: Please see updated text.

Summary: The BLM should clarify that objectives are not standards.

Response: Please see updated text.

Summary: “Home range” is not defined.

Response: Home range is mentioned twice in one section of the document. Its usage is consistent with Standard American usage of the term, meaning an area occupied by an organism or species with regularity. Accordingly, it is not part of the appendix.

E.2.6 Adaptive Management

Summary: Commenters expressed concern that adaptive management triggers may be tied to populations and demographics.

Response: Nothing in the adaptive management strategy is being changed beyond the identification of a process for reverting to previous management once the threat is ameliorated. This proposed change would not result in detrimental effects to Greater Sage-Grouse or its habitat.

Summary: The BLM should adopt precautionary measures to ensure that local agencies abide by science-based sage-grouse protections.

Response: The BLM will continue to implement the management actions identified in the 2015 amendments and revisions for the conservation of Greater Sage-Grouse. Changes that would occur as a result of this planning process would not change the underlying allocation decisions and requirements of the existing RMPs. In addition, improved consistency with the State of Wyoming management of Greater Sage-Grouse would improve overall management of the species. No change.

Summary: The BLM should continue to recognize that predation is not a rangewide threat to sage-grouse, and that predator control is neither a conservation measure nor appropriate in most management situations.

Response: This comment is out of scope. The BLM is not proposing changes to predator control in this document. See existing decision in 2015 ARMPA and Appendix N regarding predator control/management.

Summary: The BLM should not incorporate captive breeding/rearing/translocation programs for sage-grouse.

Response: This comment is out of scope. The BLM is and has not proposed captive rearing and translocations.

Summary: Commenters requested clarification and modification of the role of the AMWG and its members.

Response: Text updated. The existing adaptive management framework is consistent with the State of Wyoming, as codified by the recently signed and implemented MOU between the Wyoming BLM and the State of Wyoming.

Summary: The BLM should revise the RMPs to be consistent with the EO.

Response: The adaptive management strategy in the RMPs is already consistent with the EO. No Change needed.

Summary: The BLM should modify the AMWG's processes to ensure scientific credibility and increased transparency.

Response: The AMWG was created as a result of the previous decision (ARMPA). The BLM will work with the SGIT (and thus the public) to develop the process. The framework of the AMWG was already developed and is not being re-considered.

Summary: Adaptive management should be considered as a concept to modify LUP decisions when those decisions are either unnecessary or inappropriate in the future.

Response: Returning to previous management is how adaptive management works.

Summary: The AMWG is susceptible to political bias.

Response: The AMWG, as a quasi-governmental body with limited chartered authority, is constrained by regulation and policy, and is mandated to make decisions in the interest of conservation of the bird, to the extent compatible with the sage-grouse plans. The AMWG is no more susceptible to bias than any government convened group.

Summary: The BLM should improve plan monitoring and oversight by providing training to field staff and the necessary incentives to ensure proper implementation of the plan.

Response: The BLM provides guidance for implementation in the form of Instruction Memorandums, program lead direction and guidance, and will be conducting field office visits in conjunction with the State of Wyoming to provide accurate information regarding the implementation of the decisions that would result from this current planning process. .

Summary: The Adaptive Management Plan should include the actions that would be taken if soft-trigger and hard-trigger deadlines are not met.

Response: Refer to Appendix D of the ARMPA, these include the management actions that could be taken when and if soft/hard triggers are tripped. Responses associated with tripping a soft or hard trigger are already detailed in the Appendix D of the ARMPA. Text added to the current proposed amendment to direct the reader to Appendix D for more information. The BLM and the AMWG are responsible for ensuring that deadlines associated with adaptive management are met.

Summary: The AMWG should adopt the Monitoring/Adaptive Response provision set forth in the Wyoming Plan.

Response: No change is needed. The BLM's adaptive management strategy is consistent with the State of Wyoming's.

Summary: The term "net conservation gain" is not clearly defined and should be removed from all management actions across all RMPs.

Response: The BLM is proposing to remove the net conservation gain standard and be consistent with the State of Wyoming's Sage-Grouse Compensatory Mitigation Framework.

E.2.7 Mitigation

General Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. The BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize and mitigate impacts to the extent that federal law allows. A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy.

Summary: The BLM should provide relevant information regarding compensatory mitigation to prove its validity and effectiveness.

Response: Public input on implementing mitigation, "including alternative approaches to requiring compensatory mitigation in BLM land use plans," was explicitly requested as part of the public comment period on the 2018 DEIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: The BLM should identify and clarify mitigation measures, especially for post-fire mitigation. The BLM should ensure that post-fire mitigation activities incorporate science-based measures.

Response: The BLM is not proposing any changes to existing mitigation measures that were identified in the 2015 FEISs and RODs.

Summary: The BLM should conduct a supplemental NEPA analysis evaluating the effects of eliminating compensatory mitigation requirements.

Response: Public input on implementing mitigation, “including alternative approaches to requiring compensatory mitigation in BLM land use plans,” was explicitly requested as part of the public comment period on the 2018 Draft EIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: The BLM should clarify “restoration activities” in the EIS.

Response: Please refer to the 2015 analysis regarding restoration activities.

Summary: The BLM should use the net conservation gain standard only under limited circumstances.

Response: The BLM is proposing to remove the net conservation gain standard and be consistent with the State of Wyoming’s Greater Sage-Grouse Compensatory Mitigation Framework.

Summary: The BLM lacks authority to require compensatory mitigation or implement a net conservation gain standard. The BLM should eliminate these requirements from the EIS. **Summary:** The BLM should modify the RMPs to eliminate all compensatory mitigation requirements outside of GHMAs and to only require compensatory mitigation in PHMAs when specific thresholds are exceeded.

Response: The application of compensatory mitigation depends on residual impacts and determinations would be made on a project-specific basis in coordination with the State of Wyoming. BLM’s Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (IM No. 2018-093, *Compensatory Mitigation*, July 24, 2018). However, the BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize and mitigate impacts to the extent that federal law allows. A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy.

Summary: Compensatory mitigation is not necessary for all activities in Wyoming, specifically for mining.

Response: The application of compensatory mitigation depends on residual impacts remaining after a project has been subjected to appropriate actions to avoid or minimize impacts. The determination to use compensatory mitigation would be made on a project-specific basis in coordination with the State of Wyoming.

Summary: The BLM should add connectivity areas and winter concentration areas to the compensatory mitigation framework. The BLM should allow for compensatory mitigation to be addressed at the project level.

Response: The BLM would implement compensatory mitigation only if proffered by the proponent on a voluntary basis, or as required by the State of Wyoming. These determinations would be made on a project-specific basis in coordination with the State of Wyoming.

Summary: The BLM should modify the exception criteria from timing stipulations.

Response: The BLM will continue to work with the State of Wyoming and the WGFD regarding the granting of exception requests.

Summary: The BLM cannot rely on Manual 6840 for authority to require compensatory mitigation.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (IM No. 2018-093, *Compensatory Mitigation*, July 24, 2018). However, the BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize and mitigate impacts to the extent that federal law allows. A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy.

As part of the BLM's effort to align with the State of Wyoming's Greater Sage-Grouse management strategy, the BLM would adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework when determining whether compensatory mitigation is appropriate, and how much compensatory mitigation would be required. Consistent with valid existing rights and applicable law, when authorizing third party actions that result in habitat loss and/or degradation, the BLM would consider voluntary compensatory mitigation actions only when proffered by a project proponent or when imposed by the State of Wyoming's permitting process.

Summary: Any mitigation must conform to FLPMA standards.

Response: Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation to offset environmental effects beyond the proponents level of impact. The Proposed Plan seeks to clarify that the mitigation standard applies

not at the project level, but rather as a planning-level goal and objective unless specifically required under a state management authority. The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan.

Summary: Commenters requested the BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework.

Response: This is out of scope - it is not BLM's responsibility to determine legal authority for State's Compensatory Mitigation Framework.

Summary: The BLM should acknowledge local and private conservation efforts regarding mining operations.

Response: The BLM does not administer CCAs or CCAAs - those are the purview of USFWS. In addition, these types of activities would likely be identified at the project-specific level.

Summary: The BLM should incorporate the State's mitigation framework in the RMP revisions.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The BLM should account for actual voluntary conservation in the Wyoming plan amendment.

Response: Any voluntary conservation already being implemented would be accounted for at the project-specific level. In addition, the 2015 Final EISs did acknowledge the efforts of local, private, state, and federal efforts in Greater Sage-Grouse conservation.

Summary: The BLM should maintain the net conservation gain standard in the plans.

Response: Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation to offset environmental effects beyond the proponents level of impact. The Proposed Plan seeks to clarify that the mitigation standard applies not at the project level, but rather as a planning-level goal and objective unless specifically required under a state management authority. The BLM is pursuing agreements with the States of Colorado,

Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan.

Summary: The BLM should remove the statement that it will defer to the State's compensatory mitigation framework "to the extent consistent with federal policy" from the EIS.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The BLM should rely on the CEQ NEPA regulations relating to mitigation.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (IM No. 2018-093, *Compensatory Mitigation*, July 24, 2018). However, the BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize and mitigate impacts to the extent that federal law allows. A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to sage grouse and its habitats. The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy.

The CEQ NEPA regulations do not require the imposition of compensatory mitigation and BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands. Therefore, the BLM would implement compensatory mitigation only if proffered by the proponent on a voluntary basis, or as required by the State of Wyoming. These determinations would be made on a project-specific basis in coordination with the State of Wyoming.

Summary: The BLM should modify Appendix D to the 9 Plan Amendment to remove reference to "net gain" and the references to the "WAFWA Management Zone Greater Sage-Grouse Conservation Team."

Response: See updated text (pgs. 2-15 to 2-17 in FEIS).

Summary: The BLM should modify the language in Section 4.5 on Page 4-20 of the RMPA to reflect the previous 9 Plan Amendment analysis and USFWS's, BLM's and the federal court's consistent endorsement of Wyoming's sage-grouse core area strategy.

Response: The analysis in the 2015 FEISs was incorporated by reference into the current process.

Summary: The Department and BLM should issue instructional guidance to Wyoming BLM field offices to interpret the modified language to permit exceptions consistent with the Framework and to fully engage and coordinate their permitting with the WGFD.

Response: The BLM will continue to work with the State of Wyoming regarding the granting of exceptions and the application of compensatory mitigation. Consistent with valid existing rights and applicable law, when authorizing third party actions that result in habitat loss and/or degradation, the BLM would consider voluntary compensatory mitigation actions only when proffered by a project proponent or when imposed by the State of Wyoming's permitting process.

Summary: Appendix B must be clarified through limited modifications or replaced, in its entirety, with the Framework.

Response: The BLM will continue to work with the State of Wyoming regarding the granting of exceptions as well as the application of compensatory mitigation.

Summary: The BLM should include a statement that residual effects be properly analyzed, and compensatory mitigation calculated in a manner to only offset residual effects.

Response: The BLM would implement compensatory mitigation only if proffered by the proponent on a voluntary basis, or as required by the State of Wyoming. These determinations would be made on a project-specific basis in coordination with the State of Wyoming. The BLM would analyze the information provided by the State of Wyoming in the appropriate NEPA document and disclose the residual impacts, as appropriate.

Summary: The BLM should avoid and minimize impacts to sensitive habitat and establish an efficient and affordable mitigation strategy if impacts cannot be avoided.

Response: The BLM will follow the CEQ mitigation hierarchy of avoid and minimize, and then defer to the State of Wyoming's compensatory mitigation strategy.

Summary: The BLM's removal of compensatory mitigation requirements as related to mining may impact sage-grouse habitat and populations.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of

the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The BLM should defer to the State's assessment of how to apply avoidance, minimization and compensatory mitigation.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The BLM should apply the review structure outlined in Instruction Memorandum 2018-93 to the BLM's permitting and review processes for sage-grouse management. The BLM should allow and encourage applicant-proposed mitigation measures.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The BLM should clarify the exception, waiver and modification language, particularly for exceptions to stipulations.

Response: The BLM will continue to work with the State of Wyoming regarding the analysis and granting of exceptions to stipulations.

Summary: The BLM should use the State's compensatory mitigation framework if the BLM determines that site-specific project conservation measures are inadequate for sage-grouse conservation and compensatory mitigation is required.

Response: The BLM is pursuing agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a State's compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state's assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarifies that BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing Resource Management Plan.

Summary: The DEIS fails to assess whether the revised mitigation standard would result in a net conservation gain to the species. The FEIS should include the full revised mitigation strategy.

Response: Public input on implementing mitigation, "including alternative approaches to requiring compensatory mitigation in BLM land use plans," was explicitly requested as part of the public comment period on the 2018 DEIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: If the BLM determines that compensatory mitigation is not appropriate on public lands, then the FEIS should assess and discuss the impact of this decision.

Response: Public input on implementing mitigation, "including alternative approaches to requiring compensatory mitigation in BLM land use plans," was explicitly requested as part of the public comment period on the 2018 DEIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

E.2.8 Prioritization of Mineral Leasing

Summary: Commenters offered research demonstrating that surface-disturbing energy or mineral development within priority sage-grouse habitats is inconsistent with a goal to maintain or increase populations or distribution.

Response: The BLM reviewed the submitted research. Restrictions and constraints still apply to both PHMA and GHMA. Development would be encouraged to occur outside of the most sensitive habitats via the onerousness of the restrictions in PHMA.

Summary: The BLM has failed to properly implement the plan amendments related to oil and gas leasing and development.

Response: The BLM has implemented the plans in conformance with its regulations and policies. Moreover, implementation of actions under the 2015 plan is outside of the scope of the current planning effort.

Summary: The BLM should withdraw priority habitats from leasing for coal, fluid minerals, and non-energy leasable minerals, as well as other forms of mineral materials extraction.

Response: The BLM has determined that the planning designations and allocation decisions provided in the 2015 plans are sufficient to protect sage-grouse. Any new leases will have the appropriate stipulations attached. Operators with existing leases will work with the BLM to design the project in a manner that conflicts the least with sage-grouse habitat and will work with the BLM to adequately protect and conserve greater sage-grouse habitat to the extent possible and practical.

Summary: The BLM has failed to meet its oil and gas leasing prioritization obligation as stated in the 2015 ARMPA.

Response: The BLM has implemented the plans in conformance with its regulations and policies. Moreover, implementation of actions under the 2015 plan is outside of the scope of the current planning effort. IM 2018-026 explicitly states that “BLM does not need to lease and develop outside of Greater Sage-Grouse habitat management areas before considering any leasing and development within Greater Sage-Grouse habitat.” Prioritization of oil and gas leasing outside of PHMA and GHMA is included as an objective the 2015 plans; not an allocation. The 2018 plan continues restrictive stipulations in PHMA and may serve to encourage leasing and development outside of PHMAs but does not represent a prohibition on doing so and is consistent with 2018-026. The BLM will continue to work with the State of Wyoming in determining appropriate prioritization of leasing outside of PHMA.

Summary: The BLM should impose COAs on all existing fluid mineral leases consistent with the recommendations of the Sage-Grouse National Technical Team.

Response: COAs are applied at the APD and site-specific project level. All new leases will have appropriate stipulations applied when issued. The BLM has determined that prioritizing leasing outside of PHMA, the most sensitive habitats for Greater Sage-Grouse in Wyoming, would not affect Greater Sage-Grouse conservation. Local impacts may occur to Greater Sage-Grouse populations in GHMA, as acknowledged in the DEIS and FEIS.

Summary: The BLM should prioritize leasing outside of both PHMAs and GHMAs.

Response: PHMA is the most sensitive and important habitat for greater sage-grouse. Continuing to protect this habitat is still central to the BLM’s plans. GHMA would still be managed via appropriate stipulations and restrictions.

Summary: The BLM should remove leasing priority language from the EIS.

Response: Prioritization of leasing is not a planning level decision, however BLM has worked diligently with its cooperators to provide clear, concise policy guiding the implementation of the 2015 plan decisions.

Summary: The DEIS fails to disclose the impacts of the BLM's different interpretation of the requirement in the 2015 sage-grouse conservation plans to prioritize oil and gas leasing and development outside PHMA areas.

Response: IM 2018-026 explicitly states that "BLM does not need to lease and develop outside of Greater Sage-Grouse habitat management areas before considering any leasing and development within Greater Sage-Grouse habitat." Prioritization of oil and gas leasing outside of PHMA and GHMA is included as an objective the 2015 plans; not an allocation. The 2018 plan continues restrictive stipulations in PHMA and may serve to encourage leasing and development outside of PHMAs but does not represent a prohibition on doing so and is consistent with 2018-026. The impacts of this are disclosed in Chapter 4. The BLM will continue to work with the State of Wyoming and other partners when both identifying parcels open/closed for lease and offering parcels for lease.

Summary: The BLM should explain and document how "the change proposed to fluid mineral leasing prioritization under the Management Alignment Alternative" will benefit greater sage-grouse.

Response: See updated text. Also, the BLM would continue to prioritize leasing outside of PHMA in order to meet the purpose and need as well as result in better consistency with the State management strategy. The BLM will continue to work with the State of Wyoming and other partners when both identifying parcels open/closed for lease and offering parcels for lease

Summary: The BLM should include an analysis and disclosure of impacts likely to result from indiscriminate and widespread leasing in sage-grouse core areas.

Response: The BLM would continue to prioritize leasing outside of PHMA in order to meet the purpose and need as well as result in better consistency with the State management strategy. The BLM will continue to work with the State of Wyoming and other partners when both identifying parcels open/closed for lease and offering parcels for lease

Summary: The EIS should explain how prioritization of oil and gas leasing and development has changed considering DOI policies and BLM instruction memorandum.

Response: Refer to analysis completed for 2015 plans. Leasing has always been allowed in PHMA. Leasing was deferred until completion of the plans.

Summary: The BLM cannot base prioritization solely on whether the BLM has sufficient resources to process leasing nominations or applications for permits to drill in sage-grouse habitat.

Response: The BLM would continue to prioritize leasing outside of PHMA in order to meet the purpose and need as well as result in better consistency with the State management strategy. The BLM

will continue to work with the State of Wyoming and other partners when both identifying parcels open/closed for lease and offering parcels for lease.

Summary: The directive that the BLM prioritize development outside of PHMA is inconsistent with valid existing lease rights and may lead to compensable takings of private property. The BLM should remove this directive.

Response: The BLM would not infringe on valid existing rights. This is presented in the planning criteria in Chapter I. Prioritization of leasing would not affect the development of existing leases.

Summary: The RMPA should protect pre-2008 permitted activities.

Response: Per the planning criteria outlined in Chapter I, the BLM would honor valid existing rights, including those represented by leases issued pre-2008.

Summary: Removing protections from GHMA would allow degradation of important habitat.

Response: Development in GHMA still has restrictions and requirements. The BLM intends to align better with the State of Wyoming regarding management of Greater Sage-Grouse and Greater Sage-Grouse habitat and the proposed management actions would not result in allocation changes or changes in levels of protection.

Summary: The standards used by the BLM in Appendix B for addressing exceptions to the stipulations conflict with the State's strategy.

Response: No change. Sentence has been added to Chapter I regarding the BLM's intent to continue working with the State of Wyoming regarding the granting of exceptions.

Summary: The BLM should state that the leasing prioritization requirement will be consistent with IM 2018-026. The BLM should clarify that the leasing prioritization requirement does not require BLM to lease and develop outside of sage-grouse habitat management areas before considering any leasing and development within sage-grouse habitat.

Response: The BLM would continue to prioritize leasing outside of PHMA in order to meet the purpose and need as well as result in better consistency with the State management strategy. The BLM will continue to work with the State of Wyoming and other partners when both identifying parcels open/closed for lease and offering parcels for lease.

Summary: The BLM should revise the language in the appendices of the existing Wyoming RMPs regarding fluid mineral exceptions to stipulations.

Response: Language has been added in Chapter I to indicate that the BLM would continue to work with the State of Wyoming regarding the processing of exception requests.

Summary: The BLM should clarify what would qualify as a major change to the core area boundaries requiring increased analysis under NEPA.

Response: Language has been added in Chapter I to indicate that the BLM would continue to work with the State of Wyoming regarding the processing of exception requests.

Summary: The BLM fails to justify prioritization and fails to outline how it can effectively prioritize leasing and development.

Response: In striving to be more consistent with the State of Wyoming, the BLM is attempting to incentivize development outside of PHMA

Summary: The BLM should amend the RMPs to be consistent with the EO regarding activities that are not subject to core area stipulations.

Response: Planning criteria in Chapter I provide that valid existing rights would be honored. This is true for all existing leases, including pre-2008 leases. No change.

Summary: The FEIS should state that the BLM will grant exceptions approved by the WGFD, adopt the environmental analysis inherent in the State process, and incorporate the exception approvals in APD decision records.

Response: Language has been added in Chapter I to indicate that the BLM would continue to work with the State of Wyoming regarding the processing of exception requests.

Summary: The list of past and pending lease sales does not provide a "reasonably foreseeable future" adequate to determine and analyze impacts and consequences.

Response: The BLM believes that the list provided does included all reasonably foreseeable actions. No change.

Summary: The BLM should clarify the rationale behind the proposal to not include nesting and early-brood rearing habitat improvement in the livestock management - riparian area management section.

Response: Please see updated text. The language has been clarified and analysis has been further developed to support the conclusions.

E.2.9 Mineral Withdrawal

Summary: The BLM needs to be specific in the management prescriptions and needs to detail the impacts of not pursuing withdrawal of the lands to mineral entry previously being considered for withdrawal.

Response: The discussion also tiers to the analysis provided in the 2016 SFA withdrawal DEIS, which demonstrated the minimal increase in conservation benefit that would be provided if the withdrawal were followed through with

Summary: The BLM should refine the unnecessary or undue degradation standard.

Response: Unnecessary or undue degradation is defined in 43 CFR 3809.5.

E.2.10 Noise Management outside of PHMA

Response: Commenters offered data supporting the proposed rules for noise management outside PHMA.

Response: The BLM is aligning with the State of Wyoming regarding the management of noise in sage-grouse habitat. WGFD supports the 10 dBA. However, both the WGFD and the BLM will continue to keep informed of current science and if management of noise in sage-grouse habitat needs to change, this can be accomplished through the SGIT. Impacts to Greater Sage-Grouse as a result of noise were adequately considered in the 2015 FEISs.

Summary: The BLM should revise the fixed ambient level to better align with best available science and data.

Response: Intent is consistency with the Governor's EO. As stated in the management action, changes to this requirement may occur upon further research and consultation with the WGFD. No change needed.

Summary: Commenters offered studies and suggestions to improve noise management for sage-grouse habitat.

Response: Noise limits established by the Wyoming EO have been deemed sufficient. Additional measures for noise management will be examined in coordination with the WGFD. Noise limits established by the Wyoming EO have been deemed sufficient. Additional measures for noise management will be examined in coordination with the WGFD.

Summary: The BLM should provide a specific protocol for implementation that specifies a fixed background noise level.

Response: If changes to the EO's noise management are desired, then this should be brought up through the LWGs and the SGIT.

Summary: Chronic noise exposure can reduce immune responses in sage-grouse, affecting survival rates in areas where sage-grouse are exposed to West Nile virus.

Response: The reasonably foreseeable impacts to sage-grouse from noise disturbance are analyzed in the DEIS.

Summary: The BLM should define baseline noise.

Response: The change in noise levels is not being proposed in this planning process. The intent is consistency with the Governor's EO.

Summary: The baseline level may be more appropriately set at the project level in some situations, followed by noise monitoring at the site-specific level.

Response: Change made.

Summary: The 2015 plan limit is not supported by best available science and data.

Response: Intent is consistency with the EO, additional consideration regarding appropriate noise requirements will be accomplished through coordination with the WGFD. NTT report is also not being considered for change in this document. Comment is out of scope. No change needed.

Summary: The DEIS fails to properly address issues associated with noise impacts to sage-grouse.

Response: The 2015 FEISs analyzed in great detail the impacts of noise on greater sage-grouse. In this document, the BLM is aligning with the State's EO to provide clarification and consistency.

Summary: The BLM should require uniform, scientifically-sound protocols for measuring baseline noise levels.

Response: Impacts to Greater Sage-Grouse as a result of noise were adequately considered in the 2015 FEISs. The BLM is aligning with the State's management action on noise management in order to provide consistency across permitting authorities.

E.2.11 Lek Buffers

Summary: Lek buffers in the plan do not reflect the best available science or site-specific variability.

Response: BLM Wyoming is not proposing changes to any lek buffers. The intent is to better align with the State strategy; if changes to lek buffers are desired then the public should work with the State of Wyoming via the SGIT and LWGs to propose changes.

E.2.12 Required Design Features

Summary: The EIS must acknowledge the CCAs and remove additional requirements for mitigation, including the required design features.

Response: The BLM does not administer CCAAs or CCAs. In addition, these types of activities should generally be acknowledged at the project implementation stage, not in a land use planning document. Not change.

Summary: Clarification is needed to note that RDFs under 43 CFR 3809 are only applicable to the extent practicable and may not be imposed to deny approval of a notice or plan of operations under those regulations.

Response: The BLM has provided clarifying text regarding RDFs in both Chapter I and the RDF Appendix. See updated text.

Summary: The glossary definition of required design feature should be updated to align with the clarified use of required design features.

Response: No change needed. This comment will be considered when the guidance is developed for how to implement RDFs.

Summary: The proposed amendment would change appendices in the 2015 plan and the revised appendices should be made available for public review and comment.

Response: The BLM will update appendices as appropriate and make them available in the Final EIS.

E.2.13 Fire and Invasive Species

Summary: Grazing-influenced cheatgrass invasion and the use of fire are detrimental to sage-grouse habitat. Management prescriptions should reflect this.

Response: BLM Wyoming is not proposing any changes to management of fire and/or invasive species.

E.2.14 Land Health Assessments

Summary: Land Health Evaluation (and Rangeland Health Standards) were not established with sage-grouse habitat in mind and should be changed accordingly.

Response: The BLM would still manage to the special status species standard for wildlife habitat.

Summary: Landscape-level assessments should be the primary method of assessing conditions and analyses of impacts or improvements over time.

Response: The BLM would still be required to analyze alternatives if the situation requires a NEPA document.

E.2.15 New Alternative

Summary: A new alternative is needed because the range of alternatives is unreasonably narrow.

Response: The range is adequate to address the purpose and need for these amendments. And by incorporating the 2015 plans by reference, BLM avails itself of a larger range of management options previously analyzed in a broadly distributed EIS. Further, BLM considered a number of alternatives and issues during scoping that the agency determined not to carry forward.

E.2.16 Range of Alternatives

Summary: The range of alternatives is inadequate and does not constitute rigorous exploration and objective evaluation of all reasonable alternatives; BLM should present at least one other alternative.

Response: Alternatives are required to resolve a resource issue, while reasonably meeting the purpose and need. A specific recommendation for a third, state-aligned alternative was not identified by the Summary. The No Action Alternative and the Management Alignment Alternative capture the extremes of fully aligning management or not aligning management, and reflect a set of options to the decision-maker.

Summary: Clarification is needed on who would be the arbiter of “significant causal facts” in Table 2-1.

Response: No change needed. Significant causal factors are determined in accordance with BLM LHSs policy based on land health evaluations. BLM staff would collect the data on which this determination is made.

E.2.17 Data and Science

Summary: The public submitted studies for consideration by the BLM.

Response: BLM specifically partnered with USGS to review the best available information and incorporate the management implications of that information into this EIS. The report from USGS is available [here](#) and referenced throughout the EIS.

E.2.18 Assumptions and Methodology

Summary: The fragmentation of the 2018 DEIS process into 6 new EISs impedes a range-wide “hard look” at the adequacy of conservation measures currently in place.

Response: BLM’s intent in this planning effort is to better align with state management plans which necessitated a state-specific approach. The BLM’s purpose was not to assess the adequacy of conservation measures currently in place, but rather to build upon the 2015 planning effort in ways that improve our management flexibility and coordination with state agencies and plans. BLM continues to implement the decisions from the 2015 plans including its obligations to assess plan effectiveness (i.e. the adequacy of management actions in achieving plan-level goals and objectives). The BLM has monitoring and data analysis systems in place to support its rangewide review of plan effectiveness.

Summary: The BLM should favor the use of data since 2015, and not rely upon science and analysis from the 2015 amendments

Response: The BLM has done both and considers data based on its relevance and applicability to present circumstances, which is not strictly determined by the time at which research was conducted. The validity and potential staleness of studies has been reviewed against the 2018 USGS synthesis report on sage-grouse studies. The conclusions and analysis from 2015 generally remain germane and valid to current conditions.

Summary: The Wyoming DEIS has numerous contradictory and erroneous statements about the impacts of the Management Alignment Alternative.

Response: The error identified concerns the conclusion that there are not going to be adverse statewide effects on sage-grouse under the Management Alignment Alternative. The commenters submitted a challenge the statement without supplying information or evidence that belies its finding. Based on the analysis in the DEIS, the BLM stands by the general conclusion that localized impacts may occur, but that meaningful changes at the statewide level are not anticipated under the Management Alignment Alternative.

Summary: BLM assumes that sufficient funding and personnel will be available to implement the final decision when budget cuts are occurring and the DOI workforce may be reduced by 4,000 full-time jobs.

Response: The BLM must assume that it will be capable of carrying out the proposed decisions and be able to implement the plans. Otherwise, there would be no planning effort. To date the BLM has treated 1,505,326 acres; 1,159,247 of those acres since 2015. Further, specific Congressional appropriations have provided the funds allowing the BLM to treat more acres every fiscal year, highlighting both Congressional and the BLM’s commitment to Greater Sage-Grouse conservation. BLM is committed to the continued implementation of sage-grouse habitat and sagebrush steppe management.

Summary: BLM assumes impacts of RMPA/EIS implementation would occur primarily on public BLM-administered lands, while recent science indicates likely impacts to private lands or land administered by other government agencies.

Response: The analysis assumes that impacts of RMA/EIS implementation would occur primarily, but not exclusively, on BLM-administered lands. The BLM is not aware of evidence to the contrary of this. Impacts may extend beyond BLM-boundaries, particularly in localized areas, but the primary impacts are still anticipated to take place on BLM-administered public estate, where management decisions are implemented.

Summary: BLM assumes discussion of impacts is based on the best available data, but the DEIS acknowledges the lack of certain important data (Ch. 4) and fails to provide a summary of relevant existing scientific evidence for impact evaluations.

Response: The BLM reviewed available literature and synthesis reports by USGS and other credible research bodies. The analysis reflects this review. Despite the science that is available, and in light of the findings of available research, the BLM discloses known uncertainties and data gaps that are important to management. The BLM is not charged with gathering additional data in advance of setting management direction, and must make assumptions in order to make decisions. The BLM's plans for adaptive management and monitoring affords a mechanism to account for some of these unknowns and variable outcomes. The BLM's decision making is based on best available science, but requires assumptions to address the areas where available information is sparse.

Summary: BLM assumes that aligning management across the range of the Greater Sage-Grouse will decrease management confusion, improve conservation practices, and help to bolster Greater Sage-Grouse populations, while many of the proposed changes would weaken management practices already in place.

Response: The state of Wyoming is a central player in the effective conservation of the sage-grouse. By better aligning state and federal management, the federal resource agencies and state resource agencies can better coordinate conservation practices. The BLM does not find that there is sufficient basis to revise this assumption.

E.2.19 Sage-Grouse

Summary: Overall, the description and analysis of impacts to sage grouse need to be significantly expanded and improved with more detail.

Response: See updated text. More information has been provided on impacts to Greater Sage-Grouse as well as impacts to other resources. Analysis from the 2015 Final EISs has also been incorporated by reference.

Summary: Drilling-related ponds should be prohibited and existing ponds drained in priority habitat to avoid impacts to Greater Sage-Grouse such as West Nile Virus outbreaks from increased mosquito populations.

Response: The BLM is not proposing any changes to restrictions to pond allowances in the Wyoming plans.

Summary: Livestock grazing must be managed to prevent reduction in grass height and trampling of vegetative cover; ample scientific evidence exists in favor of this.

Response: Properly managed livestock grazing is compatible with sage-grouse management goals and actions. The 2015 FEISs adequately address potential impacts to Greater Sage-Grouse from livestock grazing.

Summary: Changing climate may cause shrinkage in sagebrush habitat in dry basins, but potential for habitat expansion in middle and higher elevations.

Response: BLM will continue to work with the biologists at the WGFD to ensure adequate protection for Greater Sage-Grouse is achieved in the face of changing climates.

Summary: The DEIS lacks adequate discussion about the fluctuations in sage-grouse population cycles and its implications for impacts to the species.

Response: The DEIS accounts for long-term trends in sage-grouse populations and includes adaptive management to respond to departures from the population trends, which subsume fluctuations even though they are not explicitly called out. If population cycles temporarily result in a population level below that which managers find sustainable, then management responses will be mobilized. The cyclic lows are the population floor being managed for.

Summary: Measurable effects of impacts on sage-grouse take 2-10 years to show up in the form of population declines, which isn't taken into account in the analysis.

Response: Monitoring and adaptive management of sage-grouse will take into account the time-delay of population declines and will not presume that current conditions reflect current management. Details of the adaptive management program is addressed outside of this analysis.

Summary: Impacts to Greater Sage-Grouse from predation (especially by corvids) and hunting warrant more attention in the impact analysis.

Response: Out of scope. BLM is not proposing changes to predator control in this document. See existing decision in 2015 ARMPA and Appendix N regarding predator control/management.

Summary: BLM states that "adverse effects on local populations may occur as a result" of the proposed action, but in the same sentence states, "no impacts on Greater Sage-Grouse conservation in Wyoming have been identified;" this contradiction should be addressed.

Response: No change made. The first statement relates to local populations; the second statement relates to statewide populations.

Summary: Wyoming has the largest remaining sage-grouse population, but the Wyoming RMPA have the weakest habitat protection measures of any of the RMPAs.

Response: The 2015 FEISs adequately disclose impacts to Greater Sage-grouse as a result of various land uses. This analysis has been incorporated by reference. The 2018 FEIS has been updated with text

to reflect more accurately potential impacts to Greater Sage-Grouse as a result of the minor changes currently being proposed.

E.2.20 Non-Sage-Grouse

Summary: The activities that affect sage-grouse habitat also affect other sagebrush-dependent species, which the DEIS fails to address.

Response: Impacts to other sagebrush-dependent species are germane to the analysis, however, the foreseeable intensity of the impact was deemed sufficiently low to be summarily dismissed, and not warranting detailed analysis.

Summary: The DEIS fails to consider relevant socioeconomic impacts.

Response: See updated text.

E.2.21 Fluid Minerals

Summary: A body of research indicates that fluid mineral development is associated with declines in sage-grouse (specific studies identified in comments). The new plan affords expanded fluid mineral development outside of state-identified “core areas,” which is likely to result in declines in sage-grouse populations. This body of research and its conclusions should be more explicitly recognized.

Response: Restrictions in the ARMPA and other sage-grouse related plans are based on the State of Wyoming management strategy, which was developed with full input from the public and stakeholders. Changes to restrictions and land use allocations are not being considered in the current planning process.

Summary: The well-density threshold identified in the plan (one well-per-section) is based on a non-reproducible study and has been questioned by other scientists.

Response: The comment is out of scope. The BLM is not proposing changes to density of disturbance restrictions, nor is the NTT report subject to debate at this time.

Summary: Recent research (a specific study is called out in the comment) questions the conclusions and validity of studies and reports that are the basis of the sage-grouse plans, and is not recognized in the current plans.

Response: The 2015 FEISs adequately considered impacts to Greater Sage-Grouse as a result of energy development, and modifying the conclusions of the NTT report is not within the scope of this analysis.

Summary: The FEIS should provide more detail about the habitats affected by oil and gas development.

Response: The BLM provides estimates of reasonably foreseeable development in all of its land use plans, which provides the reader and the public information on the potential development in the planning area. In addition, the BLM also prepared mineral potential reports to accompany all RMPs, which can be found on the ePlanning pages of each in progress and completed RMP. These sources of information should provide the reader with adequate information to determine where development is likely to occur. Finally, the BLM also identifies which areas are open or closed to fluid mineral leasing

and other mineral development in RMPs, which should also help the reader understand where development is more likely to occur. A sentence has been added to the document to provide the reader with some context as to where this information can be obtained. No additional level of development is being proposed in the current planning process; rather, clarifying that the BLM will work with the State of Wyoming to incentivize development and prioritize leasing outside of the most sensitive areas is what is being considered.

E.2.22 Lands and Realty

Summary: The DEIS should clarify the protection of private property rights and how federal and state actions could impact them, particularly on split-estate

Response: The Planning Criteria in both the 2015 effort as well as this current effort identify that all decisions in the BLM's plans would only apply to BLM-managed surface and federal mineral estate.

Summary: The DEIS should address the consequences of removing SFAs on the National Scenic and Historic Trails that are protected by the designation.

Response: The only change in management proposed with the removal of the SFA designation is the removal of the recommended withdrawal. All the requirements of PHMA will still apply to those areas formerly designated as SFA. The BLM has determined that any impacts to any National Scenic and Historic Trails were adequately considered in the 2015 Final EISs and do not foresee any additional impacts occurring to these trails as a result of any of the proposed changes. No change.

E.2.23 Recreation

Summary: The RMPA would reduce protections for National Trail corridors.

Response: No change needed. No management actions would affect National Trails. SFAs would continue to be managed as PHMA.

E.2.24 Cumulative Impacts

Summary: Because the scope of the current amendments isn't narrower than the 2015 amendments, tiering isn't appropriate. Incorporation of the CEA by reference is allowable, but the summary of the CEA is insufficient as written.

Response: BLM is using incorporation by reference, not tiering, to streamline our analysis consistent with Administrative priorities. Incorporation of the 2015 EIS by reference is allowable under BLM regulations and is appropriate in this circumstance because the purpose of this action builds upon the goals and objectives of the 2015 EIS.

Summary: The incorporation by reference of the 2015 CEA impedes public review.

Response: BLM is adding quantitative analysis of the cumulative impacts from planning decisions for each management zone to address rangewide and trends.

Summary: The CEA failed to account for a number of relevant activities, such as oil and gas projects in Wyoming and other scheduled lease sales.

Response: The BLM will update the past, present, and reasonably foreseeable actions as needed to reflect all current projects.

E.3 RANGEWIDE COMMENTS

E.3.1 Adaptive Management

Adaptive management provisions such as "hard" and "soft" triggers must be maintained, along with provisions for public notice and comment when they are triggered, to show that monitoring of effectiveness is ongoing and management is adjusted as needed.

In sum, designated PHMAs should be expanded to all lands designated as PACs by the US Fish and Wildlife Service in 2013 (COT 2013), and include expansions of Core Areas adopted by the State of Wyoming in 2015. In turn, SFA status and management parameters should be expanded to all lands designated as PHMA if the BLM truly wants to protect and conserve sage-grouse throughout its range and the Plans are being used to defer ESA listing.

E.3.2 Alternatives - Other

In sum, designated PHMAs should be expanded to all lands designated as PACs by the US Fish and Wildlife Service in 2013 (COT 2013), and include expansions of Core Areas adopted by the State of Wyoming in 2015. In turn, SFA status and management parameters should be expanded to all lands designated as PHMA if the BLM truly wants to protect and conserve sage-grouse throughout its range and the Plans are being used to defer ESA listing.

E.3.3 Assumptions and Methodology

The analytical assumptions in the DEISs are neither reasonable nor supportable. At the beginning of Chapter 4, each DEIS lays out a series of analytical assumptions. The purpose of these assumptions is to set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. As shown below, however, many of these assumptions are neither reasonable nor supportable when looked at objectively, and considering the most recent science. ? Assumption One: Sufficient funding and personnel would be available for implementing the final decision. ? Table ES-1 in each Executive Summary of the DEISs shows a significant decline in all planned habitat restoration and protection activities for FY 18, including conifer removal and invasive species removal. However, invasive species removal is already falling far behind the pace needed to adequately restore sagebrush habitat, as shown in a recent WAFWA report (WAFWA Gap Analysis) finding that most invasive weed management programs are addressing less than 10% of the average infested acres, while the annual rate of spread of invasive plants, can range from 15-35%. That document states, "[This] [l]ack of effort is due almost entirely to lack of capacity, not expertise."¹⁴ ? In FY 19, The Administration budget request for funding sage-grouse would impose further cuts by consolidating the sage-grouse program with other programs and reducing the total amount sought.¹⁵ ? Interior Secretary Zinke has told lawmakers that he wants to reduce the Department workforce by 4,000 full-time jobs.¹⁶ (Greenwire 8/15/17) ? Assumption Two: Implementation-level actions necessary to execute the LUP-level decisions in this RMPA/EIS would be subject to further environmental review, including that under NEPA. ? Instruction Memorandum (IM) 2018-034, recent guidance issued by BLM governing oil and gas leasing, emphasizes using Determinations of NEPA Adequacy instead of NEPA analysis. ? IM 2018-061 instructs BLM staff members to ensure they are using several tools to make the NEPA process more efficient, including categorical exclusions for certain types of oil and gas development. ? Pending legislation, H.R. 6106, introduced by Representative Pearce (R-NM), would require use of categorical

exclusions from NEPA for many oil and gas drilling activities. ? Pending legislation, H.R. 6088, introduced by Representative Curtis (R-UT), would allow oil and gas companies to obtain authorization to drill in some circumstances without NEPA analysis. ? Pending legislation, S.1417, introduced by Sen. Hatch (R-UT) and Sen. Heinrich (D-NM), would create categorical exclusions for a wide variety of sage-grouse management activities, such as the use of herbicides and pesticides, mechanical piling and burning, chaining, and broadcast burning. ? There has been a large increase in the use of categorical exclusions from NEPA analysis for oil and gas development in Wyoming, particularly in the Continental Divide-Creston Project Area, where categorical exclusions allowed by section 390 of the Energy Policy Act of 2005 (42 U.S.C. § 15942) are being employed. ? Assumption Three: Direct and indirect impacts of implementing the RMPA/EIS would primarily occur on public lands administered by the BLM in the planning area. ? The DEISs loosen restrictions on oil and gas development on BLM lands in a variety of ways, such as decreasing buffers, removing or modifying disturbance and density caps, opening new areas to development, and eliminating general habitat in Utah. While BLM assumes that impacts would primarily occur on public land, recent scientific research indicates the likelihood of impacts to adjoining private or public lands owned by agencies other than BLM. This study, by Spence et al., found that the probability of lek collapse was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary.¹⁷ ? These proposed changes would impact future collaborative processes, as expressed by Wyoming Governor Matt Mead: "If we go down a different road now with the sage grouse, what it says is, when you try to address other endangered species problems in this country, don't have a collaborative process, don't work together, because it's going to be changed," Mead said. "To me, that would be a very unfortunate circumstance."¹⁸ ? Assumption Four: The BLM would carry out appropriate maintenance for the functional capability of all developments. ? As noted in Assumption One, BLM is already not carrying out appropriate maintenance, and potential budget cuts foretell even greater deficiencies in the future. Moreover, the mere fact that treatment has occurred does not necessarily indicate that the habitat has successfully been restored, rendering Table ES-I essentially meaningless. As the 2018 USGS Synthesis of recent scientific research states, "Restoring sagebrush communities can be difficult, costly and slow."¹⁹ ? In *Desert Survivors v. U.S. Dept. of the Interior*, Case No. 16-cv-01165-JCS (N.D. CA May 15, 2018)²⁰, in ruling that the FWS erred in failing to list the bi-state GRSG population under ESA, the court held, "the service must offer some rational basis for its conclusions that future conservation efforts will be effective enough to improve the status of the bi-state (grouse) and therefore warrant withdrawal of the proposed listing." *Id.* at 64. Assumptions must have a basis in fact. ? Assumption Five: The discussion of impacts is based on best available data. ? In Chapter 4, the DEISs acknowledge that much important data is not available, including comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition and GIS data used for disturbance calculation on private lands. Indeed, the DEISs acknowledge that some impacts of the proposed changes could not be quantified.²¹ ? CEQ regulations further require, where data is unavailable a summary of existing scientific evidence relevant to evaluating reasonably foreseeable significant adverse impacts and the agency's evaluation of such impacts.²² The DEISs fail to provide either of these types of information. ? In addition to failing to include the results of the WAFWA Gap Analysis, the DEISs also do not consider a study published in PLoS ONE by Kitzberger et al. (PLoS ONE study) finding that many parts of the West can expect to see more than five times the area burned during the next 20 years than fires covered in the past 20.²³ The DEISs state that their assumptions apply to the analysis of both alternatives presented by BLM. It is not appropriate, however, to rely on assumptions, as BLM has done here, that are not based either in fact or sound science.

III. THE ASSUMPTIONS, DATA, AND PLANNING CRITERIA BLM RELIES ON IN THE DRAFT EISs ARE FLAWED. There are significant problems in the DEISs relating to the assumptions, data, and planning criteria BLM uses in support of the proposed amendments to the 2015 land use plans. These flaws lead to a series of inadequacies in the DEISs themselves, including both faulty conclusions and a high degree of regulatory uncertainty as to the meaning of the proposed amendments, discussed in detail below. A. The analytical assumptions in the DEISs are neither reasonable nor supportable At the beginning of Chapter 4, each DEIS lays out a series of analytical assumptions. The purpose of these assumptions is to set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. As shown below, however, many of these assumptions are neither reasonable nor supportable when looked at objectively, and considering the most recent science.

E.3.4 Cumulative Impacts

F. BLM's cumulative impacts analysis is insufficient and invalid. The BLM is required to consider the cumulative environmental impacts to sage-grouse and sage-grouse habitat in the EISs it has prepared. Cumulative environmental impacts are defined as: The impact on the environment which 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 actions. 40 C.F.R. § 1508.7. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Id. Cumulative impacts must be considered in the scope of an EIS. Id. § 1508.2(c). Despite the requirement to consider cumulative environmental impacts in the sage-grouse land use plan amendment EISs, the BLM has failed to do this adequately. For one, the BLM claims that the cumulative effects analysis from the 2015 sage-grouse land use plan amendments meets the cumulative effects analysis requirement that is needed now. The inappropriateness and legal invalidity of this claim is discussed elsewhere in these comments. As noted above, tiering is only appropriate when a subsequent narrower environmental analysis relies on an earlier broader environmental analysis. See 40 C.F.R. § 1508.28 (a) (stating that tiering is appropriate when a program, plan, or policy environmental impact statement is used to support a new analysis of "lessor scope" or which is site-specific). But we do not have that here; the scope of the current analysis is as broad as the 2015 analysis. There is no "step down" present here, therefore the cumulative impacts analysis from the 2015 plans cannot "incorporate[] by reference the analysis in the 2014 and 2015 Final EISs and the 2016 Draft Sagebrush Focal Area Withdrawal EIS." Wyoming DEIS at 4-20. In addition, BLM cannot simply incorporate the previous analysis by reference without justifying how it is appropriate and summarizing how it applies, neither of which has been done in the Draft EISs. See, 43 C.F.R. § 46.135(a). BLM also must ensure any incorporation by reference does not impede review by the public, which it surely does here. See 40 C.F.R. § 1502.21. Moreover, the purpose and need for the 2018 EISs differs from that of the 2015 EISs, which underscores why neither tiering nor incorporation by reference is appropriate.

Secondly, in each of the six 2018 EISs the BLM lists a number of projects that it claims reflect the cumulative effects impacts that are applicable here. See, e.g., Table 4-3 in the Wyoming Draft EIS (DEIS). But this list of projects fails to incorporate many relevant projects that should be considered in the cumulative effects analysis. In Wyoming, for example, neither the Normally Pressured Lance or Converse County oil and gas projects are listed. See Wyoming DEIS at Table 4-3, page 4-35. These are two mammoth projects, that will involve drilling thousands of oil and gas wells which will have significant impacts on sage-grouse and sage-grouse habitats. I I Neither of these projects were considered in the 2015 EISs. In Utah the Greater Chapita Wells Natural Gas Infill Project is not considered in the Utah

sage-grouse plan amendment EIS. Utah DEIS at Table 4-4, pages 4-41 to 42. This project could involve the drilling of 2808 natural gas wells in Uintah County, which is prime sage-grouse habitat. See <https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=3736> 2. There are other projects missing from the Range Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions table in the other states. In addition, while in Wyoming (and the other states), past and upcoming oil and gas lease sales are mentioned, see Wyoming DEIS at Table 4-3, page 4-35, the list is incomplete. The June lease sale (198,588 acres) is mentioned but neither the upcoming September (366,151 acres) or December (698,589 acres) lease sales are discussed.¹² The same is true in other states. For example, in Utah, the Utah DEIS says 646 acres of oil and gas leases will be offered in Habitat Management Areas (HMA) in June, but it fails to mention the 158,944 acres (with 45,227 acres that had been previously offered) that will be offered for lease in September.¹³ The same is true in other states.

The BLM should review the list of projects shown in Tables 4-3 or 4-4 (depending on the state) causing cumulative impacts and ensure they are as comprehensive as is required to include "the incremental impact[s] . . . when added to other past, present, and reasonably foreseeable future actions." We note again the projects we have mentioned were not considered in the 2015 sage-grouse plan amendment EISs. These are "collectively significant actions taking place over a period of time" that must be considered in the cumulative impacts analysis, but which have not been. In addition, BLM should evaluate the cumulative effects of these projects across the planning areas of the 2015 Sage-grouse Plans. Under Council on Environmental Quality (CEQ) guidance, BLM must consider the current aggregate effects of past actions in a cumulative impacts analysis. CEQ, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (available at https://ceq.doe.gov/docs/ceq-regulations-andguidance/regs/Guidance_on_CE.pdf). This means the BLM must consider what the impacts of implementing the 2015 plans has been on cumulative impacts. BLM cannot just incorporate the 2015 plans by reference as its cumulative effects analysis, rather it must consider the "identifiable present effects of past actions," which the 2015 plans clearly are. Under the 2015 plans BLM has taken hundreds of actions, and in total those actions have had cumulative environmental impacts. An analysis of those cumulative impacts is missing from the current EISs, which is not permissible. "A cumulative impact analysis "must be more than perfunctory; it must provide 'a useful analysis of the cumulative impacts of past, present, and future projects.'"" *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1076 (9th Cir. 2011) (quoting *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1075 (9th Cir. 2002) (additional citation omitted)). "To be useful to decision makers and the public, the cumulative impact analysis must include "some quantified or detailed information; . . . general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.'" 668 F.3d at 1076 (quoting *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 868 (9th Cir. 2004) (additional citation omitted)). Here the BLM has offered nothing more than a perfunctory cumulative impacts analysis. There is no useful analysis of past projects; the dozens if not hundreds of approved projects implementing the 2015 sage-grouse plans. There is no quantifiable or detailed information about those projects, and there are not even any general statements about the cumulative impacts of those projects, many of which have undergone a NEPA analysis. Based on the above, it is evident the cumulative impacts analyses in the 2018 Draft EISs is invalid and must be expanded to fully address the cumulative impacts from the amendments.

E.3.5 Data and Science

A 2016 Wyoming study by Smith et al.³³ cited in both the USGS Annotated Bibliography and the ZUSGS Synthesis found that sage-grouse frequently used winter habitats outside of core areas. The Annotated Bibliography summarizes the implications of this study: Current seasonal use restrictions in winter concentration areas (December 1 to March 15) are shorter than the GRSG winter habitat use period identified in the study. A substantial proportion of winter use areas were located outside of identified core areas in one of the two study areas, suggesting reconsideration of the ability of Wyoming's Core Area policy to provide for long-term conservation of GRSG. While the Wyoming DEIS refers to potential changes to Habitat Management Area Designations (See, e.g., WY DEIS at 4-14-4-15), neither this study nor the need to expand winter habitat is mentioned. A second Wyoming study by Spence et al.³⁵ found the probability of lek collapse was positively related to the density of oil and gas wells located outside core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary. The USGS Annotated Bibliography states: The proportion of the male population within core areas and the observed decreased probability of lek collapse within core areas suggest that the core area policy is providing broad protection for GRSG in Wyoming. However, limitations on development near core areas may be needed to more effectively protect GRSG populations within core areas.³⁶ The Wyoming DEIS again makes no mention of this study, and in fact proposes reducing noise restrictions outside priority habitat (WY DEIS at 2-12-2-13), while other DEISs in other states, such as Utah and Idaho, eliminate a variety of restrictions outside but adjacent to priority habitat (see e.g., UT DEIS at 2-6; ID DEIS at 2-10).

A second Wyoming study by Spence et al.³⁵ found the probability of lek collapse was positively related to the density of oil and gas wells located outside core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary. The USGS Annotated Bibliography states: The proportion of the male population within core areas and the observed decreased probability of lek collapse within core areas suggest that the core area policy is providing broad protection for GRSG in Wyoming. However, limitations on development near core areas may be needed to more effectively protect GRSG populations within core areas.³⁶ The Wyoming DEIS again makes no mention of this study, and in fact proposes reducing noise restrictions outside priority habitat (WY DEIS at 2-12-2-13), while other DEISs in other states, such as Utah and Idaho, eliminate a variety of restrictions outside but adjacent to priority habitat (see e.g., UT DEIS at 2-6; ID DEIS at 2-10). BLM must accurately characterize the findings in the Synthesis, elaborate upon the status of data considered and explain how it is addressing missing data. The agency cannot simply gloss over these requirements with rote or unsupported conclusions that it used in support of its Preferred Alternative.

We appreciate the idea that broad, science-based objectives have a place in determining whether greater sage-grouse habitat is contributing to stable populations. However, no single objective can cover the wide range of variability that occurs across a landscape as vast as the sagebrush sea. The Habitat Objectives Tables (Table 2-2) have been misinterpreted as standards that must be met, likely at the expense of the widest and most adaptable use in the West-livestock grazing. It does not make sense that these objectives be reflected in livestock grazing permittee/lessee terms and conditions if they do not fit the ecosystem in which they are being applied. Because of this, we appreciate those amendments that propose to make clear that habitat objectives must account for local conditions and site variability. This includes the removal of the seven-inch perennial grass and forb height habitat objective. We understand why grass and forb height objectives need to be considered for the health of the bird, but we believe

these objectives should vary across the range. We request these changes be made to the habitat objectives tables for each greater sage-grouse RMP amendment.

By ignoring the WAFWA Gap Analysis and Plos ONE study, the DEISs fail to recognize the warning that occurs later in the USGS Synthesis, which states: [T]here continues to be emerging science quantifying effects and measuring the efficacy of conservation recommendations. Review of this new information as it becomes available, and incorporating changes, if appropriate, are essential to implementing valid conservation recommendations.³²

In addition to the problems with Table ES-I noted above in the first section, the figures used in the Table and on page 3-I are of limited utility at best because they are not broken down either state by state or by sage-grouse management zone. Range-wide data can mask significant decreases in habitat or population in a more localized area. In addition, no citation is provided for either data set so that the numbers provided can be examined and verified. ? The PLoS ONE study found that median increases in AAB (Annual Area Burned) greater than 700% are predicted for ID, MT, and NV, and strong upper quartile increases are predicted for OR, ID, MT, and WY. In many areas the actual burning on the ground has exceeded the models. This is a huge increase from the conclusion in the 2015 FWS sage-grouse listing decision that that wildfire would continue to affect the Great Basin at the current rate of about 85% percent per year.²⁹

In discussing the findings of the Synthesis on impacts of activities such as oil and gas development to sage-grouse habitat, the DEIS states: The science developed since 2015 corroborates prior knowledge about the impact of discrete human activities on Greater Sage-Grouse. New science suggests that strategies to limit surface disturbance may be successful at limiting range-wide population declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations ([Synthesis], p.2). This information may have relevance when considering the impact of management actions designed to limit discrete disturbances.³¹ The studies referenced in this passage appears to be set out on page 14 and 15 of the USGS Synthesis. We were not able to locate a single instance in any of the DEISs, however, where any of these papers were cited in a discussion of the Impacts of the BLM Preferred Alternative in the DEISs.

The DEISs ignore studies referenced in the USGS Annotated Bibliography and USGS Synthesis that either support additional protections for sage-grouse habitat or provide evidence against the amendments BLM proposes.

The PLoS ONE study found that median increases in AAB (Annual Area Burned) greater than 700% are predicted for ID, MT, and NV, and strong upper quartile increases are predicted for OR, ID, MT, and WY. In many areas the actual burning on the ground has exceeded the models. This is a huge increase from the conclusion in the 2015 FWS sage-grouse listing decision that that wildfire would continue to affect the Great Basin at the current rate of about 85% percent per year.²⁹

The WAFWA Gap Analysis shows that invasive plant infestations in the West, particularly in the range of the sage-grouse, have reached enormous levels with estimates of invasive annual grass and perennial forb infestations at more than 100 million acres of public and private lands. Again, this is far more than contemplated in the FWS sage-grouse listing decision.³⁰

A limit of 3% human surface disturbance per square-mile section is the minimum necessary standard for preventing habitat abandonment by sage grouse. Knick et al. (2013) found that 99% of active leks across the western half of the sage grouse's range were surrounded by land with 3% or less human development. Decker et al. (2017) found a similar result in Colorado, with a linear decrease in sage grouse lek populations once surface disturbance increased above the 2.5% threshold. Preliminary results from Kirol et al. (in prep) indicate that the vast majority of sage-grouse were found in habitats with <1% surface disturbance. Disturbance density can also affect survival, Kirol et al. (2015a) found that brood survival for sage-grouse began to decline significantly once disturbance density hit the 4% threshold. The vast majority were surrounded by much less disturbance. Copeland et al. (2013) found that if all of the State of Wyoming sage grouse policy provisions (which include a 5% disturbance cap calculated using a Disturbance Density Calculation Tool) were implemented fully and to the letter, that a 9 to 15% decline in greater sage grouse populations would still occur statewide, including a 6 to 9% decline within designated Core Areas (where the 5% disturbance cap would be applied). There is no scientific evidence at all indicating that sage grouse can tolerate a greater percentage of surface disturbance. In particular, the 5% cap on disturbance proposed for the Wyoming RMP amendment for Core Areas and Connectivity Areas been shown to be effective by no scientific study, ever.

The data BLM chose to rely upon is insufficient. The scientific grounding for the BLM plans, including the level of certainty in how they are applied, was a key part of the foundation for the FWS decision that listing the sage-grouse under ESA was not warranted.²⁴ Any changes proposed to the plans now by the BLM should meet a similarly high standard, complying with both the CEQ regulations and considering all the most recent peer-reviewed research. Unfortunately, here, much of the relevant data is not available, and the data BLM has ignored includes important studies that would argue against many of the changes BLM proposes in the DEISs. Table ES-I of the DEISs purports to use the amount of on-the-ground treatment activity for the past three fiscal years, as well as planned activities for the current fiscal year, to show progress in sagebrush habitat restoration. In addition, every DEIS also includes the following language on page 3-1: While the BLM acknowledges that there have been changes to the landscape since 2015, due to the scale of this analysis... data collected consistently across the range indicate that the extent of these changes to the landscape are relatively minimal. For example, BLM monitoring data collected and analyzed annually at the biologically significant unit (BSU) scale... indicates that there has been a minimal overall increase in estimated disturbance (less than 1 percent range-wide from 2015 through 2017) within PHMA. Moreover, there has been an overall decrease in sagebrush availability (less than 1 percent range-wide from 2012 through 2015) in PHMAs within BSUs. Finally, Chapter 3 of every DEIS references both the USGS annotated bibliography of scientific research on greater sage-grouse published since January 2015²⁵ (USGS Annotated Bibliography) and the USGS report that synthesizes and outlines potential management implications of the new science.²⁶ (USGS Synthesis). These data are intended to show that changes to the landscape since the 2015 plans are "relatively minimal."²⁷ In addition, the DEISs state: Based on available information, including [the Annotated Bibliography and Synthesis], the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated into this RMPA/EIS.²⁸ Both conclusions are faulty. Changes to the landscape since 2015 are not relatively minimal, and the sagebrush landscape of 2018 is not substantially similar to that of 2015, as shown below.

BLM must accurately characterize the findings in the Synthesis, elaborate upon the status of data considered and explain how it is addressing missing data. The agency cannot simply gloss over these requirements with rote or unsupported conclusions that it used in support of its Preferred Alternative.

Finally, Chapter 3 of every DEIS references both the USGS annotated bibliography of scientific research on greater sage-grouse published since January 2015²⁵(USGS Annotated Bibliography) and the USGS report that synthesizes and outlines potential management implications of the new science.²⁶(USGS Synthesis). These data are intended to show that changes to the landscape since the 2015 plans are "relatively minimal."²⁷In addition, the DEISs state: Based on available information, including [the Annotated Bibliography and Synthesis], the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated into this RMPA/EIS.²⁸ Both conclusions are faulty. Changes to the landscape since 2015 are not relatively minimal, and the sagebrush landscape of 2018 is not substantially similar to that of 2015, as shown below.

Holloran (2005) found that several types of oil and gas infrastructure sited within 1.9 miles of the lek site had a negative impact on populations of breeding males on the lek; these infrastructure feature include both wellpads during the post-drilling, production phase and gravel trunk roads leading to five or more wellpads. It is important to note that a single wellpad or road can cause significant impacts, and these impacts occur even in cases where roads are not visible from the lek site due to intervening terrain (Holloran 2005). Drilling activities can have significant impacts when wells are sited within 3 miles of leks (id.). Manier et al. (2014) reviewed all available science and found that appropriate lek buffers (the "interpreted range") ranged from 3.1 to 5 miles. Aldridge and Boyce (2007) suggested that even larger buffers (10 km) are warranted. In addition to significant negative impacts on breeding populations at the lek site, industrial incursions can also have a significant negative impact on nesting females. The lek is the hub of nesting activity, with most females nesting within 4 to 6 miles of a lek site. Holloran et al. (2007) found that yearling sage grouse avoided otherwise suitable nesting habitat within 930m (almost 0.6 mile) of oil and gas-related infrastructure. This means that individual wellsites, and their access roads and other related facilities, will be surrounded by a 0.6-mile band of habitat that has substantially lost its habitat capability for use by nesting grouse. The National Technical Team (2011: 20) observed, "it should be noted that protecting even 75 to >80% of nesting hens would require a 4-mile radius buffer (Table 1). Even a 4-mile NSO buffer would not be large enough to offset all the impacts reviewed above." Importantly, a 0.6-mile lek buffer covers by area only 2% of the nesting habitat encompassed by a 4-mile lek buffer, which takes in approximately 80% of nesting grouse according to the best available science.

Priority Habitats were largely designated on the basis of buffers around active lek sites, which encompass the breeding and nesting habitats used by grouse during spring and summer. But protecting wintering habitats is equally important to assuring the continued existence and ultimate recovery of the species, and these wintering habitats are frequently located outside the protective boundaries of designated Priority Habitats (see, e.g., Smith et al. 2016, Dinkins et al. 2017). For Wyoming, Dinkins et al. (2017: 10) state, "Although breeding habitat-defined as the area within 8.5 km [5.3 miles] of a lek-was a good surrogate for delineating all seasonal habitats for sage-grouse, Core Areas provided habitat protections disproportionately for summer habitats compared to winter." These researchers went on to state, "our mapping results demonstrated that net reproduction from all birds associated with a winter habitat magnifies the importance of maintaining high-quality winter habitat. In other words, birds

breeding outside of winter habitats were reliant on winter habitats for winter survival; thus, degraded winter habitat could equate to loss of reproduction from a much larger spatial footprint.

Recent empirical study confirms the established finding that sage-grouse lek attendance is negatively related to oil and gas density, regardless of sagebrush cover and participation.³ Green et al. (2017) examined greater sage-grouse lek attendance, oil and gas well, and habitat and precipitation data from Wyoming over the period 1984 to 2008, and, consistent with numerous prior studies, that lek attendance declines are closely associated with the density of oil and gas development: Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schladweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2-3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males.

Sagebrush Focal Areas ("SFAs") are by definition a subset of PHMA, where all PHMA direction applies with additional protections overlaid in some cases. Our organizations agree with the need for modification insofar as we believe SFA management actions should be expanded to more lands. In addition, we believe that all priority habitats, including SFAs must be designated as sage-grouse Areas of Critical Environmental Concern (ACECs) and managed to protect sage-grouse, as discussed in more detail above. The current Greater Sage-Grouse RMP Amendments and Revisions incorporate insufficient Priority Habitat Management Area designations in all states except Oregon, Colorado, and North Dakota. Crist et al. (2015) provided a critique that indicated that many PHMA units were too small and isolated to sustain sage-grouse populations over the long term, and also noted that a handful of large areas are strongholds of disproportionate importance to sage-grouse conservation efforts. All lands designated as Priority Areas for Conservation 65 ("PACs") by the U.S. Fish and Wildlife Service need to be designated as Priority Habitat Management Areas and given strong, science-based protections in accord with the recommendations of the National Technical Team. In addition, expansions of PHMA are warranted in Wyoming, where the BLM and U.S. Fish and Wildlife Service erroneously incorporated reductions in state Core Area designations that were made for political, rather than scientific, purposes, and which render this state's Priority Habitat Management Areas scientifically invalid.

Scientific research has determined that one energy site per square mile is the density threshold at which significant impacts to sage-grouse populations begin to be measured (Copeland et al. 2013). Tack (2009) found that this study in Montana's Milk River Basin, well densities of one per square mile also were correlated with a very low probability of a lek being large (see Figure 9, p. 43). The analysis of Copeland et al. (2013) found that a statewide analysis of well densities revealed population decline curves very close to the earlier studies by Holloran (2005), but also noted that a 1 wellpad per square mile density of development correlated to approximately 18% decline in sage grouse lek population (see Figure 4). So one wellpad per square mile definitely is not a zero-impact threshold. Indeed, Garman (2018) found that clustering 8 wells per pad using directional drilling in the Atlantic Rim coalbed methane project, which

would meet the one-pad-per-square-mile threshold required for PHMA, still left comparatively little habitat within the Project Area outside the ecological zone of influence of roads and wellpads. This one-site-per-square-mile-section is a threshold that should not be subject to waiver, modification, or exception.

The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single wellsite should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Apa et al. 2008). According to Taylor et al. (2012: 27), in a study commissioned by BLM, 68 Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all.

The studies referenced in this passage appears to be set out on page 14 and 15 of the USGS Synthesis. We were not able to locate a single instance in any of the DEISs, however, where any of these papers were cited in a discussion of the Impacts of the BLM Preferred Alternative in the DEISs. ? By ignoring the WAFWA Gap Analysis and Plos ONE study, the DEISs fail to recognize the warning that occurs later in the USGS Synthesis, which states: [T]here continues to be emerging science quantifying effects and measuring the efficacy of conservation recommendations. Review of this new information as it becomes available, and incorporating changes, if appropriate, are essential to implementing valid conservation recommendations.³² ? The DEISs ignore studies referenced in the USGS Annotated Bibliography and USGS Synthesis that either support additional protections for sage-grouse habitat or provide evidence against the amendments BLM proposes.

There is a substantial body of scientific literature concluding that discrete anthropogenic activities that are present in sagebrush have negative effects on sage-grouse. The extent of these effects varies based on the size, intensity and persistence of the human activity, and can range from displacement to local extirpation of sage-grouse.⁷³ Nonrenewable energy developments, such as fluid mineral leasing, and their supporting infrastructure are a pervasive, and in some cases an increasing presence within the range of sage-grouse.⁷⁴ There has, however, been a gradual decrease in recommended requirements for fluid mineral leasing within priority areas. * 2011 NTT Report⁷⁵: For unleased federal fluid mineral estate, close priority areas with very limited exceptions. For leased federal areas, do not allow new surface occupancy in priority habitat, with limited exception. Proposed surface disturbance cannot exceed 3% with limited exception. Disturbance measured within individual priority areas and local project area.⁷⁶ * 2013 COT Report⁷⁷: Avoid development in priority areas; identify areas where leasing is not acceptable. If avoidance not possible, development should occur only in non-habitat areas or 72 U. least suitable habitat. Reduce and maintain density of energy structures below which there are no impacts to sage-grouse habitats or do not result in declines to sage-grouse populations.⁷⁸ * 2015 BLM Plans⁷⁹: Implement disturbance cap of 3% within individual priority areas and local project area in priority habitat. Implement a density cap of an average of 1 energy and mining facility per 640 acres.⁸⁰ * 2018 BLM Proposed RMPA.EIS: Numerous additional waivers, exceptions and modifications for drilling

in priority areas; restrictions on drilling limited; for Utah, if project design and site conditions indicate a project will improve habitat, exceedances of disturbance and density caps at either project level or individual priority area are allowed.; in Idaho disturbance cap only measured for individual population areas, not project area.⁸¹ The 2015 finding by the Fish and Wildlife Service that Greater Sage-Grouse did not need to be listed under the ESA relied heavily on the provisions in the 2015 BLM plans: As previously stated, sage-grouse are sensitive to disturbance, and small amounts of development within sage-grouse habitats can negatively affect sage-grouse population viability. Thus, limiting future disturbances in sage-grouse habitats is an essential component of reducing or eliminating effects related to disturbance, as recommended in the COT Report.⁸² In addition to the NTT and COT reports, numerous research papers confirm the importance of density and disturbance caps: * 2017 Edmunds study: Modeled density-independent and -dependent population growth across multiple spatial scales relevant to management and conservation. Relatively close fine-scale populations of sage-grouse can trend differently, indicating that large-scale trends may not accurately depict what is occurring across the landscape (e.g., local effects of gas and oil fields may be masked by increasing larger populations). ⁸³ * 2017 Green study (importance of caps): Best models indicated that GRSG responded to energy development with a 1 to 4-year time lag, and well density within 6,400 m of leks best explained GRSG losses. Sagebrush cover and precipitation explained little variation in lek attendance over time. Across Wyoming, decreases in lek attendance were significant at a density of 4 wells per square kilometer, reaching 17 percent per year at 5.24 wells per square kilometer. Current regulations in Core Areas could limit GRSG losses from energy developments, but they may not promote GRSG recovery.⁸⁴ * 2015 Holloran Study (importance of caps): Use of suitable winter habitat by sage-grouse decreased with increasing density of gas wells within 2.8 km of data loggers. Habitat use also increased with distance to wells and plowed main haul roads, but well density was a better predictor. Effects of anthropogenic activity were evident at lower well densities. Effects of gas development on sage-grouse can be reduced by minimizing well densities and adopting methods that reduce anthropogenic activities.⁸⁵ * 2015 Fedy study (importance of caps): Birds avoided areas of high well density and nests were not found in areas with greater than 4 wells per km² and majority of nests (63%) were in areas with = 1 well per km².⁸⁶ * 2015 Kirol study (importance of caps): Energy infrastructure had negative effects on habitat use and brood survival, with brood survival decreasing once surface disturbance exceeded 4 percent. Results suggest that reduction of habitat quality was primarily driven by avoidance of energy infrastructure, resulting in primary and secondary source habitat becoming low-occurrence habitat.⁸⁷ * 2017 Spence Study (importance of caps): Probability of lek collapse inside core areas was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary.⁸⁸ * 2018 Holloran Letter (importance of 2015 protections): Recommending management approaches and objectives established in 2015 BLM sage-grouse land use plans be used as minimum standards in sagebrush habitat.⁸⁹

As explained in the NTT report: Sage grouse exhibit strong site fidelity (loyalty to a particular area even when the area is no longer of value) to seasonal habitats, which includes breeding, nesting, brood rearing, and wintering areas. (Connelly et al. 2004, Connelly et al. 2011b). Adult sage grouse rarely switch between these habitats once they have been selected, limiting their adaptability to changes. NTT at 51 (emphases added). Accordingly, loss of critical wintering habitat could lead to extirpation of sage-grouse populations that solely rely on these areas for the winter. See also FEIS at 3-5 ("Site fidelity in breeding birds could delay population response to habitat changes, and a clear response may require the death of most site-tenacious individuals.")

Attached is Attachment 3 to comments submitted by The Wilderness Society, Conservation Colorado, National Audubon Society, Colorado Wildlife Federation, Rocky Mountain Wild, Western Values Project, National Wildlife Federation and Natural Resources Defense Council.

For example, in Wyoming, Copeland et al. (2013) projected further sage-grouse population declines with full and rigorous implementation of the Wyoming Core Area plan (which subsequently was implemented in the federal Wyoming amendments and revisions as PHMA). Smith et al. (2017:9) found much lower probability of lek collapse inside PHMA, attributing this to a lower density of energy development in designated PHMA habitats: "This finding was predictable given how Core Areas were delineated to avoid existing energy disturbance and the low densities of disturbance where Core Areas were to be established prior to the [state Sage-Grouse Executive Order] in 2008." Also for Wyoming, Juliusson et al. (2017) modeled the likelihood of future oil and gas development under state and federal development restrictions (but not incorporating prioritization of leasing and development outside Core Areas, and found that with all other restrictions applied, 27.4% of the sage-grouse population would be exposed to baseline or highintensity energy development in Management Zone I (Northern Plains), versus 13.9% of the sage-grouse population in Management Zone II. Spence et al. (2017) found that the likelihood of lek collapse inside PHMAs was roughly half that of leks outside PHMAs, related to comparatively higher levels of surface development outside PHMAs, but also found that leks 53 near the boundary are likely to be negatively affected by development along the PHMA boundary. Edmunds et al. (2016) documented continued declines in most Core Areas, while Gamo and Beck (2017) attributed value to the Core Area effort on the basis of lower levels of drilling and construction in sage-grouse habitats outside Core Areas versus inside them. Based on these studies, RMPAs as originally drafted and approved are expected to slow the decline, but not to halt or reverse it. During the pendency of the sage-grouse RMPA process and in the years that followed, approximately 5 million acres of oil and gas leases were deferred from federal lease auctions across 7 western states due to sage-grouse concerns, including 2.2 million acres in Nevada, 1.6 million acres in Wyoming, 600,000 acres in Montana, and more than 300,000 acres each in Colorado and Utah. This enormous amount of lease deferral represents the sole effective and scientifically sound conservation measure in the ARMPAs, inasmuch as sage-grouse habitats that remain unleased cannot be industrially developed, and their habitats are not subject to further degradation.

It is a well-established principle that for sage grouse, there is a time-lag for population responses to habitat impacts, taking two to ten years before population changes become measurable (Holloran 2005, Walker et al. 2007, Harju et al. 2010). As a result, the appropriate decision-point for changing management strategies would actually be 2-10 years before population declines are noted (in the best-case scenario that monitoring reliably recognizes a downturn as caused by a management problem versus population cyclicity, which is also problematic), which means that by the time that adaptive management changes are adopted it is already too late, the damage has been done, and because industrial infrastructure is rarely removed once in place the damage has become effectively irreversible.

We appreciate the idea that broad, science-based objectives have a place in determining whether greater sage-grouse habitat is contributing to stable populations. However, no single objective can cover the wide range of variability that occurs across a landscape as vast as the sagebrush sea. The Habitat Objectives Tables (Table 2-2) have been misinterpreted as standards that must be met, likely at the expense of the widest and most adaptable use in the West-livestock grazing. It does not make sense that these objectives be reflected in livestock grazing permittee/lessee terms and conditions if they do not fit

the ecosystem in which they are being applied. Because of this, we appreciate those amendments that propose to make clear that habitat objectives must account for local conditions and site variability. This includes the removal of the seven-inch perennial grass and forb height habitat objective. We understand why grass and forb height objectives need to be considered for the health of the bird, but we believe these objectives should vary across the range. We request these changes be made to the habitat objectives tables for each greater sage-grouse RMP amendment.

Recent empirical study confirms the established finding that sage-grouse lek attendance is negatively related to oil and gas density, regardless of sagebrush cover and participation.⁴ Green et al. (2017) examined greater sage-grouse lek attendance, oil and gas well, and habitat and precipitation data from Wyoming over the period 1984 to 2008, and, consistent with numerous prior studies, that lek attendance declines are closely associated with the density of oil and gas development: Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schladweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2-3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males.

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The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single wellsite should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Apa et al. 2008). According to Taylor et al (2012: 27), in a study commissioned by BLM, Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all.

To the extent that BLM's existing ARMPAs and revised RMPs ignore the recommendations of its own experts, they are arbitrary and capricious and an abuse of discretion. BLM should rectify this legal deficiency if the ARMPAs are further amended. In the context of the original Greater Sage-Grouse RMP amendment and revision effort, BLM's own Draft EIS analysis has supported 4-mile No Surface Occupancy buffers to be applied as Conditions of Approval to existing fluid mineral leases. The Wyoming Nine-Plan DEIS states, "Walker et al. (2007) recommends a buffer distance of at least 4.0 miles containing extensive stands of sagebrush habitat for breeding populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-291. For the Buffalo RMP revision, BLM's analysis of the science states, 73 "Energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87% to 5% (Walker et al. 2007a). Current research suggests that impacts to leks from energy development are discernible out to a minimum of 4 miles, and that some leks within this radius have been extirpated as a direct result of energy development (Apa et al. 2008). Even with a timing limitation on construction activities, Greater Sage-Grouse avoid nesting in oil and gas fields because of the activities associated with operations and production" Buffalo RMP Revision DEIS at 367. For Montana, BLM observes, "Impacts from energy development occur at distances between 3 and 4 miles. Impacts to leks caused by energy development would be most severe near the lek." HiLine RMP Revision DEIS at 4-135. Manier et al. (2014) undertook a comprehensive analysis of the available science on lek buffers, and concluded that the appropriate range for lek buffer protections was 3.1 to 5 miles, which encompasses and buttresses BLM's earlier NTT (2011) expert recommendations. State agencies and their wildlife experts have long pointed out the flaws in smaller lek buffers and the need for 4-mile No Surface Occupancy buffers around leks. According to the Nevada Division of Wildlife, "...the current NSO distance is 0.6 miles, which is not based on the best available science (see Coates et al. 2013 which suggests a buffer distance of 5.0 kilometers)." NDOW comments on Nevada - Northeastern California DEIS, January 14, 2014, analysis chart 1. Apa et al. (2008, emphasis added) reviews the best available science by a team of state sage grouse biologists, and states, "Yearling female greater sage-grouse avoid nesting in areas within 0.6 miles of wellpads, and brood-rearing females avoid areas within 0.6 miles of producing wells. This suggests a 0.6-mile buffer around all suitable nesting and brood-rearing habitat is required to minimize impacts to females during these seasonal periods." This report further clarifies, "These suggest that all areas within at least 4-miles of a lek should be considered nesting and brood-rearing habitats in the absence of mapping." Thus, by combining these two recommended buffers, state experts in this report in effect recommended a 4.6-mile NSO buffer around active leks. The U.S. Fish and Wildlife Service has also pointed out the inadequacy of smaller lek buffers. For the Utah RMP effort, the agency states, "There is substantial scientific information that shows that impacts of

human disturbance (e.g. oil and gas drilling) to sage-grouse remain discernible out to distances > 4 miles of a lek." Attachment 2, USFWS comments on Utah Conservation Plan 7/12/12, at 3. The agency goes on to conclude, "In summary, we recommend avoiding permanent structures within a 4 mile lek buffer...at all times. Exceptions may be appropriate for the placement of permanent structures on non-habitat areas within the 4 mile lek buffer if it can be determined that the location of these structures will not impact nesting sagegrouse." USFWS comments Utah Conservation Plan, 5/8/13 at 8. In Nevada, the USFWS states, "We recommend a year-round lek buffer of 4.0 miles." 74 BLM's own NEPA analysis indicates that proposed lek buffers are inadequate. In the Nevada - Northeastern California DEIS, BLM states, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Energy extraction such as oil and gas, geothermal, and plan of operation mining at 11.8 miles (19 kilometers) based on direct impacts of field development, including associated infrastructure, noise, lighting, and traffic (Johnson et al. 2011; Taylor et al. 2012) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM Wyoming Draft EIS analysis arrives at the same conclusion: "Buffer distances from 0.5 to two miles from oil and gas infrastructure have been shown to be inadequate to prevent declines of birds from leks (Walker et al. 2007). Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist (Connelly et al. 2000, Holloran and Anderson 2005, Walker et al. 2007)." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. According to Apa et al. (2008), "Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi., and 1.0 mi. result in estimated lek persistence of 5%, 11%, 14%, and 30%." BLM concludes, "Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. For these reasons, the application of a 0.6-mile lek buffer is arbitrary and capricious, violates BLM Sensitive Species Policy, and will contribute to further population declines in Core Areas that will contribute to the need to protect the greater sage grouse under the Endangered Species Act. Holloran (2005) undertook an empirical test of the adequacy of 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations, and determined that sage grouse in the Pinedale Anticline and Jonah Fields would be completely extirpated within 19 years of the study as a result of full-field development with this package of protections applied. BLM's NEPA analysis for a recent Miles City Field Office oil and gas leasing EA provides a thorough synopsis: "Sage grouse are offered species specific protections through a stipulation. Under Alternative B, ¼ mile NSO buffers and 2 mile timing buffers would apply where relevant. Based on research, these stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this 75 buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to fullscale development. Full-field development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a). Other studies also have assessed the efficacy of existing BLM stipulations for sage grouse. Impacts to leks from energy development are most severe near the lek, and remained discernible out to distances more than 6 km (3.6 miles) (Holloran 2005, Walker et al. 2007a), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007a). Holloran (2005) shows that lek counts decreased with distance to the nearest active drilling rig, producing well, or main haul road, and that development influence counts of displaying males to a distance of between 4.7 and 6.2 km (2.9 and 3.9 miles). All well-supported models in Walker et al. (2007a) indicate a strong effect of energy development, estimated as proportion of development within either 0.8 km (0.5 miles) or 3.2 km (2

miles), on lek persistence. Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi. and 1.0 mi. result in an estimated lek persistence of 5 percent, 11 percent, 14 percent, and 30 percent. Lek persistence in the absence of CBNG development averages approximately 85 percent. Models with development at 6.4 km (4 miles) had considerably less support, but the regression coefficient indicated that impacts were still apparent out to 6.4 km (4 miles) (Walker et al. 2007a). Tack (2009) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles." Miles City October 2014 Oil and Gas Leasing EA, Environmental Assessment DOI/BLM-MT-C020-2014-0091-EA, May 19, 2014 at 60. For most states, BLM purported to apply lek buffer distances in accordance with Manier et al. (2014) at the project stage of the NEPA approval process. These typically are set at 3.1 miles for roads and energy infrastructure, 2 miles for tall structures, and 1.2 miles for low structures, and represent the lowest (least protective) end of the protection spectrum described by Manier et al. (2014). Green et al. (2017) found that oil and gas development in proximity to leks contributed to a 2.5% per year decline in sage-grouse populations, and that the 3.1-mile buffer best explained these energy-driven declines, but it is important to note that these researchers neglected to test development densities at buffer distances larger than 3.1 miles in radius. We are concerned that these buffer distances (and also the 1.2-mile standard for low structures) are inappropriately small (with the possible exception of the road buffer) because while they be adequate to protect breeding grouse while on the lek based on the best available science, they will allow these disruptive and damaging features to be located in the midst of prime nesting habitat, which extends 5.3 miles from the lek site (Holloran and Anderson 2005). Furthermore, "Justifiable departures to decrease or increase from these distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts." See, e.g., Idaho/Southwest Montana RMPA FEIS at DD-1. Statements like these completely undermine the certainty of implementation of lek buffers, rendering them completely discretionary. Because the nesting period is equally sensitive and equally important to survival of and recruitment to

A limit of 3% human surface disturbance per square-mile section is the minimum necessary standard for preventing habitat abandonment by sage grouse. Knick et al. (2013) found that 99% of active leks across the western half of the sage grouse's range were surrounded by lands with 3% or less human development. Decker et al. (2017) found a similar result in Colorado, with a linear decrease in sage grouse lek populations once surface disturbance increased above the 2.5% threshold. Preliminary results from Kirol et al. (in prep.) indicate that the vast majority of sage-grouse were found in habitats with <1% surface disturbance. Disturbance density can also affect survival; Kirol et al. (2015a) found that brood survival for sage-grouse began to decline significantly once disturbance density hit the 4% threshold. The vast majority was surrounded by much less disturbance. Copeland et al. (2013) found that if all of the State of Wyoming sage grouse policy provisions (which include a 5% disturbance cap calculated using a Disturbance Density Calculation Tool) were implemented fully and to the letter, that a 9 to 15% decline in greater sage grouse populations would still occur statewide, including a 6 to 9% decline within designated Core Areas (where the 5% disturbance cap would be applied). There is no scientific evidence at all indicating that sage grouse can tolerate a greater percentage of surface disturbance. In particular, the 5% cap on disturbance proposed for the Wyoming RMP amendment for Core Areas and Connectivity Areas been shown to be effective by no scientific study, ever.

Scientific research has determined that one energy site per square mile is the density threshold at which significant impacts to sage-grouse populations begin to be measured (Copeland et al. 2013). Tack (2009) found that this study in Montana's Milk River Basin, well densities of one per square mile also we

correlated with a very low probability of a lek being large (see Figure 9, p. 43). The analysis of Copeland et al. (2013) found that a statewide analysis of well densities revealed population decline curves very close to the earlier studies by Holloran (2005), but also noted that a 1 wellpad per square mile density of development correlated to approximately 18% decline in sage grouse lek population (see Figure 4). So one wellpad per square mile definitely is not a zero-impact threshold. Indeed, Garman (2018) found that clustering 8 wells per pad using directional drilling in the Atlantic Rim coalbed methane project, which would meet the one-pad-per-square-mile threshold required for PHMA, still left comparatively little habitat within the Project Area outside the ecological zone of influence of roads and wellpads. The one-site-per-square-mile-section is a threshold that should not be subject to waiver, modification, or exception.

BLM should not reduce protections for greater sage-grouse on GHMA in Idaho because the agency does not have enough information about some Idaho sage-grouse populations to reasonably predict what impacts of reducing protections will be. One area of concern is the East-Central Idaho population of sage-grouse, where BLM Idaho has proposed oil and gas leasing twice in 2018 and then temporarily deferred leasing after conservation groups filed administrative protests and litigated. In 2012, the U.S. Fish and Wildlife Service convened a "Conservation Objectives Team" of Service and state representatives with expertise in greater sage-grouse science and conservation. In 2013, that body issued a Conservation Objectives Team Report (COT Report) evaluating the threats to the species and recommending conservation measures. The COT Report described the East-Central Idaho sage-grouse population as "isolated/small size" and "high risk" with a "low probability of persistence" COT Report at 22, 76-77. Such a greater sage-grouse population is nevertheless 10 Green, Adam et al., Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse, *Journal of Wildlife Management*, doi: 10.1002/jwmg.21179 (2016). 85 valuable because it helps ensure the species continues to exist by contributing to its redundancy, representation, and resilience. See COT Report at 12. Preserving peripheral populations is essential to arresting the decline of greater sage-grouse toward extinction and Endangered Species Act listing. See COT Report at 12-13. The COT Report further stated: [L]ittle information is available on [East Central Idaho] sage-grouse populations other than some limited location and attendance data on a few leks. No lek routes have been established within this area that would allow consistent monitoring of sage-grouse populations. This lack of data is largely due to very difficult access in most years during winter and spring. COT Report at 76. This paucity of information about the East-Central Idaho/East Idaho Uplands population of sage-grouse is well known to resource managers. Due to insufficient population information, the Idaho Department of Fish and Game closed the East Idaho Uplands area of the state to greater sage-grouse hunting in 2008. It has not been reopened since. See 2015 Idaho Sage-grouse Statewide Report at 16, 2016 Sage-grouse Rules at 2 and 2017 Sage-grouse Rules at 2.11 The Sage-grouse Conservation Plan prepared by the East Idaho Uplands Sage-grouse Working Group noted, "There is a need for better information related to population status and trends. Status, survival and trend data relative to sage-grouse populations in the East Idaho Uplands SGPA [Sage-grouse Planning Area] is lacking." EIU Sage-grouse Conservation Plan at 29. The Conservation Plan also stated that much of the area had not been surveyed for sage-grouse or had been only minimally surveyed by air without follow-up ground surveys; due to the lack of consistent lek counts and lek count routes, there was no index to sage-grouse breeding trend. EIU Sage-grouse Conservation Plan at 29. Furthermore, "It is unknown if sage-grouse in the East Idaho Uplands are migratory and if there is one population or multiple populations occurring in different parts of the area." EIU Sage-grouse Conservation Plan at 30. Moreover, the Plan stated there is no information available about seasonal habitat quality, the population is believed to be isolated from other sage-grouse

populations, and there may be sage-grouse population isolations within the East Idaho Uplands Planning Area. EIU Sage-grouse Conservation Plan at 30, 31. The 2015 Idaho Sage-grouse Local Working Groups Statewide Annual Report, which was published in August 2016 by the Idaho Sage-grouse Advisory Committee Technical Assistance Team, demonstrates that five years later, these data deficiencies still existed. "Lack of information" was listed as a threat to the East Idaho Uplands greater sage-grouse population: "Most of EIU [East Idaho Uplands] does not have detailed information on populations, movements, etc." 2015 Idaho Sage-grouse Statewide Report at 20.12 11 The 2018-2019 Idaho sage-grouse season will not be set until August 2018. See Idaho Department of Game and Fish, Upland Game, Turkey & Furbearer, 2018 & 2019 Seasons & Rules at 9. Available at <https://idfg.idaho.gov/sites/default/files/seasons-rules-upland-birds-2018-2019.pdf>. 12 The 2015 statewide report (published in August 2016) is the most recent. No Idaho Sage-grouse Local Working Group Statewide Report has been published for 2016 or 2017. Email communications between Ann Moser (Idaho Department of Fish and Game) and Kelly Fuller (Western Watersheds Project), December 19, 2017. 86 Oil and gas leasing and exploratory well drilling in this area, near Grays Lake National Wildlife Refuge, has occurred in the past, despite BLM's lack of site-specific greater sagegrouse population information for this area. Attachment 6. Although BLM has deferred oil and gas leasing in this area twice in 2018, the Expressions of Interest that led to this area being scheduled for leasing are still listed as "pending" in BLM's National Fluids Lease Sale System database as of July 17, 2018.

Its impact analysis must also account for the primacy of cheatgrass invasion in determining patterns of rangeland fire. According to BLM's past NEPA analysis, "The positive feedback loop between fire and invasive plant species may be the greatest impact on fire management and GRSG (Abatzoglou and Kolden 2011)." Nevada - Northeastern California Greater Sage Grouse RMP Amendment DEIS at 701. BLM further elucidates, 87 In Oregon 19th and early 20th century grazing practices, along with introduction and spread of invasive plant species and the practice of fire suppression in the 20th century, have all contributed to fire suppression and to increasingly destructive wildfires. Oregon Greater Sage Grouse RMP Amendment DEIS at 4-10. BLM's past NEPA analysis concedes, "In the absence of cheatgrass, Wyoming big sagebrush sites can take 150 years to recover." Nevada - Northeast California Greater Sage Grouse RMP Amendment DEIS at 608. When cheatgrass is present, it can take over following disturbance, forming a monoculture characterized by unnaturally frequent fire return intervals that can effectively prevent the recovery of sagebrush and perennial grasses on a long-term if not permanent basis. For Oregon, BLM states, "In Wyoming big sagebrush sites, full recovery to pre-burn sagebrush canopy cover conditions will take over 100 years (Cooper 2007);..." Oregon Greater Sage Grouse RMP Amendment DEIS at 3-70. More generally, BLM states, "Sagebrush recovers slowly from fire; most species do not resprout but must be replenished by winddispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, sagebrush can reestablish itself within five years, but a return to a full pre-burn community cover can take 50 to over 100 years (Baker 2011)." Oregon Greater Sage Grouse RMP Amendment DEIS at 4-10. For these reasons, BLM must incorporate science-based measures to reduce the spread of cheatgrass, including rest from livestock grazing, into any future sage-grouse plan amendments, and must also rest burned areas for two years or more from livestock grazing, to allow native perennial grasses to recover and to reduce the distribution of weed seeds on newly burned areas.

Smith et al. (2017:9) found much lower probability of lek collapse inside PHMA, attributing this to a lower density of energy development in designated PHMA habitats: "This finding was predictable given how Core Areas were delineated to avoid existing energy disturbance and the low densities of

disturbance where Core Areas were to be established prior to the [state Sage-Grouse Executive Order] in 2008." Also for Wyoming, Juliusson et al. (2017) modeled the likelihood of future oil and gas development under state and federal development restrictions (but not incorporating prioritization of leasing and development outside Core Areas, and found that with all other restrictions applied, 27.4% of the sage-grouse population would be exposed to baseline or highintensity energy development in Management Zone I (Northern Plains), versus 13.9% of the sage-grouse population in Management Zone II. Spence et al. (2017) found that the likelihood of lek collapse inside PHMAs was roughly half that of leks outside PHMAs, related to comparatively higher levels of surface development outside PHMAs, but also found that leks near the boundary are likely to be negatively affected by development along the PHMA boundary. Edmunds et al. (2016) documented continued declines in most Core Areas, while Gamo and Beck (2017) attributed value to the Core Area effort on the basis of lower levels of drilling and construction in sage-grouse habitats outside Core Areas versus inside them. Based on these studies, RMPAs as originally drafted and approved are expected to slow the decline, but not to halt or reverse it. During the pendency of the sage-grouse RMPA process and in the years that followed, approximately 5 million acres of oil and gas leases were deferred from federal lease auctions across 7 western states due to sage-grouse concerns, including 2.2 million acres in Nevada, 1.6 million acres in Wyoming, 600,000 acres in Montana, and more than 300,000 acres each in Colorado and Utah. This enormous amount of lease deferral represents the sole effective and scientifically-sound conservation measure in the ARMPAs, inasmuch as sage-grouse habitats that remain unleased cannot be industrially developed, and their habitats are not subject to further degradation.

Wyoming Greater Sage-grouse RMP Amendments Draft EIS at 4-276. Wisdom et al. (2011) found that lands within 3.1 miles of transmission lines and highways had an elevated rate of lek abandonment. Nonne et al. (2011) found that raven abundance increased along the Falcon-Gondor powerline corridor in Nevada both during the construction period, and long-term after powerline construction activities had ceased. Braun et al. (2002) reported that 40 leks with a power line within 0.25 mile of the lek site had significantly slower population growth rates than unaffected leks, which was attributed to increased raptor predation. Dinkins (2013) documented sage grouse avoidance of powerlines not just during the nesting period but also during early and late brood-rearing. LeBeau et al. (2014) found that sage grouse avoided habitats within 2.9 miles of transmission lines during the brood-rearing period. Hansen et al. (2016) documented negligible additional avoidance of a powerline co-located with an existing transmission line in low-quality wintering habitats in Utah, and stated (at p. 184, "existing transmission line corridors located in poor-quality winter habitat are likely already avoided by sage-grouse, and co-locating additional lines within these corridors may dampen the effects of new tall structures on the landscape in the years immediately following construction." Dinkins et al. (2014) documented no spatial avoidance, but lower hen survival in areas with higher powerline density. Shirk et al. (2015) found that colocating several transmission lines beside each other resulted in a complete barrier to sagegrouse migration and dispersal in central Washington. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And

according to BLM's own NEPA analysis, 61 Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (2011) recommended that general habitats be managed as avoidance areas for new rights-of-way, and also recommended that overhead powerlines and other infrastructure that have fallen out of use should be removed, when they occur in Priority Habitats

The EPA supports coordination among federal, state, local, and tribal authorities for consistent and effective conservation of imperiled species. We are concerned that the Draft EIS does not provide sufficient information to fully assess the impacts of the proposed action. For this reason, the EPA has rated the Draft EIS/RMPA as Environmental Concerns - Insufficient Information - (EC-2). The description of the EPA's rating system is available at: <https://www.epa.gov/nepa/environmental-impact-statement-rating-system-criteria>. The enclosed detailed comments include recommendations for improving the assessment and disclosure of the Proposed Action's expected impacts to greater sage-grouse and habitat; however, we defer to the expertise of the U.S. Fish and Wildlife Service and appropriate state wildlife management agencies regarding the extent to which those impacts would be beneficial or detrimental to the species. Specifically, we recommend improvements in the analysis of the potential impacts from increased oil and gas development for the Proposed Action, and updating the mitigation section to reflect any changes resulting from public comments.

Wyoming Greater Sage-grouse RMP Amendments Draft EIS at 4-276. Wisdom et al. (2011) found that lands within 3.1 miles of transmission lines and highways had an elevated rate of lek abandonment. Nonne et al. (2011) found that raven abundance increased along the Falcon-Gondor powerline corridor in Nevada both during the construction period, and long-term after powerline construction activities had ceased. Braun et al. (2002) reported that 40 leks with a power line within 0.25 mile of the lek site had significantly slower population growth rates than unaffected leks, which was attributed to increased raptor predation. Dinkins (2013) documented sage grouse avoidance of powerlines not just during the nesting period but also during early and late brood-rearing. LeBeau et al. (2014) found that sage grouse avoided habitats within 2.9 miles of transmission lines during the brood-rearing period. Hansen et al. (2016) documented negligible additional avoidance of a powerline co-located with an existing transmission line in low-quality wintering habitats in Utah, and stated (at p. 184, "existing transmission line corridors located in poor-quality winter habitat are likely already avoided by sage-grouse, and co-locating additional lines within these corridors may dampen the effects of new tall structures on the landscape in the years immediately following construction." Dinkins et al. (2014) documented no spatial avoidance, but lower hen survival in areas with higher powerline density. Shirk et al. (2015) found that co-locating several transmission lines beside each other resulted in a complete barrier to sage-grouse migration and dispersal in central Washington. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. 58 The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for

overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (2011) recommended that general habitats be managed as avoidance areas for new rights-of-way, and also recommended that overhead powerlines and other infrastructure that have fallen out of use should be removed, when they occur in Priority Habitats.

A rather glaring oversight throughout this - and all state DEISs - is that BLM attempts to justify several aspects of the planning analyses through inclusion by reference from the 2015 analyses of sage-grouse plan amendments. However, the BLM used 2012-13 data in their analyses for the 2015 land use plan amendments, and it cannot be denied that an extensive amount of new information, project development, and other factors have been developed or occurred since 2013. This seemingly violates BLM Planning Handbook and NEPA procedures.

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge. Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt flawed modeling approaches that have

consistently failed to accurately predict populations. This selective use of science is wholly misleading and assumes GRSG populations are in decline despite evidence to the contrary. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRSG and we request BLM address the above bulleted points.

The purpose of this letter is to underscore recommendations made in a letter sent to you on October 13, 2017 by members of the sage-grouse science community in light of the recently completed U.S. Geological Survey (USGS) literature review and the Bureau of Land Management's (BLM) May 2018 draft Land Use Plan (LUP) amendments. Conclusions reached by the USGS in their synthesis of sage-grouse science (Synthesis) published since release of the BLM and U.S. Forest Service's LUPs in 2015 suggest that if these agencies proceed with amendments to those LUPs they must do so with a narrow, science-based focus. Unfortunately, we do not believe BLM's recently released draft Environmental Impact Statements (DEISs) reflect such a targeted focus.

The Department of Interior (DOI) and the U.S. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BLM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range

of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

The BLM is required to contemplate new science since the BLM's 2015 Record of Decision to better inform policy in the RMPA. Rather, the BLM has only relied on a limited scope of new scientific information contained in a report prepared by the US Geologic Survey. This report ignores a vast body of additional science that provides beneficial analysis on grazing, predation, climate / weather impacts, high-resolution mapping and the value of including local working group activity. This a tremendous shortcoming where the BLM ignored the opportunity to approach the management of the impacts to the species that could have been informed by a wide net of best available science; rather, it appears the best available science has been cherry picked thereby excluding highly important elements of could and should contribute to a more robust and effective adaptive management program for the benefit of the species.

We ask that the following information be considered in the EIS so that there is a more complete set of relevant new scientific information as best available science: A. THE IMPORTANCE OF HIGH RESOLUTION MAPPING TO PRIORITIZING SAGE-GROUSE CONSERVATION EFFORTS Coates, P.S., Casazza, M.L., Brussee, B.E., Ricca, M.A., Gustafson, K.B., Sanchez-Chopitea, E., Mauch, K., Niell, L., Gardner, S., Espinosa, S., and Delehanty, D.I., 2016, Spatially explicit modeling of annual and seasonal habitat for greater sage-grouse (*Centrocercus urophasianus*) in Nevada and northeastern California-An updated decision-support tool for management: U.S. Geological Survey Open-File Report 2016-1080, 160 p., <https://doi.org/10.3133/ofr20161080>. This revised USGS report utilized new data multiple sources, including updated GRSG telemetry locations, high-resolution vegetation maps, and seasonal habitat suitability indices. As a result of this higher resolution mapping, the authors note that, "GRSG habitat area increased by 6.5 percent compared to findings in the earlier report, with increases of a similar magnitude in core, priority, and general GRSG habitat management categories." The significance of this study is that it underscores the importance of producing modern, reproducible, high-resolution sage-grouse habitat maps to inform and prioritize conservation efforts far better than broad brush stroke approaches used in the development of the Northwestern Colorado RMP. A similar high-resolution habitat mapping effort is underway in Northwestern Colorado.

ACCOUNTING FOR CLIMATIC VARIATION IN POPULATION RESPONSES IN ADAPTIVE MANAGEMENT This paper is significant to northwestern Colorado but not for what the authors may have intended. Genetic and habitat connectivity analyses reveal the highest high levels of genetic and spatial connectivity among sage-grouse subpopulations were found within Sage-grouse management zone 2, comprising the greater Wyoming basin population which includes Northwestern Colorado. These results are contrary to and refute the basic assumptions of Garton et al. (2009, 2011), that assumed far greater genetic isolation and were used to produce the population extinction predictions relied upon by the USFWS in their 2010 ESA listing decision, management subsequent reports and recommendations (including the COT and subsequent BIM RMPs). Homer, C.G., G. Xian, C.L. Aldridge, O.K. Meyer, T.R. Loveland, M.S. O'Donnell. 2015. Forecasting sagebrush ecosystem components and greater sage-grouse habitat for 2050: learning from past climate patterns and landsat imagery to predict the future. *Ecological Indicators* 55: 131-145. <https://doi.org/10.1016/j.ecolind.2015.03.002> The Significance of this paper to Northwestern Colorado RMP is that it reiterates the need for locally informed and locally implemented adaptive tactics and strategies for vegetation and land management to offset predicted long-term climatic trends. Tronstad, L., G. Jones, M. Andersen and G. Beauvais. 2018. Modeling and

mapping the distribution of invertebrate prey used by Greater Sage-grouse during the early brood rearing period: Report of a pilot project. Report prepared for the Wyoming landscape Conservation Initiative by the Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming. Previous research on sage-grouse habitat evaluations has focused on vegetation and topographic components. However, invertebrate prey, which is strongly affected by climate and local weather, is vital to chick survival and sage-grouse hens typically prefer brooding habitat with higher densities of invertebrates. Therefore, this study investigated the relationship between vegetation and invertebrate species composition and density. This approach is significant because tracking annual variation and multi-year trends in invertebrate populations potentially provides a locally-based predictor of annual chick survival and therefore, population trends (i.e. spring conditions where a warm, moist spring may have far more invertebrates available compared to a cold, dry spring, and this will influence annual cohort size.). Ramey II, R.R. J.L. Thorley, and A.S. Ivey. local and population-level responses of greater sagegrouse to oil and gas and climatic variation in Wyoming. BioArxiv (<https://doi.org/10.1101/028274>) The significance of this research to adaptive management in the Northwestern Colorado RMP is that it was the first study to quantitatively evaluate the relative effects of regional climatic variation (as indexed by the PDO) and oil and gas surface disturbance on sage grouse population dynamics, at local and population-level scales. This research underscores the need for accounting for climatic variation in understanding sage-grouse responses to human development and management actions, including the use of population "triggers" in adaptive management.

THE IMPORTANCE OF LOCAL WORKING GROUPS AND KNOWLEDGE FOR EFFECTIVE SAGEGROUSE MANAGEMENT Belton, L.R., S.N. Frey; and D.K. Dahlgren. 2017. Participatory Research in Sage-grouse Local Working Groups: Case Studies from Utah. *Human-Wildlife Interactions*: 11(3):287-301. Available at: <https://digitalcommons.usu.edu/hwl/vol11/Iss3/7> Christiansen, T.J. and L.R. Belton. 2017. Wyoming Sage-Grouse Working Groups: Lessons learned. *Human-Wildlife Interactions*: 11(3):274-286. Available at: <https://digitalcommons.usu.edu/hwl/vol11/Iss3/6> The significance of these two papers, one from Utah and the other from Wyoming, is that they demonstrate the value of participatory research and tailored management done at local (working group) scale, which benefits greater sage-grouse conservation efforts both locally and regionally. The collaborative, local working group approach as implemented in Utah and Wyoming, contrasts sharply with the one-size fits all, top-down management prescriptions as proposed in the BIM via the Northwest Colorado RMP. As noted by Christiansen and Belton (2017), the strength of the local working group approach is that it is "reliant on the ability of diverse participants, who often hold adversarial viewpoints, to develop and maintain positive working relationships in seeking to achieve mutually agreeable goals. We believe the Wyoming model has potential to succeed in an era of political polarization."

THE IMPORTANCE OF MANAGING RAVENS: A DIRECT THREAT TO SAGE-GROUSE SURVIVAL Peebles, L.W., M.R. Conover, and J.B. Dinkins. 2017. Adult sage-grouse numbers rise following raven removal or an increase in precipitation. *Wildlife Society Bulletin* 41(3). Available at https://doi.org/10.1002/wsb_788 This paper is significant to the Northwestern Colorado RMP because it underscores the importance of incorporating climatic (or long term weather) indices in any evaluation of population response to any management prescriptions, in this case, decreasing raven numbers to increase sage grouse survival. This approach is especially important for effective adaptive management of sage-grouse populations northwestern Colorado in general, and Garfield County in particular, where habitat is naturally fragmented and sage-grouse are found at low density, or both. The significance of this paper to the Northwestern Colorado RMP is twofold. First, the authors report that reducing

anthropogenic subsidies (i.e. food and water sources, open landfills) is likely to be most effective in reducing raven densities over the long term, and thus decrease raven predation on sage grouse nests and chicks. And second, the authors report that because livestock and animal husbandry operations provide indirect food and water subsidies that are exploited by ravens, increasing their distance from sage-grouse nesting and brood rearing habitat will further decrease predation on sage-grouse and increase overall population productivity. These recommendations are critical to Northwestern Colorado where the threat of predation from ravens is under-addressed and other restrictive land management measures are favored by the BLM. Peebles, L.W. and M.R. Conover. 2017. Winter ecology and spring dispersal of common ravens in Wyoming. *Western North American Naturalist* 77(3): 293-308. Repeated research has shown that ravens have emerged as the primary predation threat to sagegrouse. However, land management agencies, including the BLM have continued to advocate for various restrictions on human activities (including NSO and setbacks) despite the fact that have not been proven to have a net positive effect on sage-grouse at local or population scales. The paper by Peebles and Conover (2017) is significant to the question of how to directly reduce local raven populations in order to mitigate the primary threat to sage-grouse eggs and chicks: determine raven dispersal distances and target winter roosts at landfills within range of sage-grouse nesting and brood rearing habitat. Because of the close proximity of landfills to BLM administered sagegrouse habitat in northwestern Colorado, this adaptive and highly effective approach should not be ignored or discounted in favor of one-size fits all management prescriptions that fails to address this threat.

Peebles, L.W. and M.R. Conover. 2017. Winter ecology and spring dispersal of common ravens in Wyoming. *Western North American Naturalist* 77(3): 293-308. Repeated research has shown that ravens have emerged as the primary predation threat to sage-grouse. However, land management agencies, including the BLM have continued to advocate for various restrictions on human activities (including NSO and setbacks) despite the fact that have not been proven to have a net positive effect on sage-grouse at local or population scales. The paper by Peebles and Conover (2017) is significant to the question of how to directly reduce local raven populations in order to mitigate the primary threat to sage-grouse eggs and chicks: determine raven dispersal distances and target winter roosts at landfills within range of sage-grouse nesting and brood rearing habitat. Because of the close proximity of landfills to BLM administered sage-grouse habitat in northwestern Colorado, this adaptive and highly effective approach should not be ignored or discounted in favor of one-size fits all management prescriptions that fails to address this threat. Additionally, as another example of the BLM's failure to meaningfully coordinate with local governments, the RMPA did not consider the predator control policies found in the Garfield County Greater Sage Grouse Conservation Plan of 2014, as amended and provided here: Section 5: Predation of sage-grouse eggs, juveniles, and adults occurs naturally, but can increase in association with human development, unless precautions are undertaken. Scientific research has shown that the predators on sage grouse are generalists, meaning that they prey on other species as well, and in some cases their populations are subsidized by human sources of food. Sage-grouse eggs are preyed upon by red foxes, coyotes, badgers, ravens, and (sometimes) black-billed magpies. Common predators of juvenile and adult sage-grouse include golden eagles, prairie falcons (as well as other raptors), coyotes, badgers, red fox and bobcats. Younger birds (especially brood), may be preyed upon by raven, red fox, northern harrier, ground squirrel, snakes, and weasels. However, of these predators, research has shown that ravens are the most abundant and have the greatest impact on the populations studied. While predation on sage grouse occurs at all stages of the life cycle, it is predation on nests and broods that is generally recognized as having the largest deleterious effect on annual survivorship and recruitment in populations. Adding to this problem is the fact that predators, such as ravens, are

subsidized by humans to the point where they exceed historic levels in some areas by as much as 1,500%. In such cases, management actions, especially where predators like ravens are abundant and sage grouse mortality is high (such as in the Plan Area), may be needed to ensure that sage-grouse populations are not depressed by a known and potentially mitigated source of mortality. Ravens are clever and highly adaptable in their behavior. They use communication and group foraging which allows them to opportunistically exploit food resources associated with humans (e.g., landfills, trash, road kill, unattended food, and carrion from livestock operations). In contrast, sage-grouse are very stereotypic in their behavior and rely on cryptic coloration, which makes them vulnerable to predation by ravens. As a result of these and other unintended food subsidies, raven populations have greatly expanded in the West. This, in turn, has impacted many species, including desert tortoises, marbled murrelets, least terns, California condors, and sage-grouse. While reducing human-supplied food subsidies to predators is an essential part of any management strategy, it may not be effective unless coupled with active deterrents or management actions to reduce raven density (i.e., Coates and Delehanty 2010; Dinkins 2013). The last reported research on nest and brood survival in the PPR population (Ara 2010), estimated annual nest success between zero and 40%, and substantially lower chick survival. By the end of that study, "Only 2 chicks remained radio-marked after 30 days of age. Apparent brood survival was 86% (n = 12/14) at 7 days, 62% (n = 9/14) at 14 days, and 14% (n = 2/14) at 30 days." Those data indicate predation could be holding back the PPR population.

Chapter 6 References - This section refers to older (now amended) versions of the Garfield County's Land Use Resolution and the Greater Sage Grouse Conservation Plan which is additional evidence that the BLM did not meaningfully coordinate with Garfield County. Further, as pointed out earlier in these comments, the BLM has neglected to consider significant studies and best available science published since the 2015 ROD. Garfield County requests the BLM not only cite the following studies but also amend the RMPA DEIS to incorporate the value these studies bring to the document including adaptive management.

Addressed Scientific Flaws with the Plan Amendments and the Listing Decision The Department of Interior (DOI) failed to recognize shortcomings in the key reports relied upon to craft the BLM's 2015 Record of Decision (ROD) which include the NTT and COT Reports and the USGS Monograph and the prescriptions they support. Multiple Data Quality Act challenges documented significant flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSB Absent recognition of these flaws, land management will be misled and entangled in litigation for many years to come. Therefore, the Districts respectfully request DOI to include the following statement in the forthcoming amendments and records of decision (RODs): provide adequate habitat quality for nesting sage grouse." Effects of rotational grazing management on nesting greater sage grouse (The Journal of Wildlife Management <https://onlinelibrary.wiley.com/doi/full/10.1002/jwmg.21344>)

"The newest study's authors re-evaluated more than 800 nests from several studies that originally showed a positive correlation between nest success and grass height. After correcting the data to account for grass growth, researchers found no relationship between grass height and nest fate, confirming a sampling bias in two of three re-analyzed datasets, (emphasis added) and a reduced but still significant association in the third." "These findings suggest that the height of grass may not be as crucial

to sage grouse nesting success as previously thought. Researchers recommend that field sampling methods be adjusted to ensure unbiased measurement of grass height at predicted hatch date, and that sitescale habitat management guidelines that include grass height as an indicator of nesting habitat quality be revisited." Sage Grouse Initiative. 2017. Taking the Bias Out of Grass Height Measurements. Science to Solutions Series Number 15. Sage Grouse Initiative. 4pp.sagegrouseinitiative.com/taking-bias-out-sage-grouse-nesting-studies.

All Land Use Plan Amendments ("LUPAs") must recognize and allow for updates based on the most current and best science available. Identifying unique place-based, topographical differences and adjusting standards accordingly should be a decision made by local land managers utilizing the best available information and local, scientifically based data.

The RMPA should replace the current RMPA mapping with the revised mapping of priority habitat boundaries and active lek sites provided by Colorado Parks and Wildlife ("CPW").

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge. Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt flawed modeling approaches that have consistently failed to accurately predict populations. This selective use of science is wholly misleading and assumes GRSG populations are in decline despite evidence to the contrary. The Reports ignore

natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRSG and we request BLM address the above bulleted points.

The Department of Interior (DOI) and the u.s. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BIM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

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We ask that the following information be considered in the EIS so that there is a more complete set of relevant new scientific information as best available science: A. THE IMPORTANCE OF HIGH RESOLUTION MAPPING TO PRIORITIZING SAGE-GROUSE CONSERVATION EFFORTS Coates, P.S., Casazza, M.L., Brussee, B.E., Ricca, M.A., Gustafson, K.B., Sanchez-Chopitea, E., Mauch, K., Niell, L., Gardner, S., Espinosa, S., and Delehanty, D.L., 2016, Spatially explicit modeling of annual and seasonal habitat for greater sage-grouse (*Centrocercus urophasianus*) in Nevada and northeastern California-An updated decision-support tool for management: U.S. Geological Survey Open-File Report 2016-1080, 160 p., <https://doi.org/10.3133/ofr20161080>. This revised USGS report utilized new data multiple sources, including updated GRSG telemetry locations, high-resolution vegetation maps, and seasonal habitat suitability indices. As a result of this higher resolution mapping, the authors note that, "GRSG habitat area increased by 6.5 percent compared to findings in the earlier report, with increases of a similar magnitude in core, priority, and general GRSG habitat management categories." The significance of this study is that it underscores the importance of producing modern, reproducible, high-resolution sage-grouse habitat maps to inform and prioritize conservation efforts far better than broad brush stroke approaches used in the development of the Northwestern Colorado RMP. A similar high-resolution habitat mapping effort is underway in Northwestern Colorado.

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the ARMPA, and by extension the Draft RMPA, rely on technical reports riddled with significant inaccuracies, omissions, and shortcomings which do not constitute the best scientific data.

The NTT Report contains numerous errors and shortcomings, as documented in the Alliance's first DQA challenge, including: * Failure to include citations in the "Literature Cited" section, and listed articles in the "Literature Cited" section that are not referenced or used in the Report; * Citing authorities in a misleading fashion; * Failure to provide justification for the 3% disturbance cap used; * Including noise restriction recommendations based on flawed studies that relied on unpublished data and speculation, and using suspect testing equipment in unrealistic conditions; * Failure to cite or include scientific reports and papers on oil and natural gas operations and mitigation measures available at the time the NTT Report was created; and, * Failure to undergo an adequate peer review.

The ARMPA further relies on Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats (Studies in Avian Biology), published in 2011 (USGS Monograph). This book also suffers from scientific and technical flaws. The Center for Environmental Science, Accuracy and Reliability analyzed four of the most frequently cited sources and found, as documented in our third DQA challenge: Northwest Colorado Greater Sage-Grouse Draft RMPA August 2, 2018 Page 12 of 17 * Significant mischaracterization of previous research; * Substantial errors and omissions; * Lack of

independent authorship and peer review; * Methodological bias; * Lack of reproducibility; and, * Inadequate data.

BLM finally relies on the flawed USGS "Conservation Buffer Distance Estimates for Greater Sage-Grouse - A Review" (Buffer Report), to support the 3.1-mile lek buffer for infrastructure related to energy development imposed in the Draft RMPA. Draft RMPA at H-3. As discussed in our fourth DQA challenge, the studies referenced in the Buffer Report did not test the buffers discussed therein and failed to recognize other factors driving GrSG population changes such as variations in regional climate and weather. Furthermore, the Buffer Report: * Was developed with unsound methods; * Ignores scientific studies that do not support its conclusions; * Reaches conclusions that are pure conjecture; and * Disseminates information that is neither objective nor reliable and that lacks scientific integrity. Accordingly, the Buffer Report, and by extension the buffers and noise restrictions in the Draft RMPA, are not based on the best available science.

On March 22, 2013, the FWS-organized Conservation Objectives Team (COT) issued the Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report (COT Report). BLM applies measures from the COT Report to all of the action alternatives identified in the ARMPA, and by extension to the Draft RMPA. As detailed in our second DQA challenge, the COT Report suffers from various errors. Specifically, the report: * Provides no original data or quantitative analysis; * Does not provide comprehensive, unbiased review of all available scientific literature; * Relies on unverified data; * Relies on flawed and biased reports; * Contains flawed methodology; * Suffers from conflicts of interest; * Relies on ambiguous definitions; * Includes unsupported, speculative statements lacking empirical basis; * Ignores evidence related to GrSG adaptation to disturbed environments; * Discounts conservation strategies utilized by states; and, * Fails to recognize latest habitat mapping efforts.

The operational restrictions in the ARMPA and Draft RMPA are not based on the best available science. The Buffer Report, the NTT Report, the COT Report, and the GrSG Monograph are fundamentally flawed and do not support the operational restrictions in the ARMPA and the Draft RMPA. BLM should address additional scientific analysis related to GrSG conservation that were not cited in the NTT Report, COT Report, GrSG Monograph, and the Buffer Report. Additionally, BLM should utilize state and local conservation measures that have been imposed and successful for over a decade, rather than unsubstantiated landscape-scale measures that do not take into account site-specific considerations.

The proposed disturbance cap and density limit, to be applied across an entire section of habitat that contains existing development and fragmentation, are overbroad and unduly restrictive. This type of habitat management mechanism should only be applied sparingly on an as-needed basis, after site-specific survey and biological analysis. Specifically, any disturbance threshold should be based on a discrete area of biological influence, rather than across an entire section of habitat that contains existing surface development and habitat fragmentation. The Draft RMPA fails to recognize that increased surface disturbance will not automatically result in environmental impacts where there are protections in place for specific resources, such as offset mitigation requirements. In addition, BLM fails to explain why it rejected less restrictive disturbance caps and density limits. Specifically, BLM proposes to require a 3% disturbance cap in Colorado and a 5% disturbance cap in Wyoming. 2015 ROD at I-18. The use of a 5% disturbance cap in Wyoming demonstrates that a higher threshold is reasonable. Further, BLM does not explain why it rejected Colorado's less restrictive density BMP which calls for the avoidance of 10 well pads per 10-square mile area in GrSG breeding and summer habitat (within 4 miles of active leks) and

allows for increased density with a Comprehensive Development Plan, which has proven effective. BLM should remove the proposed 3% disturbance cap and density limit. Instead, BLM should rely on site-specific analysis to determine potential impacts to GrSG and appropriate mitigation measures consistent with CPW's AMAIWR.

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge.

Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt flawed modeling approaches that have consistently failed to accurately predict populations. This selective use of science is wholly misleading and assumes GRSG populations are in decline despite evidence to the contrary. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent

appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRSG and we request BLM address the above bulleted points.

Research has shown that in arid and semiarid areas, grazing at use levels below 40 percent can have positive impacts to forage plants compared to exclusion of grazing.¹ Research conducted in western Colorado in mountain big sagebrush communities found no significant effects from 40-50 years of grazing exclusion on cover or frequency of grasses, biotic crusts, or bare soil and that grazing exclusion decreased above ground net primary production and biodiversity.² In a synthesis of scientific literature on long-term rest in the sagebrush steppe, Davies et al.³ found that long-term rest and properly managed grazing produced few significant differences, and in some situations, negative ecological effects from long-term rest.

The Department of Interior (DOI) and the U.S. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BIM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

While many opine about Sage-grouse as if they are the only species in the sage, I'm well aware of the decline of sagebrush songbirds and mule deer across much of the range, and have documented Brewer's and sagebrush sparrow, sage thrasher, and mule deer on the Pinedale Anticline's critical winter range, where the species has declined by 60% since drilling began in winter a little over a decade ago. Sage-grouse are now the face of a systemic problem of not giving wildlife freedom to roam across the west. Short-sighted land management plans that change with shifting political winds aren't good for wildlife or stakeholders. We need to know that our leaders in land management will stand with the best science and researchers in seeking optimal solutions.

With that backdrop, the sudden change to Secretarial order 3353 just two years away from the next milestone of the current plan is baffling. I stand with Governors Mead and Hickenlooper in calling for giving the current plan a chance to work. Order 3353 isn't adaptive management, but a major shift from solid science into the unknown. State population targets and reduced buffers for these iconic birds, still declining and vulnerable to prolonged drought and a host of other threats invites a population crash that would likely be irreversible.

The EPA supports coordination among federal, state, local, and tribal authorities for consistent and effective conservation of imperiled species. We are concerned that the Draft EIS does not provide sufficient information to fully assess the impacts of the proposed action. For this reason, the EPA has rated the Draft EIS/RMPA as Environmental Concerns - Insufficient Information - (EC-2). The description of the EPA's rating system is available at: <https://www.epa.gov/nepa/environmental-impact-statementrating-system-criteria>. The enclosed detailed comments include recommendations for improving the assessment and disclosure of the Proposed Action's expected impacts to greater sage-grouse and habitat; however, we defer to the expertise of the U.S. Fish and Wildlife Service and appropriate state wildlife management agencies regarding the extent to which those impacts would be beneficial or detrimental to the species. Specifically, we recommend improvements in the analysis of the potential impacts from increased oil and gas development for the Proposed Action, and updating the mitigation section to reflect any changes resulting from public comments.

We note that most of the 2015 greater sage-grouse analysis was focused largely on lek habitat. However, BLM has also identified winter concentration, nesting, brood rearing and linkage habitats as having the highest conservation value to maintain sustainable greater sage-grouse populations. We recommend the Final EIS include any new information on winter, nesting and brood rearing habitat in Colorado and consider whether additional mitigation measures are warranted to protect these seasonal habitats from impacts from O&G development. We also recommend the Final EIS include information on whether increased drilling and O&G production in greater sage-grouse habitat compared to the 2015 plan would specifically impact any general- or linkage habitat areas.

The RMPA should replace the current RMPA mapping with the revised mapping of priority habitat boundaries and active lek sites provided by Colorado Parks and Wildlife ("CPW")

A study was conducted by Adrian Monroe, a CSU research scientist, and found the effects of grazing on sage-grouse populations may depend on plant productivity. The study evaluates multiple, real-world livestock grazing operations across the entire state. There is a direct correlation between plant growth, when and how much livestock graze, and the effects on wildlife, and a way to sustain ranching while simultaneously sustaining wildlife populations.

E.3.6 Disturbance and Density Caps

No surface occupancy stipulations must be maintained for oil and gas development in priority habitats. Preventing destruction of greater sage-grouse habitat is critical to avoiding harm while permitting development.

Existing disturbance caps must be maintained to limit harm to habitat. Disturbance caps serve as a backstop that limits harm to habitat and provides needed certainty.

BLM acknowledges the changes in Utah "could result in a site-specific loss of Greater Sage-Grouse habitat and displacement from the area of development by local populations."⁹⁰ BLM also admits that, "Projects that would likely be precluded under the No Action Alternative could proceed under the 2018 proposed amendments."⁹¹ BLM reasons, however, that requiring that impacts improve habitat will offset those concerns. There are significant problems with the agency's reasoning because the Draft Utah mitigation rule does not provide a preference for offset benefits to accrue within the landscape affected by the project; prioritize projects that provide the greatest benefits, and reduce the greatest threats, to sage-grouse habitat; does not require mitigation for all impacts; does not guarantee against temporal losses; does not use a habitat quantification tool to measure comparability between impacts and offsets. BLM also notes the requirement to avoid development within priority habitat, but this development would expressly occur within priority areas. The DEIS also provides new opportunities for waivers, exceptions, modifications for siting projects in priority habitat.⁹³

In Idaho, the DEIS states: Removal of the 3 percent project level disturbance cap would allow BLM to intentionally cluster developments within areas already degraded by discrete anthropogenic activities in Greater Sage- Grouse habitat as long as the overall disturbance within the BSU remains below 3 percent. The 3 percent project scale disturbance cap has the potential to spread development into undeveloped areas of Greater Sage-Grouse habitat just to avoid reaching the 3 percent project scale disturbance cap in already fragmented areas. All 8 BSUs in Idaho are well under the 3 percent BSU scale Disturbance Cap (most are less than 1 percent) and are expected to remain low because of the nonet-loss mitigation standard and the other restrictions to development in PHMA and IHMA. Some areas, especially those with existing development, may be further developed even though compensatory mitigation would offset those impacts for the statewide Greater Sage-Grouse habitat.⁹⁴ Essentially, Idaho has come up with a standard that for the foreseeable future will never disallow a project because the priority area densities are so low, even though the density of an individual project area may be high. This flies in face of studies showing impacts to sage-grouse because of individual project density, and Edmunds study that there can be differences between densities at large and small-scale levels that are significant. Also, Idaho's mitigation program is not finalized, and there is no time line by which it is guaranteed to be finalized; thus, we do not know what provisions it will or will not include. As a result, we oppose these amendments to the land use plan, both because they will reduce important protections for sage-grouse, and because they make it more likely that the bird will need to be listed under ESA.⁹⁵

IX. DENSITY AND DISTURBANCE CAPS SHOULD BE MAINTAINED. The DEISs propose changes in Utah and Idaho to the density and disturbance caps set out in the 2015 BLM sage-grouse land use plans limiting the amount of development that can take in priority habitat management areas. We oppose these changes, for the reasons set out below. ⁶⁶ The decision by the FWS not to list sage-grouse under the ESA noted the importance of the caps to sagegrouse protection: Each Federal Plan includes a disturbance cap that will serve as an upper limit (the maximum disturbance permitted). Anthropogenic disturbance has been identified as a key impact to sagegrouse. To limit new anthropogenic disturbance within sage-grouse habitats, the Federal Plans establish disturbance caps, above which no new development is permitted (subject to applicable laws and regulations; e.g., General Mining Law of 1872, and valid existing rights). This cap acts as a backstop to ensure that any implementation decisions made under the Federal Plans will not permit substantial amounts of new disturbance within the distribution of sage-grouse on BLM and USFS

E.3.7 Fire and Invasive Species

A more specific approach to managing noxious weeds and invasive species should be developed and included to address this significant threat. The 2018 report issued by Western Association of Fish and Wildlife Agencies (updating a 2013 report) summarizing policy, fiscal and science challenges land managers have encountered in control and reduction of invasive grasses and fire cycle, with a focus on the greater sage-grouse found ongoing gaps and also recommended that the agencies continue working on a "landscape-scale approach to fire and land management and further enhance collaborative, science-based approaches to management activities within the Sagebrush Biome." 2018 Gap Report, p. 46. Following these recommendations and committing to developing a more detailed strategy is needed.

E.3.8 General Habitat Management Areas

A just-released U.S. Forest Service study (Cross 2018) attempted to quantify the importance of connectivity across the sagebrush range.⁶¹ Scientists set out to map the mating areas called "leks" and identify the birds that use each of these areas. They grouped 1,200 leks into "nodes," or a collection of leks, within the network of greater sage-grouse. The nodes were then categorized as "hubs" or "spokes" based on their importance to facilitating gene flow within and across the range of sage-grouse. Hubs foster gene flow out to the spokes. If a hub were to be lost, the birds in the connected spokes would be at risk of genetic isolation. The two maps below depict (1) the location of general habitat in Utah under the 2015 BLM sage-grouse land use plans, with the pink areas representing general habitat,⁶² and (2) a figure depicting the overall ranking of node importance to genetic connectivity across the contiguous range of greater sage-grouse, as measured by "betweenness" calculated in Cross et al. 2018.⁶³ As the maps reveal, the Forest Service found hubs across the bird's range, with a concentration in northwestern Utah, where protection of general habitat is particularly important. Areas in northeastern Utah also show up as corridors of genetic connectivity to Colorado. Even where general habitat is not important for connectivity between populations, as is in central Utah, general habitat is important for providing links between different priority habitat areas within Utah. Similarly, hubs were also concentrated in central Idaho, where large swaths of general habitat are located.⁶⁴ *See attachment, Map* Given the role general habitat plays in preserving connectivity between populations, as well as the other purposes it serves, it would be a grave mistake to eliminate, or even reduce, protections for these areas. In addition, the importance placed on general habitat by the Fish and Wildlife Service raises the concern that the proposed changes will lead to a greater chance of listing sage-grouse under the ESA. The proposed amendments to eliminate or reduce protections for general habitat should therefore be rejected.

CPC strongly supports the intent of the DRMPA to improve the alignment between individual state plans and/or conservation measures, and DOI and BLM policy. States have authority for managing wildlife populations and work with local governments and stakeholders to balance conservation and business development practices in consideration of their socioeconomic impacts.

Of the more than 48 million acres in the Utah Subregional Planning Area, only about 580,000 are in general habitat, as are another 225,000 acres of mineral estate.⁵⁵ Eliminating general habitat in Utah would mean, for example, that mitigation, including avoidance, minimization and compensatory mitigation, as well as minimal Required Design Features (RDFs), are not required in those areas, regardless of the impact to sage-grouse populations or sagebrush habitat. It would also preclude application of precautionary measures such as avoiding removal of sagebrush and minimizing development that creates a physical barrier to sage-grouse movement.⁵⁶ For areas constituting such a

small percentage of Utah's land base, it makes no sense to skimp on protections that could both prevent further reductions in Utah's sage-grouse populations and avoid imposing additional burdens on neighboring states still required to manage general habitat for sage-grouse. This is particularly true given the importance of general habitat in Utah and other sagebrush steppe states for sage-grouse connectivity. Sage-grouse select large intact sagebrush landscapes.⁵⁷ The USGS Synthesis has confirmed the importance of maintaining connectivity between different sage-grouse populations to conserve genetic diversity.⁵⁸ A 2015 study found that long-distance movements of GRSG have been documented, but the risk associated with the landscapes that the birds traverse is not well understood. The current designated priority area strategy does not protect movement corridors among priority areas, and some areas may be at risk of isolation even when they are not separated by large distances.⁵⁹ A 2016 study covering Idaho, Utah and Wyoming showed that several sage-grouse moved 100 km north and west, traversing from the Wyoming Basin to a range typically associated with the Snake River Plain, and theorized that these migrating birds may serve as an important genetic link between two sage-grouse management zones.⁶⁰ A just-released U.S. Forest Service study (Cross 2018) attempted to quantify the importance of connectivity across the sagebrush range.⁶¹ Scientists set out to map the mating areas called "leks" and identify the birds that use each of these areas. They grouped 1,200 leks into "nodes," or a collection of leks, within the network of greater sage-grouse. The nodes were then categorized as "hubs" or "spokes" based on their importance to facilitating gene flow within and across the range of sage-grouse. Hubs foster gene flow out to the spokes. If a hub were to be lost, the birds in the connected spokes would be at risk of genetic isolation.

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VII. GENERAL HABITAT MANAGEMENT AREAS SHOULD BE MAINTAINED. The Utah DEIS would eliminate all protections for general habitat.⁴⁷ Other states would weaken protections for sage-grouse in general habitat;⁴⁸ Idaho, for example would eliminate lek buffers, reduce the application of required design features, and eliminate compensatory mitigation in general habitat.⁴⁹ For the reasons set out below, we oppose any reduction of protection for general habitat. While General Habitat Management Areas (GHMA) represent areas with fewer leks and lower densities of breeding birds where disturbance is limited, and provide greater flexibility for land use activities,⁵⁰ their designation is still important to sage-grouse conservation. The FWS 2015 Sage-grouse Listing Decision states: The designation as GHMA provides sage-grouse conservation by protecting habitat and connectivity between populations

and potential refugia in the event of catastrophic events such as wildfire. While the amelioration of threats in GHMAs will likely be less than in PHMAs due to less stringent required conservation measures, GHMAs do have restrictions that benefit sage-grouse conservation.⁵¹ It is important to ensure that seasonal habitats not included in priority areas receive some protection,⁵² and to allow for expansion of recovering populations into newly restored areas. In addition, general habitat can serve as a location for compensatory mitigation offsets and restoring degraded habitat.⁵³ The recent USGS synthesis of recent science on sage-grouse recently stated: Maintaining connectivity among (priority areas) through restoration activities or conservation of existing sagebrush communities at important "pinch points," where movements are constrained, is an important component of an overall sage-grouse management strategy. Maintenance or restoration of habitat quality within corridors is important to limit exposure to risk (for example, from predators), and because sage-grouse use these sites as resting and refueling areas.⁵⁴

In addition, general habitat can serve as a location for compensatory mitigation offsets and restoring degraded habitat.⁵³ The recent USGS synthesis of recent science on sage-grouse recently stated: Maintaining connectivity among (priority areas) through restoration activities or conservation of existing sagebrush communities at important "pinch points," where movements are constrained, is an important component of an overall sage-grouse management strategy. Maintenance or restoration of habitat quality within corridors is important to limit exposure to risk (for example, from predators), and because sage-grouse use these sites as resting and refueling areas.⁵⁴ Of the more than 48 million acres in the Utah Subregional Planning Area, only about 580,000 are in general habitat, as are another 225,000 acres of mineral estate.⁵⁵ Eliminating general habitat in Utah would mean, for example, that mitigation, including avoidance, minimization and compensatory mitigation, as well as minimal Required Design Features (RDFs), are not required in those areas, regardless of the impact to sage-grouse populations or sagebrush habitat. It would also preclude application of precautionary measures such as avoiding removal of sagebrush and minimizing development that creates a physical barrier to sage-grouse movement.⁵⁶ For areas constituting such a small percentage of Utah's land base, it makes no sense to skimp on protections that could both prevent further reductions in Utah's sage-grouse populations and avoid imposing additional burdens on neighboring states still required to manage general habitat for sage-grouse. This is particularly true given the importance of general habitat in Utah and other sagebrush steppe states for sage-grouse connectivity. Sage-grouse select large intact sagebrush landscapes.⁵⁷ The USGS Synthesis has confirmed the importance of maintaining connectivity between different sage-grouse populations to conserve genetic diversity.⁵⁸ A 2015 study found that long-distance movements of GRSs have been documented, but the risk associated with the landscapes that the birds traverse is not well understood. The current designated priority area strategy does not protect movement corridors among priority areas, and some areas may be at risk of isolation even when they are not separated by large distances.⁵⁹ A 2016 study covering Idaho, Utah and Wyoming showed that several sage-grouse moved 100 km north and west, traversing from the Wyoming Basin to a range typically associated with the Snake River Plain, and theorized that these migrating birds may serve as an important genetic link between two sage-grouse management zones.⁶⁰

E.3.9 Habitat Boundary/Habitat Management Area Designations

For larger adjustments, NEPA and BLM planning rules and procedures should apply, requiring a plan amendment and public engagement, as well as the following provisions, before any adjustment of habitat management boundaries: * Federal, state, and local agencies, and other interested stakeholders, should have the opportunity to participate. * There should be public notice of proposed changes, and an

opportunity for the public to comment. * Adjustments should be based on the best available, science-based information, including all applicable peer-reviewed research papers. * Review of boundaries would occur every five years, unless more frequent adjustments are necessary, as determined by BLM and the relevant state agency * Boundaries would generally not be adjusted to exclude non-habitat areas if those areas are wholly contained within existing management boundaries. * Areas within habitat management boundaries not currently used by sage-grouse but ecologically capable of supporting sage-grouse would not be removed from existing management boundaries.¹⁵³ As part of this process, states may convene working groups to recommend boundary adjustments, as long as the recommendations of those groups are made available to the public for comment. Because of the concern of a future listing under ESA, any changes should not represent a meaningful decrease in the current level of conservation under the 2015 Sage-grouse Plans. In the event that BLM wants to address the potential for broader habitat adjustments, then the agency can conduct additional analysis to evaluate the impacts of increasing and reducing habitat within a larger area (i.e., greater than 3% of the identified habitat management area polygon), which could then be tiered to for later adjustments.

The Plans manage PHMAs as right-of-way "avoidance areas" instead of exclusion areas (See, e.g., Wyoming RMPA FEIS at 2-25), as recommended by their own experts. This prevents certainty of implementation by allowing new rights-of-way to be granted on a case-by-case basis. "Exclusion" is the appropriate level of management for these habitats based on the best available science, and this level of protection should also apply to Focal Areas and Winter Concentration Areas as well. Only portions of General Habitats would be managed as avoidance areas for rights-of-way based on other resource values (See, e.g., Wyoming RMPA FEIS at 2-26); the importance of protecting sage grouse habitat merits avoidance management for all General Habitats.

XII. HABITAT BOUNDARY ADJUSTMENTS SHOULD BE BASED ON BEST AVAILABLE SCIENCE AND DATA, AND MADE WITH FULL TRANSPARENCY. All the 2018 DEISs except for the Oregon DEIS include provisions for adjustment of sage-grouse habitat management boundaries.¹⁵⁰ We support transparent and consistent science-based efforts to ensure that any habitat management boundaries changes (1) represent the most available up-to-date and accurate information; and (2) do the most effective job possible of conserving sage-grouse habitat, and do not result in a meaningful decrease in the current level of conservation provided by the 2015 sage-grouse land use plans. Moreover, boundary adjustments and complementary adjustments of related management prescriptions should only be made to reflect a changed understanding of the preferences of the species and/or data showing changed use and conditions of habitat; adjustments may not be made to accommodate a proposed use that might otherwise be prohibited or conditioned based on a different habitat classification. We recognize that some changes to boundaries will be so small that they do not require a plan amendment. Plain maintenance procedures are available to refine or clarify a previously approved decision. BLM's regulations and Land Use Planning Handbook provide that "land use plan decisions and supporting components can be maintained to reflect minor changes in data" but [m]aintenance is limited to further refining, documenting, or clarifying a previously approved decision incorporated in the plan."¹⁵¹ Examples of appropriate plan maintenance provided in the BLM Land Use Planning Handbook include "correcting minor data, typographical, mapping, or tabular data errors in the planning records after a plan or plan amendment has been completed" and "refining the known habitat of a special status species addressed in the plan based on new information."¹⁵² Such actions, which do not involve formal public involvement or NEPA analysis, should only be used for small boundary adjustments of an existing individual habitat management area. We propose that an adjustment (adding or subtracting acreage)

comprising not more than 3% of an existing polygon would qualify as appropriate for a maintenance action.

E.3.10 Habitat Management Areas

All sage-grouse habitat must be subject to specific management approaches. While the strongest protections should continue to apply to the most important habitat, managing general habitat is also important for maintaining, improving, restoring and expanding habitat overall. Protections that were included in Sagebrush Focal Area designations should be incorporated into Priority Habitat Management Areas, where appropriate. The General Habitat Management Areas in Utah must be maintained; eliminating GHMA in Utah would hamper sage-grouse recovery in the state and have grave implications for habitat designations in other states. Similarly, proposals to remove management protections associated with GHMA in Idaho must not be adopted, since they effectively undercut the meaning of the habitat classification.

In addition, to meet the overall goals of the plans and habitat objectives to conserve, enhance and restore sage-grouse habitat, the plans should develop and incorporate specific restoration targets for PHMA to incentivize activities to reduce disturbance and the threat from noxious weeds.

E.3.11 Habitat Objectives

Specific habitat objectives for all aspects of the sage-grouse lifecycle should be defined, as discussed in the 2018 USGS report, which highlight the need to address the full range of sage-grouse habitat.

E.3.12 Lands and Realty

Sage-grouse habitat must be retained in federal ownership and not transferred to state control in order to maintain certainty of management across these lands, as well as habitat connectivity.

Sage-grouse habitat should be retained in federal ownership. The BLM's Scoping Report mentions the concerns of states such as Utah that maintaining sage-grouse habitat in federal ownership could affect the states' ability to develop land.⁶⁷In fact, the Utah DEIS states: Increased potential for disposal and/or exchange of BLM-managed federal lands in [priority] and Greater Sage-Grouse habitat outside of [priority areas] could possibly result in expanded economic opportunities in the affected location... Possible land uses include use for county and municipal physical facilities, commercial or residential development, and/or recreation use.⁶⁸ These uses are all identified as threats to sage-grouse habitat in the 2013 Conservation Objectives Team (COT) Report, which developed range-wide conservation objectives for sage-grouse that define the degree to which threats needed to be reduced or ameliorated to ensure that the species was no longer in danger of an ESA listing. ⁶⁹ It can be difficult under the standards proposed by BLM to determine if land disposal "will compromise" sage-grouse persistence, or have "no direct or indirect impact" on populations.⁷⁰ Retaining habitat in federal ownership helps ensure the land will be managed as prescribed in the BLM land use plans, providing certainty. It also will promote connectivity of sage-grouse populations.⁷¹ States have not committed to all the same management and approaches as BLM. Moreover, in some cases, such as for state trust lands, they are required to manage the lands to maximize revenues, which is likely inconsistent with conserving sage-grouse habitat. If there is a need to correct lands designated as sage-grouse habitat, we prefer it be accomplished through authorized habitat management boundary adjustments as provided for in the 2018 DEISs, consistent with our recommendations for how that process should be conducted. We also

support the continued inclusion of provisions in the BLM plans that encourage acquisition of habitat where it will benefit sage-grouse populations.

VIII. KEEPING GROUSE HABITAT IN FEDERAL OWNERSHIP IS IMPORTANT FOR CONSISTENT MANAGEMENT AND CONNECTIVITY. The 2015 Utah sage-grouse land use plan provides that BLM cannot dispose of priority or general habitat, unless there are no impacts to sage-grouse or its habitat or there would be a net conservation gain to sagegrouse. The 2018 DEIS would change this provision to allow disposal if it improves the condition of sage-grouse habitat, or BLM can demonstrate disposal "will not compromise the persistence of Greater Sage-Grouse populations" within priority habitat. The 2015 Utah plans also support identifying areas where acquisitions or easements will benefit sage-grouse habitat, while the 2018 DEIS eliminates this provision.⁶⁵ Similarly, the Nevada DEIS also allows disposal of sage-grouse habitat if it would have "no direct or indirect adverse impact on conservation of the Greater Sage-Grouse or can achieve a net conservation gain though the use of compensatory mitigation."⁶⁶ We oppose these changes in the 2018 DEISs. Sage-grouse habitat should be retained in federal ownership. The BLM's Scoping Report mentions the concerns of states such as Utah that maintaining sage-grouse habitat in federal ownership could affect the states' ability to develop land.⁶⁷ In fact, the Utah DEIS states: Increased potential for disposal and/or exchange of BLM-managed federal lands in [priority] and Greater Sage-Grouse habitat outside of [priority areas] could possibly result in expanded economic opportunities in the affected location... Possible land uses include use for county and municipal physical facilities, commercial or residential development, and/or recreation use.⁶⁸ These uses are all identified as threats to sage-grouse habitat in the 2013 Conservation Objectives Team (COT) Report, which developed range-wide conservation objectives for sage-grouse that define the degree to which threats needed to be reduced or ameliorated to ensure that the species was no longer in danger of an ESA listing. ⁶⁹ It can be difficult under the standards proposed by BLM to determine if land disposal "will compromise" sage-grouse persistence, or have "no direct or indirect impact" on populations.⁷⁰ Retaining habitat in federal ownership helps ensure the land will be managed as prescribed in the BLM land use plans, providing certainty. It also will promote connectivity of sage-grouse populations.⁷¹ States have not committed to all the same management and approaches as BLM. Moreover, in some cases, such as for state trust lands, they are required to manage the lands to maximize revenues, which is likely inconsistent with conserving sage-grouse habitat. If there is a need to correct lands designated as sage-grouse habitat, we prefer it be accomplished through authorized habitat management boundary adjustments as provided for in the 2018 DEISs, consistent with our recommendations for how that process should be conducted. We also support the continued inclusion of provisions in the BLM plans that encourage acquisition of habitat where it will benefit sage-grouse populations.

E.3.13 Lek Buffers

Prescribed buffer distances (both those limiting activities and those setting out areas for analyzing and addressing impacts) must be maintained to guide analysis of impacts and limit harm to habitat.

BLM and USFS may approve actions in PHMAs that are within the applicable lek buffer distance identified above only if the BLM or USFS determine that a buffer distance other than the distance identified above offers the same or greater level of protection to sage-grouse and its habitat. The BLM or USFS will make this determination based on best available science... For actions in GHMAs, the BLM and USFS will apply the lek buffer distances in Table 3 as required conservation measures to fully address any impacts to sage-grouse identified during the project-specific NEPA analysis. However, if it is

not possible to locate or relocate the project outside of the applicable lek buffer distance(s) identified above, the BLM or USFS may approve the project only if: (1) Based on best available science, landscape features, and other existing protections, (e.g., land use allocations, State regulations), the BLM or USFS determine that a lek buffer distance other than the applicable distance identified above offers the same or a greater level of protection to sage-grouse and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area; or (2) the BLM or USFS determines that impacts to sage-grouse and its habitat are minimized such that the project will cause minor or no new disturbance (e.g., co-location with existing authorizations); and (3) any residual impacts within the lek buffer distances are addressed through compensatory mitigation measures sufficient to ensure a net conservation gain, as outlined in the Mitigation Strategy (see below). By applying lek buffers in addition to other measures, the Federal Plans provide an additional layer of protection to the habitat in closest proximity to leks and the areas documented in the literature to be the most important for breeding and nest success.¹⁰⁰

If BLM is to move forward with eliminating the 1-mile leasing closure around sage grouse lek sites in favor of a No Surface Occupancy (NSO) stipulation, then it must be done in a manner that provides certainty for conservation outcomes. The draft plan provides opportunities for oil and gas operators to seek waivers, modifications, or exceptions (WME) for both the new NSO stipulation within 1-mile of a lek and new criteria for WMEs in priority habitat beyond that distance. Given the fact that the criteria for both stipulations is heavily predicated upon consultation with Colorado Parks and Wildlife and compensatory mitigation, then BLM must commit to requiring compensatory mitigation while also still adhering to the mitigation hierarchy, which prioritizes avoiding and minimizing impacts prior to mitigating.

On average, lek attendance was stable when no oil and gas development was present within 6,400m. However, attendance declined as development increased.⁴ For nesting habitat Zabihi et al. (2017) likewise found that avoidance of wellpads and access roads were the two most important factors predicting nest site selection. Importantly, Green et al. confirmed that declines in sage-grouse populations may continue even within Wyoming's "core areas," where density of wells is limited to approximately one pad per square mile. In addition, Kirol et al. (2015b) found that increases on coalbed methane wastewater ponds were correlated with decreased nest success in the Powder River Basin of Wyoming. To rectify these problems, BLM should impose, as terms of the Resource Management Plan, Conditions of Approval on all existing fluid mineral leases consistent with the recommendations of the Sage-Grouse National Technical Team, including no new surface occupancy on existing federal leases (with exceptions for occupancy of no more than 3% outside a 4-mile lek buffer, if the entire leasehold is within such habitat).

To develop relevant and practical lek buffer distances for the BLM plans, DOI commissioned the U.S. Geological Survey to review the scientific information on conservation buffer distances for sage-grouse. The resulting study¹⁰¹ recommended there be 5 km (3.1 miles) between leks and infrastructure related to energy development.¹⁰² It is important to stress that this distance does not result in 100% protection for sage-grouse: [T]he minimum distance inferred here (5 km [3.1 miles]) from leks may be insufficient to protect nesting and other seasonal habitats. Based on the collective information reviewed for this study, conservation practices that address habitats falling within the interpreted distances may be expected to protect as much as 75 percent to 95 percent of local population's habitat utilization.¹⁰³ A recent Wyoming study suggests that current regulations may only be sufficient for limiting population declines but not for reversing these trends. That study also noted that areas not protected under the

100 Wyoming plans are not subject to core area regulations and may experience larger increases in oil and gas development and, therefore, larger declines in sage-grouse populations.104 Other scientific input continues to stress the importance of buffers: ? 2016 Dahlgren study (UT): This study assesses distances between seasonal habitats to recommend buffer zones for conservation. Females and their broods from larger populations in contiguous sagebrush moved more than those in smaller, isolated populations, but small populations moved farther from leks to winter grounds. Distances from nests to leks were consistent with other research, but nest success slightly increased with distance from leks. Seasonal movements of Utah GRSG were generally lower than reported rangewide, likely because of fragmented sagebrush habitats. Management actions that increase the area of usable sagebrush may benefit Utah GRSG. Management plans can incorporate buffers based on, for example, observed distances between nests and leks to increase the conservation value of management actions. The authors recommended buffers of 5 and 8 kilometers between disturbed areas and GRSG breeding and summer habitats, respectively.105 ? 2018 Holloran Letter (importance of 2015 protections): Recommending management approaches and objectives established in 2015 BLM sage-grouse land use plans be used as minimum standards in sagebrush habitat.106 BLM's argument in support of the changes in Idaho, despite its acknowledgment that infrastructure and development would be allowed much closer to leks, is that there is very new development of infrastructure in Idaho in either priority or important habitat.107 If that is the case, then there is no real need for the proposed change. BLM also asserts that disturbance from development is not the major threat to sage-grouse in Idaho. While that is true, it is still a threat, one that buffers are designed to avoid. The Utah and Nevada DEISs argue that the 2014 USGS Report acknowledges that because of differences in populations, habitats and other factors, there is no single buffer distance that is appropriate for all sagegrouse populations and habitats across the range, and that buffers are just one of a number of protections for sage-grouse.108 The USGS Report acknowledges these points, and states that it attempted to take this variability into account in determining proper buffer distances, and notes that some studies have supported an 8 km buffer.109 As a result, USGS thus ended up with a compromise standard that protects most, but not all, habitat. Given that FWS explicitly relied on buffers as one of the protections that allowed it to avoid listing sage-grouse, it would be a mistake to reduce these standards or vest greater discretion with the states to allow reductions.

X. BUFFERS AROUND LEKS SHOULD BE MAINTAINED. The Idaho DEIS proposes to weaken buffers around leks in important habitat management areas, and to eliminate them in general habitat. They also grant additional discretion to decrease or increase buffers generally.96 Other DEISs also increase the degree of discretion afforded to decrease or increase97 buffers.98 Still other DEIS propose to provide "clarification" for lek buffers without stating what form that clarification would take.99 We oppose any changes that would weaken the standard for buffers in the 2015 Sage-grouse Plans. The decision by the FWS not to list sage-grouse under the ESA noted the importance of buffers to sagegrouse protection, and their role in the decision not to list: Sage-grouse leks are communal breeding centers that are representative of the breeding and nesting habitats. Conservation of these areas is crucial to maintaining sage-grouse populations.

E.3.14 Mitigation

Overall, the plans must explicitly commit to maintaining the FWS "not warranted" decision. The purpose and need of the 2018 amendments to seek better cooperation with states by modifying the management approach in the plans must be reconciled and made consistent with the purpose and need of the 2015 Sage-grouse Plans to conserve, enhance, and restore sage-grouse habitat by eliminating or minimizing

threats to their habitat identified in the FWS 2010 finding that listing under the ESA was warranted. Without ongoing conservation, enhancement and restoration of habitat, the already impacted habitat and risks of further harm that led to the FWS 2010 finding will not be sufficiently addressed in these plans to maintain the FWS 2015 finding that listing is no longer warranted.

Mitigation must be applied through the mitigation hierarchy (avoid, minimize, then compensate) and, at a minimum, apply a "no net loss" standard so that while a range of multiple uses continue, their impacts are addressed. Avoidance should include avoiding locating rights-of-ways in habitat. Mitigation programs must incorporate a set of recognized principles related to mitigation, and continue to provide for application of compensatory mitigation at greater than 1:1 ratios, where necessary to address factors such as the full suite of harms and the uncertainty of success for specific mitigation measures, including where state programs provide for such approaches. The 2015 Sagegrouse Plans were premised on the understanding that ongoing activities in habitat would result in ongoing damage to habitat, so that opportunities to enhance and expand habitat must be provided in order for the species to ultimately survive.

Mitigation is a well-established tool that was relied upon in the 2015 Fish and Wildlife Service decision to support the decision to not list the Greater Sage-Grouse as threatened or endangered under the Endangered Species Act. The practice of "mitigation" is based on two common-sense principles: (1) certain activities are more appropriate in some locations than others; and (2) we should clean up after ourselves as we conduct activities that damage the landscape. The simplest definition of mitigation is "the action of reducing the severity, seriousness, or painfulness of something." Mitigation "done right" involves smart planning, efficient and effective decision-making, and predictability for project proponents, as well as a multitude of other stakeholder interests, and can result in positive outcomes for all - the public, communities, businesses, and the environment. The widely accepted mitigation hierarchy is a step-wise framework for evaluating proposed impacts that first acknowledges that the best way to address impacts from development on the most important habitat is to avoid those impacts in the first place. Some places are just too important to develop, or measures to minimize and/or compensate impacts may not be available or effective. Consider the wintering areas for sage-grouse. Several recent studies have confirmed the importance of ensuring conservation of sufficient amounts of these habitats.¹¹² The next step in the hierarchy is to minimize impacts. A project developer should employ a wide range of actions to avoid as much disturbance as possible to wildlife in the area. For example, markers work to prevent fence-related mortality or injury that can occur when sage-grouse fly low to the ground over sagebrush range.¹¹³ If unavoidable impacts occur, the third and final step in the mitigation hierarchy is to compensate for the loss by creating, restoring, enhancing, or preserving habitat elsewhere. This might involve securing a conservation easement on private land or restoring nearby habitat with treatments designed to improve conditions for the affected species overall. Compensatory mitigation for a new road system or transmission line in sagebrush habitat could involve, for example, payments by the developer to reconvert farmland in central Montana that have pushed out sage species' preferred cover back to native sagebrush habitat. Thus, in its most basic sense, mitigation policy is truly about good governance. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent framework for reviewing use requests and meeting their multiple use and sustained yield mandates. When agencies frontload their planning and provide the public and applicants with information in advance about where development should and should not go, they are empowered to make faster, better decisions. Potential conflicts between conservation and development are reduced when developers know in advance what areas should be avoided. Good mitigation policy and practice is

also one of the best opportunities to achieve sustainable development and conservation goals. Projects, even those with relatively small footprints, can pose significant impacts to migratory wildlife. Avoidance of the most important places offers the best way to support a Western landscape where species can thrive. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives of BLM and other federal agencies.

Additional authority also exists for the use of the mitigation hierarchy in issuing project-specific authorizations. For example, project-specific authorizations must be "in accordance with the land use plans,"¹³⁵ so if the land use plans adopt the mitigation hierarchy or other mitigation principles for the sage grouse under the various authorities described above, the project authorization must follow those principles. Moreover, in issuing project-specific authorizations, BLM may attach "such terms and conditions" as are consistent with FLPMA and other applicable law.¹³⁶ This general authority also confers broad discretion on BLM to impose mitigation requirements on project applicants, including compensatory mitigation in appropriate circumstances.¹³⁷ Finally, as a distinct authority, BLM also has the obligation to ensure that project-specific authorizations do not result in "undue or unnecessary degradation. FLPMA states that BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands."¹³⁸ A number of cases have found that BLM met its obligation to prevent unnecessary or undue degradation based, in part, on its imposition of compensatory mitigation. See e.g., *Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497, 518 (D.C. Cir. 2010) (BLM decision to authorize up to 4,399 natural gas wells from 600 drilling pads did not result in "unnecessary or undue degradation" in light of substantial mitigation required from permittees, including prohibition of new development outside core area until comparable acreage in the core was restored to functional habitat, and a monitoring and mitigation fund of up to \$36 million); see also *Gardner v. United States Bureau of Land Management*, 638 F.3d 1217, 1222 (9th Cir. 2011) (FLPMA provides BLM "with a great deal of discretion in deciding how to achieve the objectives" of preventing "unnecessary or undue degradation of public lands.")

As noted above, there has been a great deal of concern surrounding the BLM's authority to apply a net conservation benefit standard for sage grouse. Regardless of the standard employed, it is most important that there be a high level of certainty that direct, indirect, and cumulative impacts of infrastructure development will be offset with high quality, durable, timely, and additional compensatory mitigation projects. High quality compensatory mitigation projects are guided by mitigation programs that appropriately account for the magnitude, extent and duration of impacts, characterize the benefits of compensatory mitigation projects, and ensure that compensatory mitigation projects are durable. We support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The 2016 Work Group Mitigation Report states that for compensatory mitigation programs to adequately address residual impacts, they should "provide habitat values, services and functions that bear a reasonable relationship to the lost values, service and functions for which mitigation is required".¹⁴⁸ There are large variations in the quality of habitat for sage-grouse, and a significant likelihood of failure of restoration of habitat due to catastrophic fire events and the current low success rates of restoration.¹⁴⁹ Recognizing these issues, most state sage-grouse mitigation programs, such as Nevada, address the variation in habitat quality by including measures of habitat functionality and using adjustment factors to account for the risk of failure and temporal loss. If habitat functionality is considered, state agencies can use a ratio-based estimate, adjusted to include consideration of factors such as likelihood of success and temporal loss of functions. Compensatory

mitigation programs need not rely upon overly complicated measures - they must be defensible but need not be overly precise.

BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. FLPMA directs that public lands to be managed in a manner to ensure the protection of ecological and environmental values, preservation and protection of certain public lands in their natural condition, and provision of food and habitat for wildlife.¹²⁰ This direction guides every significant aspect of the management of public lands under FLPMA, including the development of land management plans,¹²¹ project-specific authorizations for the use, occupancy, development of public lands,¹²² the granting of rights of way on public lands,¹²³ and the promulgation of regulations to implement each of these authorities.¹²⁴ While FLPMA does not elevate certain uses over others, it does delegate discretion to the BLM to determine whether and how to develop or conserve resources, including whether to require enhancement of resources and values through means such as compensatory mitigation.¹²⁵ In sum, these statutory policies encompass the protection of environmental and ecological values on the public lands and the provision of food and habitat for fish and wildlife and are furthered by the implementation of the mitigation hierarchy, including compensatory mitigation, to protect and preserve habitat for the sage grouse.

Beside the principles of FLPMA and its multiple use/sustained yield standards, individual provisions of that Act confer additional authority on BLM to apply the mitigation hierarchy. In the section on land use plans, for example, FLPMA obliges BLM to consider environmental values, such as fish and wildlife like the sage grouse, in the development of such plans.¹³³ More particularly, BLM must also "consider the relative scarcity of the values involved and the availability of alternative means...and sites for realization of those values".¹³⁴ Sage-grouse habitat is a wildlife value with relative scarcity, as evidenced by the Fish and Wildlife Service's consideration of the species for listing under the ESA, its designation as a special status species by BLM, and its active management by numerous Western states. In the process of developing land use plans which account for this important and relatively scarce species, BLM can provide for the use of "alternative sites" in appropriate instances, thereby resulting in avoidance. Similarly, BLM can specify "alternative means," which can include minimization as well as compensatory mitigation under appropriate circumstances. In short, resources designated as "special" by BLM should be managed through a resource goal that may necessitate compensatory mitigation actions, as appropriate.

BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. The 2015 Records of Decision for Greater sage-grouse included a commitment to develop compensatory mitigation strategies in each sage-grouse management zone.¹⁴² As the 2015 land use plans were completed and implementation efforts began, however, several states had already completed or had begun efforts to develop compensatory mitigation strategies to implement GRSG conservation measures on state and private lands. It thus became apparent that developing federal mitigation strategies for each management zone would be redundant and could, in fact, create conflicts between state and federal mitigation strategies. This recognition led to the establishment of the Greater Sage-Grouse Mitigation Work Group (2016 Work Group Mitigation Report), and its charge to identify key principles for compensatory mitigation strategies as well as mechanisms to support and institutionalize collaborative state and federal GRSG mitigation efforts.¹⁴³ The 2018 DEISs state that the purpose of the Work Group was "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to

better align with individual state plans and/or conservation measures and DOI and BLM policy."¹⁴⁴ The DEISs also state that, "The BLM will work to be consistent with or complementary to the management actions in [state] plans whenever possible."¹⁴⁵ Given BLM's broad authority to adopt and impose mitigation to protect sage-grouse, at a minimum, BLM certainly can act to adopt, implement and enforce the state mitigation programs for use on federal land. In doing so, it is critical to ensure that the state mitigation programs employed by BLM follow commonly recognized principles, such as those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy* (2015 TNC Report).¹⁴⁶ These principles include: application of the mitigation hierarchy in a landscape context; policy goals that support conservation and drive accountability; inclusion of stakeholder engagement practices; long-term, durable options; additionality, equivalence, and protection against temporal losses.¹⁴⁷ We support efforts of the states to experiment with different mitigation approaches, if their programs and those of the Department, meet the defined principles. The fact that the state programs differ from each other is not necessarily a concern; in fact, variation can often result in good management outcomes, enabling programs to be tailored to the needs of each state, as well as allowing states to experiment and determine which approaches are most effective. We thus support the Department providing minimum principles, consistent with the 2015 TNC Report, that all state programs must meet, and allowing states to exceed those principles if they choose to do so.

FLPMA also directs the Secretary to "manage the public lands under principles of multiple use and sustained yield".¹²⁶ The principles of multiple use and sustained yield pervade and underpin each of BLM's authorities under FLPMA, including the policies governing the Act,¹²⁷ the development of land use plans,¹²⁸ the authorization of specific projects,¹²⁹ and the granting of rights of way.¹³⁰ Multiple use means, among other things: the management of public lands...so that they are utilized in the combinations that will best meet the present and future needs of the American people; ... 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...range, ... watershed, wildlife and fish...; and harmonious and coordinated management of the various resources without permanent impairment of...the quality of the environment...¹³¹ Sustained yield means "the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands".¹³² Sage-grouse is certainly one of the wildlife resources to be protected under the multiple use standard, and it is a resource whose annual and periodic output is to be achieved and maintained in perpetuity under the sustained yield standard. To protect the present and long-term use of the public land for "fish and wildlife" "without impairment of the quality of the environment," BLM has the authority to apply the mitigation hierarchy for sage grouse, including compensatory mitigation in appropriate circumstances. Thus, BLM has additional, clear authority to use the mitigation hierarchy in its land use plans for the protection of the sage-grouse and its habitat. Case law confirms that multiple use/sustained yield principles do "not mandate that every use be accommodated on every piece of land; rather, delicate balancing is required." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009). The mitigation hierarchy, including compensatory mitigation, provides an important tool for achieving a balance among the multiple uses allowed on public lands. BLM can authorize a consumptive use, like oil and gas development, but balance that use by providing compensatory mitigation for the unavoidable losses suffered by the fish and wildlife. In other words, the mitigation hierarchy can have the effect of expediting and defending authorized consumptive uses of the public lands while simultaneously protecting fish and wildlife resource values in perpetuity.

Good mitigation policy and practice is also one of the best opportunities to achieve sustainable development and conservation goals. Projects, even those with relatively small footprints, can pose significant impacts to migratory wildlife. Avoidance of the most important places offers the best way to support a Western landscape where species can thrive. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives of BLM and other federal agencies. Governments, businesses, and local communities are increasingly acting to improve mitigation policy and practice. This is shown by the following: ? 56 countries have or are developing national mitigation policies that require offsets or enable the use of offsets, with most of these policies developed over the past decade. ? Multi-lateral and private sector financial institutions are requiring projects they finance to avoid, minimize, and compensate for biodiversity impacts in accordance with new performance standards. This includes requirements for project developers to avoid impacts to "critical habitat." ? A 2015 analysis of the economic contribution of mitigation determined that the domestic ecological restoration sector directly employs approximately 126,000 workers nationwide and generates \$9.5 billion in economic output (sales) annually, with an additional 95,000 jobs and \$15 billion in economic output through indirect (business-to business) linkages and increased household spending.

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In 2015, in its ESA listing decision, the Fish and Wildlife Service (FWS) found that "the greater sage-grouse is not in danger of extinction now or in the foreseeable future throughout all or a significant portion of its range and that listing the species is no longer warranted." The Service's finding was based not on the stability of the species' population, but rather on the "adequacy of regulatory mechanisms and conservation efforts".¹⁴ Mitigation - avoidance, minimization and, where appropriate, compensatory mitigation - was an essential regulatory and conservation tool that supported this decision. Specifically, the FWS stated: All of the Federal Plans require that impacts to sage-grouse habitats are mitigated and that compensatory mitigation provides a net conservation gain to the species. All mitigation will be achieved by avoiding, minimizing, and compensating for impacts following the regulations from the White House Council on Environmental Quality (e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM/USFS management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation.¹⁵ The decision outlines the efforts states have made to utilize regulatory mechanisms to address threats to the species, noting that the Wyoming state program "features development stipulations to guide and regulate development within the Core Population Areas to avoid as much as possible, but, if avoidance is not possible, to

minimize and mitigate, impacts to sage-grouse and its habitat." I 16 The Service then concluded, "Requiring mitigation for residual impacts provides additional certainty that, while impacts will continue at reduced levels on Federal lands, those impacts will be offset". I 17 Each of the seven states with significant sage-grouse populations has by now either completed or is working on establishing a mitigation program for sage-grouse. Barrick Gold and the Department of the Interior have also signed a separate agreement to create the Barrick Nevada Sage-Grouse Bank in northern Nevada, creating incentives for Barrick to voluntarily protect, restore and enhance sagebrush ecosystems for the benefit of sage-grouse, while allowing the company to conduct mining activities on other BLM land. I 18 Last August, the Department of the Interior (DOI) Sage-Grouse Review Team Report, commissioned by Secretary Zinke, concluded that state and federal mitigation programs were an important and critical tool to preclude an ESA listing, noting that both DOI and the states agree on this point. I 19 The 2015 BLM sage-grouse plans not only employ the mitigation hierarchy as a regulatory and conservation tool to preclude listing, but the listing decision is, in part, also based on the promise of the protections and conservation measures that implementation would deliver.

In addition, BLM should have the policy prescriptions and tools available to allow for compensatory mitigation on public lands to offset private or public activities. Impacts to key sage-grouse habitat located on private land, particularly in states such as Nevada, often necessitate the need for compensatory mitigation on public lands, given the limited availability of private land for use as offsets. Maintaining this capability will be critical to conservation success. Last, but far from least, providing agency field staff with training is an important mechanism to accelerate permitting and project review. By committing resources to training field staff, BLM could increase the technical capacity of local staff to implement mitigation policies effectively and do so consistently across field offices. Providing clear direction to project proponents on how the agencies will make avoidance, minimization and compensatory mitigation decisions can help streamline project review and accelerate project approval.

In doing so, it is critical to ensure that the state mitigation programs employed by BLM follow commonly recognized principles, such as those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy* (2015 TNC Report). I 46 These principles include: application of the mitigation hierarchy in a landscape context; policy goals that support conservation and drive accountability; inclusion of stakeholder engagement practices; long-term, durable options; additionality, equivalence, and protection against temporal losses. I 47 We support efforts of the states to experiment with different mitigation approaches, if their programs and those of the Department, meet the defined principles. The fact that the state programs differ from each other is not necessarily a concern; in fact, variation can often result in good management outcomes, enabling programs to be tailored to the needs of each state, as well as allowing states to experiment and determine which approaches are most effective. We thus support the Department providing minimum principles, consistent with the 2015 TNC Report, that all state programs must meet, and allowing states to exceed those principles if they choose to do so.

It has recently been argued by several states that BLM may only use compensatory mitigation to prevent "unnecessary or undue degradation". Under this view, where the impacts of a proposed activity have not been demonstrated to rise to the level of "unnecessary or undue degradation," any authorization of that activity which requires either net benefit or no net loss for the actual impacts would violate FLPMA. The unnecessary or undue degradation standard, however, is just a minimum standard for BLM's land management policy; it does not restrain BLM's discretion to adopt or require mitigation in

circumstances that do not rise to the level of "undue or unnecessary degradation" or to implement a higher mitigation standard. As explained above, BLM has numerous authorities supporting its use of mitigation more generally, including the policies and principles underlying FLPMA, the foundational multiple use, sustained yield standard, the authority to promulgate regulations, and the specific authorities applicable to land use plans and project-specific authorizations. This point was confirmed in *Western Exploration, LLC v. U.S. Department of the Interior*.¹³⁹ In considering the argument that a net conservation gain standard for compensatory mitigation violated FLPMA, the court stated: The FEIS states that if actions by third parties result in habitat loss and degradation, even after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the sage-grouse. The Agencies' goals to enhance, conserve, and restore sage-grouse habitat and to increase the abundance and distribution of the species, they argue, is best met by the net conservation gain strategy because it permits disturbances so long as habitat loss is both mitigated and counteracted through restorative projects. If anything, this strategy demonstrates that the Agencies allow some degradation to public land to occur for multiple use purposes, but that degradation caused to sage-grouse habitat on that land be counteracted. The Court fails to see how BLM's decision to implement this standard is arbitrary and capricious. Moreover, the Court cannot find that BLM did not consider all relevant factors in choosing this strategy... In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.¹⁴⁰ Both FLPMA and the case law thus establish that BLM has ample discretion to go beyond the prevention of unnecessary or undue degradation to seek compensatory mitigation that will meet "the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, . . . wildlife and . . . natural scenic, scientific and historical values."¹⁴¹ None of these authorities distinguish between avoidance, minimization, and compensatory mitigation or prohibit or circumscribe compensatory mitigation; rather, the authorities are broad and support the use of each aspect of mitigation in appropriate circumstances. BLM's obligations, discretion and authority are particularly important in coordinating with states, especially where states lack ownership or authority to carry out needed mitigation.

XI. MITIGATION IS AN IMPORTANT PART OF FEDERAL AND STATE EFFORTS, AND MUST BE MAINTAINED. Each of the DEISs contains similar language requesting comments on how the Bureau of Land Management (BLM) should consider and implement sage-grouse mitigation: The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans.¹¹⁰ For some states, such as Idaho, Utah, and Wyoming, the DEIS also removed the requirement of a net conservation gain standard for their mitigation programs.¹¹¹ Overall: 1. Mitigation (avoidance, minimization, and compensation) as adopted in the 2015 BLM land use plans is an effective and well-established tool that the Fish and Wildlife Service relied upon to support its decision not to list the Greater Sage-Grouse as threatened or endangered under the ESA. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent framework for reviewing use requests and meeting their multiple use and sustained yield mandates. The 2015 BLM sage-grouse plans employed the mitigation hierarchy to help reach their goal of protecting sage-grouse while also allowing multiple uses to proceed by ensuring that

associated impacts to habitat are fully offset. 2. BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. Both FLPMA and case law provide BLM the discretion to seek compensatory mitigation to protect sage-grouse. 3. BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. We recommend that these principles should be consistent with those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy*. In addition, we support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The amount and type of compensatory mitigation should be proportional to, and have a reasonable relationship to, direct and indirect impacts.

E.3.15 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals

As an example, the general approach conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are more specific and include public engagement. * Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with Colorado Parks and Wildlife and following a 30-day public notice/comment period * Modifications and exceptions are permitted if: (1) impacts are fully offset by compensatory mitigation; or (2) no impacts to greater sage-grouse would occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks and Wildlife. CO Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Overall, one-time exceptions should be the preferred approach where relief is sought from protective stipulations, such that the safeguards prescribed in these stipulations will remain in place for the majority of oil and gas leases. Waivers, exceptions and modifications should only be granted from no surface occupancy (NSO) stipulations or any stipulations in PHMA after a 30-day public notice and comment period. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications. Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. Accordingly, we recommend that each plan include language that provides: Exceptions will be considered prior to considering waivers or modifications. If the BLM determines that a waiver or modification is more appropriate, the reasons for such decisions will be documented. Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with the appropriate state wildlife agency. Modifications and exceptions are permitted if: (1) impacts are fully and verifiably offset by compensatory mitigation; or (2) there are no impacts to greater sage-grouse because of terrain or habitat type, based on consultation with the applicable state wildlife agency. Prior to granting any waivers, exceptions and modifications, BLM will insure that the U.S. Fish and Wildlife Service has the opportunity to submit information for consideration. For no surface occupancy stipulations or stipulations in Priority Habitat Management Areas, waivers exceptions and modifications will only be granted following a 30-day public notice and comment period. BLM will maintain an ongoing record of requests for waivers, exceptions and modifications and whether those requests are granted, and will publish those cumulative results on a quarterly basis.

V. RECOMMENDED APPROACH TO WAIVERS, EXCEPTIONS AND MODIFICATION TO OIL AND GAS LEASE STIPULATIONS. The 2015 Sage-grouse Plans include numerous oil and gas lease

stipulations that apply to development in order to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations. The draft amendments and EISs also rely on lease stipulations. However, the protections actually provided by the stipulations are only reliable and effective to the extent that the safeguards are applied. Waivers (permanent exemption that applies to the entire leasehold), exceptions (one-time exemption for a particular site within the leasehold) and modifications (change to the lease stipulation, either temporarily or for the term of the lease, can apply to the entire leasehold or certain areas) all permit an operator to avoid compliance with the requirements of a stipulation. Where these loopholes are permitted and used, the protections that the stipulations are supposed to provide can be undermined. Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding.⁴⁶ Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. While we can accept narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria, broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS are not acceptable.

E.3.16 Noise Management Outside of PHMA

Comment: 2 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5 Page Number: 3-95 Line Number: 14 Local studies conducted for the PAPA found existing ambient sound levels (L50) at four locations throughout the Upper Green River area for hours important to greater sage-grouse lek behavior (1800-0800) were 19.9 dBA, 14.8 dBA, 14.3 dBA, and 14.5 dBA. The median L50 for all 1800-0800 hours at all sites was 15.4 dBA.

Comment: 5 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5.3 Page Number: 3-97 Line Number: 1-16 The discussion including the BLM Wyoming sage-Grouse RMP Amendments should include Appendix C, Required Design Features identifying ambient measures as 20-24 dBA at sunrise at the perimeter of a lek during active lek season.

Comment: 7 Document: CH 2 -Alternatives 2.4.3 Greater Sagegrouse habitat management Page Number: 2-8 Line Number: 25-27 Noise protocols for Wyoming have been developed and should be required (Ambrose and MacDonald 2015. Review of sound level measurements in Wyoming relative to greater sage grouse and recommended protocol for future measurements) Management of noise should include but not be limited to, timing restrictions during lekking, nesting and brood rearing season, and design features that include; siting facilities outside of grouse priority habitat or placed to take advantage of topography, application of sound blankets and or sound walls, use of mufflers, and reducing traffic noise through controlled traffic patterns and restricting travel hours to between 8 am and 6 pm within 2 miles of the perimeter of a lek.

Comment:3 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5.2 Page Number: 3-95 Line Number: 27 We are concerned for the validity of the noise data provided for this project as the microphone height was reported as being 2.43 meters (8 feet) above the ground. Protocols for noise monitoring were established for the Pinedale Field Office, Pinedale Anticline Project Area which requires a microphone height of 0.3 m (1 foot) to address the influence of wind on sound measurement.

Comment:4 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5.2 Page Number: 3-96 Line Number:2-7 An evaluation of sound level studies was conducted for WGFD which looked at noise data

collected throughout Wyoming (Ambrose, S. and J. MacDonald, 2015. Review of Sound Level Measurements in Wyoming Relative to Greater Sage-grouse and Recommended Protocol for Future Measurements.) The authors recommended microphones be placed 1 foot from the ground (0.30 m) to more accurately reflect sounds experienced by the bird. They also found wind to have a clear influence on dBA data and metrics; the higher the wind speed, the higher the dBA levels "As wind speed increased, dBA levels increased, regardless of microphone height; however, dBA levels at 1.5 m were significantly higher than dBA levels at 0.3 m (up to 8.7 dBA higher). What these data indicate is that at a microphone height of 0.3 m, the increase in dBA level was due to sounds of wind through vegetation. The report goes on to say, "Sounds due to wind are of two types: natural sounds, such as leaves rustling and the sound of wind through vegetation, and wind-induced equipment sounds, such as turbulence over the diaphragm of the microphone, wind hitting the foam wind screen, wind causing the microphone tripod to move, or wind sounds through cables securing the tripod. Wind-induced equipment sounds are not part of the acoustic environment, but rather an artifact of data collection. Such data should not be included in analysis. "We are concerned for the validity of the noise data provided for this project as the microphone height was reported as being 2.43 meters (8 feet) above the ground. Also, no monitoring data was excluded from the analysis even though three of the microphones were found tipped over due to wind. This would suggest the data is flawed as the influence of noise and equipment falling over are not legitimate sounds of the environment, but artifacts of wind-equipment interaction.

Comment:6 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5.3 Page Number: 3-99 Line Number:1-8 Minimum L50 values reported for the monitoring sites were elevated due to the microphone height being at 8 feet from the ground and tipping over resulting in additive influence from wind. The single average L50 value of 25 dBA recommended to characterize the ambient noise level at the perimeter of lek location in the NPL Project EIS is flawed. By comparison, within the PAPA (an active gas field) the median L50 dBA for all hours at all leks for the years 2013-2015 was 26.0 dBA (range 17.5-36.9). Additionally, monitoring noise impacts in the PAPA has revealed lek declines for all leks exposed noise > 26 dBA from the perimeter of a lek.

Comment: 1 Document: CH 3 - Affected Environment 3.11 Noise Page Number: 3-89 through 3-99 This section proposes to evaluate existing sound levels within the proposed project area to adequately assess noise-related impacts from the proposed action. The data was collected in 2012 and likely does not represent sound levels found in the project area today. Six of the 10 leks within the proposed project area are showing declining trends without the addition of this project activity. This suggests there are already impacts to sage grouse from existing anthropogenic activities. Four of the leks showing declining trends are within a Core area for sage grouse This project evaluation drew comparisons f a study conducted in Lander WY. To adequately assess the noise-related impacts of the NPL Project, it would be appropriate to incorporate local baseline data. Such data was collected for the adjacent Pinedale Anticline Project Area (PAPA) and should be included in this project evaluation. Noise level data has been collected throughout the Upper Green River Valley since 2009. This information is available from published reports on the BLM PAPO web page (<http://www.wy.blm.gov/jio-papo/>). Instead the analysis drew comparisons only to a study conducted in Lander WY.

E.3.17 Preferred Alternative

Proposed Alternative to Maintain the "Not Warranted" Finding The 2015 Sage-grouse Plans were the basis for the U.S. Fish and Wildlife Service (FWS) finding that listing the greater sage-grouse under the Endangered Species Act (ESA) is no longer warranted. This decision was based on a determination that

the plans provide sufficient certainty regarding their implementation and effectiveness and must not be threatened by this amendment process. The surest way to maintain the not warranted decision would be to maintain the current 2015 Sage-grouse Plans by adopting the "no action" alternative in this amendment process, which would still provide sufficient flexibility to adapt through implementation. However, recent instruction memoranda and policy changes (such as rescinding guidance on mitigation) that alter implementation of the 2015 plans are already undermining their effectiveness. The changes to the 2015 plans that are currently under review further jeopardize the structure and function of the plans and, as a result, risk the important protections that safeguard habitat and support FWS's not warranted finding. The collaborative work that went into creating the original plans should be honored. To the extent that DOI and BLM are committed to making some changes to the plans while also maintaining necessary protections to justify the Fish and Wildlife Service's finding, this proposed alternative highlights key elements to be incorporated in the plans, including maintaining current provisions and clarifying or improving others. This alternative is further supported by the 2018 U.S. Geological Survey report (<https://doi.org/10.3133/ofr20181017>), which found that research since 2015 reinforces the science underlying the structure and function of the 2015 Sage-grouse Plans. The following describes the key elements of our recommended alternative. Additional detail regarding implementation of the elements is available in technical comments.

The surest way to maintain the not warranted decision would be to maintain the current 2015 Sage-grouse Plans by adopting the "no action" alternative in this amendment process, which would still provide sufficient flexibility to adapt through implementation. However, recent instruction memoranda and policy changes (such as rescinding guidance on mitigation) that alter implementation of the 2015 plans are already undermining their effectiveness. The changes to the 2015 plans that are currently under review further jeopardize the structure and function of the plans and, as a result, risk the important protections that safeguard habitat and support FWS's not warranted finding. The collaborative work that went into creating the original plans should be honored. To the extent that DOI and BLM are committed to making some changes to the plans while also maintaining necessary protections to justify the Fish and Wildlife Service's finding, this proposed alternative highlights key elements to be incorporated in the plans, including maintaining current provisions and clarifying or improving others. This alternative is further supported by the 2018 U.S. Geological Survey report (<https://doi.org/10.3133/ofr20181017>), which found that research since 2015 reinforces the science underlying the structure and function of the 2015 Sage-grouse Plans.

E.3.18 Prioritization of Mineral Leasing

The requirement to prioritize oil and gas leasing and development outside of sage-grouse habitats must be maintained and clarified so that it is a meaningful tool to reduce habitat destruction and fragmentation. Prioritization should be based on analyzing factors such as the condition of habitat and oil and gas potential to make informed decisions about when the best approach would be to prioritize other proposed lease or permits, or even defer leasing or phase development in order to ensure habitat is protected.

In order to ensure adequate conservation of sage-grouse and sage-grouse habitat, prioritization of oil and gas leasing and development cannot be based solely on whether BLM has sufficient resources to process leasing nominations or applications for permits to drill in sage-grouse habitat. Rather, there must be a thorough consideration of opportunities to protect habitat. These opportunities include deferring proposed leasing that would unnecessarily harm habitat or where leasing is not the best use of

agency resources (both internal resources and in terms of allocating our public lands), such as where there is low or no potential for leasing, high quality habitat and no surrounding infrastructure or development. BLM is not obligated to lease every parcel that is proposed nor is there a requirement that any deferral be replaced with another parcel to somehow maintain the same number of parcels or acres up for lease. See, e.g., *New Mexico ex. rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009) ("It is past doubt that the principle of multiple use does not require BLM to prioritize development over other uses."). Rather, the agency can take into account relevant factors and the importance of conserving grouse habitat to meaningfully prioritize leasing where it is most appropriate and least harmful to sage-grouse habitat. The impact such factors could have on leasing decisions is demonstrated by the map below, which shows the distribution of proposed lease sale parcels for the December 2018 sale in sage-grouse habitat in the Kremmling (Colorado) Field Office: [SEE ATTACHMENT PG 28] Explicitly considering the value of habitat and the potential for actual energy production would unquestionably help the agency prioritize the right parcels for leasing.

RECOMMENDED APPROACH TO PRIORITIZING OIL AND GAS LEASING AND DEVELOPMENT OUTSIDE SAGE-GROUSE HABITAT. The 2015 Sage-grouse Plans are clear as to the need for prioritizing oil and gas leasing and drilling outside sage-grouse habitat and the desired effect of related actions. From the Rocky Mountain Record of Decision (p. 1-25): . . . the ARMPs and ARMPAs prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs. This is to further limit future surface disturbance and encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and as such protect important habitat and reduce the time and cost associated with oil and gas leasing development by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation. The Rocky Mountain ROD also identifies prioritizing oil and gas leasing and development outside habitat as a "key component" and a "key management response" (pp. 1-18 - 1-19). The Buffalo Field Office ARMP/ROD (p. 50) and Wyoming 9-Plan ARMPA (p. 24) echo this directive, including the following objective: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of Greater Sage-Grouse habitat. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in priority habitat (core population areas and core population connectivity corridors) and general habitat, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. (emphasis added). The inter-agency, expert Conservation Objectives Team (COT) Report confirms the need to prioritize development outside habitat, finding that: Sage-grouse populations can be significantly reduced, and in some cases locally extirpated, by non-renewable energy development activities, even when mitigative measures are implemented (Walker et al. 2007). The persistent and increasing demand for energy resources is resulting in their continued development within sage-grouse range, and may cause further habitat fragmentation. . . . Both non-renewable and renewable energy developments are increasing within the range of sage-grouse, and this growth is likely to continue given current and projected demands for energy.⁴⁴ As a result, the COT Report recommended the following objective for energy development: "Energy development should be designed to ensure that it will not impinge upon stable or increasing sage-grouse population trends."⁴⁵

Prioritization for Leasing BLM has used specific factors to guide prioritization of leasing outside sage-grouse habitat. For instance, in assessing the December 2017 lease sale for the Vernal Field Office (https://eplanning.blm.gov/epl-frontoffice/projects/nepa/80165/130450/158729/Final_Vernal_EA.pdf),

BLM created a chart evaluating how certain prioritization considerations applied to parcels (existing lease, existing unit, field-EIS, high gas potential, high oil potential), completed site visits to confirm conditions on the ground, and then only included parcels in the lease sale that met the majority of the factors. We propose that the BLM use the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; importance for connectivity or seasonal habitat * Population trends in applicable zone or biologically significant unit * Distance from existing disturbance * Distance from existing infrastructure - roads, well pads, pipelines * Need for additional infrastructure - estimated surface disturbance * Adjacent to existing lease - yes/no/proximity * Within existing oil and gas unit * Within existing master leasing plan * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high BLM will conduct site visits to confirm conclusions, as needed. Decisions to include nominated lease parcels in sage-grouse habitat in lease sales will be based on the following evaluation of factors: - Parcels that do not have moderate or high potential should not be offered. - Parcels that have high quality habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed should not be offered. - Parcels that are in close proximity to existing disturbance and infrastructure, and are already within an existing oil and gas unit or master leasing plan that has been analyzed in an environmental impact statement may be considered for leasing. - Parcels outside priority habitat should be considered for leasing prior to parcels in PHMA. Prioritization in Development BLM will prioritize development outside sage-grouse habitat by considering the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; quality of habitat; importance for connectivity or season habitat * Population trends in applicable zone or biologically significant unit * Distance from a lek * Need for new infrastructure - estimated surface disturbance * Ability to use existing well pad and infrastructure * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high These factors will apply to both exploratory and other types of development activities. BLM will conduct site visits to confirm conclusions, as needed. Decisions to approve applications for permits to drill in sage-grouse habitat will be based on the following evaluation of factors: - Where applications for permits to drill are in high quality/intact habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed, they will not be prioritized and opportunities will be evaluated to relocate permits. - Where applications for permits to drill are not in areas with high or moderate potential, they will not be prioritized. - Where applications for permits to drill are able to use existing well pads and infrastructure and otherwise avoid surface disturbance and noise impacts to leks, they are more suitable for processing and approval. - Applications for permits to drill outside priority habitat should be considered for approval prior to parcels in PHMA.

Prioritization is also essential when it comes to the location of oil and gas leasing and development. BLM makes no mention of lease prioritization in the DEIS despite previous guidance regarding lease prioritization. Quite simply, it makes perfect sense to prioritize the leasing and development of oil and gas resources outside of priority and general habitat. Nearly 90% of Colorado's Greater sage grouse population is concentrated in Moffat and Jackson Counties. Without the highest quality habitat being conserved, the risk of adversely impacting those populations is far too high and in turn, the likelihood of a future ESA listing grows, which no one wants to see happen.

E.3.19 Range of Alternatives

Alternatives are measured against purpose and need; BLM has not considered a reasonable range of alternatives in the Draft EIS based on the restated purpose and need. When developing an EIS, the "range of reasonable alternatives is measured against the 'Purpose and Need' section...." Cal. ex rel.

Lockyer v. U.S. Dep't. of Agriculture, 459 F. Supp. 2d 874, 905 (N.D. Calif., 2006), *aff'd*, 2009 U.S. App. LEXIS 19219 (9th Cir. 2009). The statement of "purpose and need" is the basis upon "which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. §1502.13 and *City of Carmel-by-the-Sea v. U.S. Dep't. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997). Therefore, if the purpose and need of the 2018 Draft EIS for the Greater Sage-Grouse changes from the purpose and need for the 2015 EIS, then the range of alternatives must necessarily change as well. Even the 2018 Draft EIS recognizes that "BLM's purpose and need for this planning action helps define the scope of proposed alternative actions..." Nevada DEIS, p. ES-2. In Lockyer, the Forest Service argued that it could base its EIS for the new 2005 version of the "Roadless Rule" upon the EIS (and its alternatives) for 2001 Roadless Rule that it replaced. The court found: This argument fundamentally misconstrues the role of the consideration of reasonable alternatives, which lies at the heart of any NEPA analysis. Failure to consider reasonable alternatives thwarts the goals of informed decision making and meaningful public comment before the environmental die is cast. Lockyer at 905 (citations omitted). The Forest Service proposed the 2005 Roadless Rule as a means to give states more authority over designating roadless areas on federal land. In fact, the Forest Service called the 2005 rule the "State Petitions" rule. While the Forest Service argued the 2005 rule and the 2001 rule "share the same purpose and need," the Court concluded that their purposes were "plainly quite different" because the 2005 rule granted state-specific exemptions. Lockyer at 906. The 2018 Draft EISs are clear that their purpose and need is different from the 2015 EISs. Under the heading "Purpose of and Need for Action," the Draft EISs state that "The purpose of this RMPA/EIS is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy." See, e.g. Nevada DEIS, p. 1-3. Because the 2018 Draft EIS states a different purpose and need compared to the 2015 EIS, BLM, pursuant to Lockyer, must necessarily consider a new range of alternatives to meet that new purpose and need. Under Lockyer, BLM in 2018 cannot tier to alternatives considered for the different purpose and need of the 2015 EIS.

The No-Action Alternative in the Draft EIS is the baseline, not a real alternative. The 2018 Draft EISs for the Greater Sage-Grouse purport to compare two alternatives - the "No Action Alternative" versus the "Management Alignment Alternative." See, e.g. Nevada DEIS, p. 2-3. But the "no action alternative generally does not satisfy the proposed action's purpose and need; its inclusion in the Environmental Impact Statement is required by NEPA as a basis for comparison." Lockyer at 905, quoting Ronald E. Bass, Albert I. Herson & Kenneth M. Bogdan, *The NEPA Book: A Step-by-Step Guide on How to Comply with the National Environmental Policy Act*, 95 (2d. ed. 2001). Because the No Action Alternative fails to satisfy the purpose and need of the 2018 Draft EISs, the Draft EISs propose only one alternative: the Management Alignment Alternative. When there is only one alternative, it is not, by definition, an alternative at all. "[T]he agency must consider a range of alternatives that covers the full spectrum of possibilities." *Sierra Club v. Watkins*, 808 F. Supp. 852, 872 D.D.C. 1991). By proposing the "Management Alignment Alternative" as the only option to the status quo, BLM has failed to "consider a range of alternatives that covers the full spectrum of possibilities." *Id.* at 872.

BLM must evaluate additional management alternatives. By failing to thoroughly evaluate more than one alternative, BLM is not complying with NEPA.. See *TWS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it

"considered only a no action alternative along with two virtually identical alternatives"). BLM must consider additional alternatives, including alternatives that are more environmentally protective than the Management Alignment Alternative. The purpose and need of the 2015 Sage-grouse Plans is to "conserve, enhance, and restore GRS habitat by eliminating or minimizing threats to their habitat" (Rocky Mountain Record of Decision, p. 1-21), while the 2018 amendments are based on a purpose to "enhance cooperation with the states." BLM should consider an alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat. For instance, the projection of on-the-ground activities set out in Table ES-1 of the 2018 EISs shows a reduction in restoration efforts, but a more conservation-oriented alternative would consider increasing these projects. Similarly, this alternative would evaluate how to enhance cooperation with the states while retaining more of the core protections and management approaches that made the previous plans the basis for the FWS determination that listing was no longer warranted under the ESA. This alternative would be more environmentally protective and provide more certainty. We have developed a proposed alternative that would accomplish these goals, set out in detail in Attachment I, incorporated herein by reference. BLM should also have considered alternatives to complete additional analysis of key protective provisions that it is proposing to eliminate through the DEISs: net conservation gain and Sagebrush Focal Areas (SFA). The DEISs state: The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans. See, e.g. Utah DEIS, p. ES-8. The Management Alignment Alternative in the DEISs for Utah and Wyoming proposes to remove this standard. Utah DEIS, p. ES-8; Wyoming DEIS, p. ES-6. Rather than seeking comments only on eliminating this approach, BLM should evaluate an alternative that would retain the approach, while leaving the agency flexibility to determine applicable standards by working with the states. The DEISs also propose eliminating SFAs in Utah, Wyoming, Nevada and Idaho. Utah DEIS, p. 2-6; Wyoming DEIS, p. ES-6; Nevada DEIS, p. 1-8; Idaho DEIS, p. 2-7. BLM's scoping notice stated that the agency "seeks comments on the SFA designation" in response to the decision in *Western Exploration, LLC v. U.S. Dep't of the Interior*, 250 F. Supp. 3d 718 (D. Nev. 2017), which found BLM must conduct supplemental NEPA analysis in order to support the designation. 82 Fed. Reg. 47248, 47249 (Oct. 11, 2017). As another alternative, BLM should evaluate the impacts of the SFAs without the previously-proposed mineral withdrawal, which has now been withdrawn, in light of how those designations and the important protective measures they provide (in addition to the withdrawal protections) benefit sage-grouse habitat and how application can be better coordinated with the states.

The range of alternatives is insufficient. The Draft EISs only consider one alternative, the "Management Alignment Alternative" and refer to the 2015 Sage-grouse Plans as the "No Action Alternative." This does not meet BLM's obligations under NEPA. The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions. See 40 C.F.R. §§ 1502.14(a) and 1508.25(c). NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decision-making and provides evidence that the mandated decision-making process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme. *Bob Marshall Alliance v. Hodel*,

852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied, 489 U.S. 1066 (1989) (citations and emphasis omitted). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action." *Northwest Envtl Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997). An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14). This evaluation extends to considering more environmentally protective alternatives and mitigation measures. See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein). By only meaningfully considering one alternative and not considering alternatives that would be more environmentally protective, BLM has failed to consider a reasonable range of alternatives.

The 2018 Draft EISs also state that their purpose and need is to "better align with ... DOI and BLM policy." See, e.g. Nevada DEIS, p. 1-3. That policy was issued on June 7, 2017, through Secretarial Order 3353, "Greater Sage-Grouse Conservation and Cooperation with Western States." The Secretarial Order stated that one of the policy goals for managing the Greater Sage-Grouse is to "give appropriate weight to the value of energy and other development on public lands" in compliance with President Trump's Executive Order of March 28, 2017, "Promoting Energy Independence and Economic Growth" (EO 13783). The new "DOI and BLM policy" is completely opposite of the purpose and need expressed in the 2015 EIS, which identified the "major threats" to sage grouse habitat as "exploration and development" of hard rock mining and fluid mineral development. Nevada DEIS, p. 1-8. The purpose and need for the 2018 Draft EISs - and thus the basis for the 2018 alternatives - has shifted from conservation in 2015 to energy development in 2018: "As analyzed in the [2015 EIS], all of the previously analyzed alternatives, including one proposing constraints stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands (emphasis added)." Nevada DEIS, p. 2-3. The purpose and need of the 2018 Draft EIS, pursuant to Secretarial Order 3353, is to "contribut[e] to economic growth and energy independence" (Nevada DEIS, p. 2-3), or, in other words, increase development opportunities on public lands. Therefore, BLM cannot base the pro-development alternatives in its 2018 Draft EISs upon the 2015 alternatives that had a purpose and need focused on conservation and avoidance of an ESA listing, not energy independence and economic growth. Because the "range of reasonable alternatives is measured against the 'Purpose and Need' section," Lockyer at 905, the range of alternatives in the 2018 Draft EIS fail to account for the dramatic change in purpose and need compared to the 2015 EIS, which is a violation of NEPA. 40 C.F.R. §1502.13. In another section of these comments we discuss the purpose and need issue in the 2018 EISs in more detail.

E.3.20 Recreation

These management strategies are more than smart conservation – they also support our local economies. A healthy sagebrush ecosystem is an important economic driver for Western economies and hundreds of other species that live in sagebrush habitat including the golden eagle, elk, pronghorn and mule deer. Research has shown that across the American West, the sagebrush ecosystem powers the outdoor recreation industry to the tune of more than \$1 billion—\$76 million in Colorado alone.

E.3.21 Sagebrush Focal Areas

Concerns with removal of SFAs in Idaho, Nevada, Utah, and Wyoming. Unfortunately, under the draft land use plans and the accompanying EISs that BLM has prepared for proposed changes to the 2015 Sage-grouse Plans, the BLM would eliminate SFAs in the states of Idaho, Nevada, Utah, and Wyoming.

This would include about 8.7 million acres of public land. It represents a tremendous downgrade in land use plan protections that are oriented towards sage-grouse conservation. While BLM previously decided to not pursue the withdrawal from mineral location and entry that was recommended under the 2015 land use plans for the approximately 10 million acres of SFAs that are located in the states of Wyoming, Montana, Idaho, Oregon, Nevada, and Utah, this new, additional proposal represents a further step backward. It is a retreat from environmental protections that have been recognized as needed for sage-grouse conservation by the U.S. Fish and Wildlife Service (and BLM). But given the previous retreat relative to mineral entry, the effect of the current proposed elimination of the SFAs in four of the states in the range of the sage-grouse is somewhat less significant. Still, there will be a number of lost or modified protections that applied to SFAs in one or more of the four states. These include provisions under the 2015 plans that require oil and gas leasing to only be allowed pursuant to a no surface occupancy (NSO) stipulation that was not subject to waiver, exception, or modification (Idaho, Nevada, and Utah); prioritizing SFAs for vegetation and conservation actions (Idaho, Nevada, Utah, and Wyoming); and prohibitions of geothermal development in SFAs (Nevada). These are important protections that must be maintained in priority habitat management areas (PHMA) if SFAs no longer exist in the four states. The value of these protections was recognized by the Fish and Wildlife Service in its 2015 not warranted decision, and thus are a key component of the land use plans that must be maintained if the not warranted decision is to be sustained, which it must be. "Based on our recommendation to further protect sage-grouse population centers that have been identified in the scientific literature as critically important for the species and areas identified through our analysis as important for conservation, BLM and USFS designated areas as Sagebrush Focal Areas (SFA) and added protections that would further limit new, human-caused surface disturbance in SFAs." 80 Fed. Reg. 59858, 59875 (Oct. 2, 2015). SFAs "are the areas that the Federal Plans manage as the highest priority lands in PHMAs for sage-grouse conservation (Figure 5)." Id. at 59878. They are "strongholds" for sagegrouse conservation and as mentioned above contain important connectivity habitat and high densities of breeding birds. Id. The Fish and Wildlife Service recognized that in addition to PHMA protections, the protections mentioned above would also apply in SFAs, including mineral entry withdrawal, NSO stipulations for fluid minerals with no waivers, exceptions, or modifications, and prioritizing management and conservation actions. Id. This was because SFAs need "the most conservative strategies to protect sage-grouse and habitat." Id. Grazing permit review is also prioritized in SFAs. Id. at 59877, 59910. Clearly the protections in SFAs that would be lost by eliminating SFAs must be maintained in the remaining PHMAs, and the land use plan amendments BLM is contemplating must so provide. The BLM should modify the EISs and proposed land use plan amendments in Idaho, Nevada, Utah, and Wyoming to specifically provide that the fluid minerals NSO stipulation with no waivers, exceptions, or modifications, the vegetation and conservation management stipulation, and where appropriate the prohibition on geothermal development will be specifically incorporated into and made a part of the PHMAs in those states.

Inconsistent treatment across the plans appears arbitrary and capricious. While the BLM is planning to eliminate SFAs in Idaho, Nevada, Utah, and Wyoming, they would be maintained in Oregon and Montana. The BLM provides no explanation for this differential treatment of central aspects of the 2015 Sage-grouse Plans, yet the agency must do so to comply with fundamental legal requirements that apply to Administrative Procedure Act rulemaking efforts, the hard look and public involvement provisions of NEPA, and the land use planning provisions of the FLPMA. In Oregon, the BLM states that SFAs presented "issues [that] require clarification of language in the 2015 ROD/ARMPA but do not require new analysis" and in any event the only issue that requires clarification relative to SFAs is withdrawal

from mineral entry. Oregon Draft Resource Management Plan (RMP) and EIS at 1-8. The BLM does not mention Montana in this NEPA analysis because that state desires to leave its 2015 sage-grouse plans intact. Therefore, SFAs would remain intact in Montana. But in Wyoming, Utah, Idaho, and Nevada elimination of SFAs would be pursued with little explanation. In Wyoming "[u]nder the Management Alignment Alternative, there would be no designation of SFAs." Wyoming Draft RMP and EIS at 4-15. According to the BLM, the environmental impact of not having SFAs was considered in the no action alternative in the 2015 Approved Resource Management Plan Amendment (ARMPA), and in the other Wyoming RMPs that did not consider SFAs, the impacts of designating PHMAs encompassed the impacts of SFAs. *Id.* The BLM seems to believe that its 2016 Draft EIS for Sagebrush Focal Area Withdrawal concluded that SFAs had little conservation benefit and it is only interested in issues related to the nonexistent mineral withdrawal in any event. *Id.* at ES-3, 1-8, 4-16. In Idaho, BLM without explanation, states SFAs duplicate protections, focus on mere de minimis activities, do not provide appreciable benefits for sage-grouse, and they complicate the state's adaptive management provisions. Idaho Draft RMP and EIS at ES-3, 1-6. BLM concludes "[t]he removal of SFA designations would have no measurable effect on the conservation of Greater Sage-Grouse in Idaho because the Management Direction proposed for PHMA would remain in place and continue to protect Greater Sage-Grouse habitat. SFA removal would add flexibility for responsible development with stringent requirements including mitigation to achieve a no net loss to Greater Sage-Grouse habitat in PHMA." *Id.* at 4-10. In Nevada, BLM is again concerned about the nonexistent mineral withdrawal serving as a basis for SFAs and whether SFAs "adequately maintain conservation of Greater Sage-Grouse habitat . . ." Nevada Draft RMP and EIS at ES-3, 1-8, 2-8. In Utah BLM also raises the nonexistent mineral withdrawal as a basis for eliminating SFAs as well as questioning whether they achieve conservation outcomes and concerns about alignment with the state strategy. Utah Draft RMP and EIS at ES-3, 1-7. The explanations for elimination of SFAs in these four states does not establish a clear basis for doing so especially when they would be maintained in Montana and Oregon. This differential treatment and the basis for it must be explained. Fundamentally BLM is creating regulatory uncertainty by creating this patchwork pattern. The need for regulatory certainty, and the fact it was established by the 2015 plans, was a key basis for the Fish and Wildlife Service reaching its not warranted decision. 80 Fed. Reg. 59858. Yet now BLM is creating regulatory uncertainty. This raises questions about whether the sage-grouse will have to be given ESA protections, which in our view should be avoided. At a minimum, to avoid this uncertainty, the SFA protections we have mentioned, like the fluid mineral NSO stipulation with no waiver, exception, or modification, need to be made part of the PHMAs in states that no longer have SFAs. Moreover, BLM needs to address whether eliminating SFAs in some states will threaten SFA protections in Oregon and Montana where the SFA designation would remain in place. It would be inappropriate for SFAs to be threatened in Oregon and Montana just because they have been eliminated elsewhere. If BLM is going to treat SFA designation as subject to state-by-state revocation and not as a range-wide need-a proposition that is totally at odds with the Fish and Wildlife Service not warranted finding not to mention language in the 2015 land use plans-it needs to put in place provisions to ensure the SFA designations are protected where they remain and reconsider the proposals to eliminate SFAs.

Recent legal decisions support maintaining SFAs. There are two recent decisions that BLM should consider as it makes decisions about SFA designations. These are *W. Exploration, LLC v. U.S. Dept. of the Interior*, 250 F. Supp. 3d 718 (D. Nev. 2017) and *Desert Survivors v. U.S. Dept. of the Interior*, 2018 U.S. Dist. LEXIS 81922 (N.D. Cal., May 15, 2018). BLM frames *Western Exploration* as creating a need for these RMP amendments stating changes might be needed "in order to comply with the court's order" and "seeking comment on the SFA designation." 82 Fed. Reg. 47248-49 (Oct. 11, 2017). BLM

states that the court "held that the BLM violated NEPA by failing to prepare a supplemental EIS for the designation of SFAs in the 2015 Greater Sage-Grouse Plan in Nevada." *Id.* at 47248. In fact, Western Exploration does not direct BLM to eliminate SFAs from the land use plans. First, the court found that the BLM had adequately considered any inconsistencies between the Federal sage-grouse plans and local county plans. 250 F. Supp. 3d at 744. The court also found that the BLM met its multiple use responsibilities under FLPMA when it adopted the Nevada sage-grouse plan. *Id.* at 746. The proposed withdrawal of 2.8 million acres from mineral entry (i.e., the SFAs) did not violate FLPMA. *Id.* "A review of the administrative record shows that BLM considered the relative value of Nevada's resources." *Id.* While the court agreed that under NEPA "the designation of 2.8 million acres as Focal Areas in Nevada amounts to a substantial change relevant to environmental concerns, requiring the Agencies to prepare [a supplemental EIS]" the court nevertheless refused to enjoin the ROD implementing the Nevada plan, holding "protection of the greater-sage grouse weighs against vacatur of the RODs. Enjoining implementation of the Plan Amendments pending the Agencies' preparation of an SEIS presents "the possibility of undesirable consequences" to the greater sage-grouse species and their habitat." *Id.* at 748, 751. Based on this decision, the BLM is not required to eliminate SFAs, as it proposes, but rather, at most, it should only reconsider whether the SFA designations were made with a sufficient opportunity for public comment, and allow for additional public comment if warranted, making, possibly, only mid-course corrections, not summary eliminations. Further, as discussed above, in *Desert Survivors* the court determined that in withdrawing the proposed ESA listing of the Nevada/California bi-state sage-grouse population the FWS ignored the best available science, improperly concluding voluntary conservation measures could stem the decline of the population. The court held the Service "erred in concluding there was sufficient certainty of effectiveness of planned conservation measures to support the conclusion that listing" the bird as threatened "was no longer warranted." *Desert Survivors* at 71. "There are no rational grounds for the service's conclusion." *Id.* at 83. The court held that, "the service must offer some rational basis for its conclusions that future conservation efforts will be effective enough to improve the status of the bi-state (grouse) and therefore warrant withdrawal of the proposed listing." *Id.* at 64. In reaching its 2015 not warranted finding, FWS concluded that SFAs had a strong scientific basis and were a critical element in showing that BLM had put in place adequate regulatory mechanisms to make listing the sage-grouse unnecessary. Now the BLM is abandoning the commitment to implement SFA protections in much of the range of the sage-grouse. That decision is not based on best available science and must be reassessed.

Clearly the protections in SFAs that would be lost by eliminating SFAs must be maintained in the remaining PHMAs, and the land use plan amendments BLM is contemplating must so provide. The BLM should modify the EISs and proposed land use plan amendments in Idaho, Nevada, Utah, and Wyoming to specifically provide that the fluid minerals NSO stipulation with no waivers, exceptions, or modifications, the vegetation and conservation management stipulation, and where appropriate the prohibition on geothermal development will be specifically incorporated into and made a part of the PHMAs in those states.

In Oregon, the BLM states that SFAs presented "issues [that] require clarification of language in the 2015 ROD/ARMPA but do not require new analysis" and in any event the only issue that requires clarification relative to SFAs is withdrawal from mineral entry. Oregon Draft Resource Management Plan (RMP) and EIS at I-8. The BLM does not mention Montana in this NEPA analysis because that state desires to leave its 2015 sage-grouse plans intact. Therefore, SFAs would remain intact in Montana. But in Wyoming, Utah, Idaho, and Nevada elimination of SFAs would be pursued with little explanation. In Wyoming

"[u]nder the Management Alignment Alternative, there would be no designation of SFAs." Wyoming Draft RMP and EIS at 4-15. According to the BLM, the environmental impact of not having SFAs was considered in the no action alternative in the 2015 Approved Resource Management Plan Amendment (ARMPA), and in the other Wyoming RMPs that did not consider SFAs, the impacts of designating PHMAs encompassed the impacts of SFAs. *Id.* The BLM seems to believe that its 2016 Draft EIS for Sagebrush Focal Area Withdrawal concluded that SFAs had little conservation benefit and it is only interested in issues related to the nonexistent mineral withdrawal in any event. *Id.* at ES-3, 1-8, 4-16. In Idaho, BLM without explanation, states SFAs duplicate protections, focus on mere de minimis activities, do not provide appreciable benefits for sage-grouse, and they complicate the state's adaptive management provisions. Idaho Draft RMP and EIS at ES-3, 1-6. BLM concludes "[t]he removal of SFA designations would have no measurable effect on the conservation of Greater Sage-Grouse in Idaho because the Management Direction proposed for PHMA would remain in place and continue to protect Greater Sage-Grouse habitat. SFA removal would add flexibility for responsible development with stringent requirements including mitigation to achieve a no net loss to Greater Sage-Grouse habitat in PHMA." *Id.* at 4-10. In Nevada, BLM is again concerned about the nonexistent mineral withdrawal serving as a basis for SFAs and whether SFAs "adequately maintain conservation of Greater Sage-Grouse habitat . . ." Nevada Draft RMP and EIS at ES-3, 1-8, 2-8. In Utah BLM also raises the nonexistent mineral withdrawal as a basis for eliminating SFAs as well as questioning whether they achieve conservation outcomes and concerns about alignment with the state strategy. Utah Draft RMP and EIS at ES-3, 1-7.

The explanations for elimination of SFAs in these four states does not establish a clear basis for doing so especially when they would be maintained in Montana and Oregon. This differential treatment and the basis for it must be explained. Fundamentally BLM is creating regulatory uncertainty by creating this patchwork pattern. The need for regulatory certainty, and the fact it was established by the 2015 plans, was a key basis for the Fish and Wildlife Service reaching its not warranted decision. 80 Fed. Reg. 59858. Yet now BLM is creating regulatory uncertainty. This raises questions about whether the sage-grouse will have to be given ESA protections, which in our view should be avoided. At a minimum, to avoid this uncertainty, the SFA protections we have mentioned, like the fluid mineral NSO stipulation with no waiver, exception, or modification, need to made part of the PHMAs in states that no longer have SFAs. Moreover, BLM needs to address whether eliminating SFAs in some states will threaten SFA protections in Oregon and Montana where the SFA designation would remain in place. It would be inappropriate for SFAs to be threatened in Oregon and Montana just because they have been eliminated elsewhere. If BLM is going to treat SFA designation as subject to state-by-state revocation and not as a range-wide need-a proposition that is totally at odds with the Fish and Wildlife Service not warranted finding not to mention language in the 2015 land use plans-it needs to put in place provisions to ensure the SFA designations are protected where they remain and reconsider the proposals to eliminate SFAs.

These are important protections that must be maintained in priority habitat management areas (PHMA) if SFAs no longer exist in the four states. The value of these protections was recognized by the Fish and Wildlife Service in its 2015 not warranted decision, and thus are a key component of the land use plans that must be maintained if the not warranted decision is to be sustained, which it must be. "Based on our recommendation to further protect sage-grouse population centers that have been identified in the scientific literature as critically important for the species and areas identified through our analysis as important for conservation, BLM and USFS designated areas as Sagebrush Focal Areas (SFA) and added protections that would further limit new, human-caused surface disturbance in SFAs." 80 Fed. Reg.

59858, 59875 (Oct. 2, 2015). SFAs "are the areas that the Federal Plans manage as the highest priority lands in PHMAs for sage-grouse conservation (Figure 5)." Id. at 59878. They are "strongholds" for sage-grouse conservation and as mentioned above contain important connectivity habitat and high densities of breeding birds. Id. The Fish and Wildlife Service recognized that in addition to PHMA protections, the protections mentioned above would also apply in SFAs, including mineral entry withdrawal, NSO stipulations for fluid minerals with no waivers, exceptions, or modifications, and prioritizing management and conservation actions. Id. This was because SFAs need "the most conservative strategies to protect sage-grouse and habitat." Id. Grazing permit review is also prioritized in SFAs. Id. at 59877, 59910.

IMPORTANCE OF SAGEBRUSH FOCAL AREAS An important component of the existing BLM and Forest Service sage-grouse land use plans is the designation of sagebrush focal areas (SFA). These are the most important sage-grouse habitats, which contain large, contiguous blocks of Federal lands in important sage-grouse habitats that have high levels of population connectivity and densities of breeding birds.

E.3.22 Sage-Grouse

Current finding that listing is no longer warranted. In 2010, FWS determined that the greater sage-grouse warranted listing under the ESA "due to the loss and fragmentation of habitat and a lack of adequate regulatory mechanisms to stem habitat loss." In 2015, FWS concluded that the species no longer warranted listing, explaining the change in position in a Frequently Asked Questions accompanying its finding as follows: How did the Service arrive at this not warranted finding? In September 2015, the Bureau of Land Management and U.S. Forest Service completed amendments and revisions to 98 separate federal land use plans that address sage-grouse habitat loss, fragmentation, and other threats to the species. This represents the largest landscape-scale conservation planning effort in U.S. history. In addition, states in the greater sage-grouse range developed or updated greater sage-grouse conservation plans. New federal and state regulatory mechanisms developed since 2010 in the Rocky Mountain region have addressed the most serious threats to the species, primarily fossil fuel and renewable energy development, infrastructure such as roads and power lines, mining, improper grazing, the direct conversion of sagebrush to croplands, and urban and ex-urban development. In the Great Basin region, regulatory mechanisms and other conservation efforts developed since 2010 will substantially reduce and mitigate the primary potential threats of wildfire, invasive plants, conifer encroachment and mining.² Although actual, on-the-ground, measurable improvements to sage-grouse habitat were not accomplished simply by completing the federal plans in 2015, the measures agreed to in those plans, along with those by the states of Wyoming, Montana, and Oregon formed the basis for the FWS finding by meeting the elements of the agency's Policy for Evaluating Conservation Efforts (PECE), which provides that, in order to rely on a conservation effort, FWS "must find that the conservation effort is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species³ See, 68 Fed.Reg. 15100 (March 28, 2003) (emphasis added). FWS relied on this policy in its 2015 finding, stating: The [PECE] policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation efforts will be implemented and the effectiveness of the conservation efforts to contribute to make listing a species unnecessary. In this finding, we evaluated the certainty that the Federal Plans, and the Montana and Oregon Plans will be implemented into the future and the certainty that they will be effective in addressing threats, based on the best available science and professional recommendations provided in

the COT and other scientific literature and reports. 80 Fed.Reg. 59874 (October 2, 2015) (emphasis added).

BLM cannot rely on perch inhibitors to reduce impacts to sage grouse, as these do not address the behavioral avoidance of sage grouse of tall structures, and don't even completely prevent raptor perching. Prather (2010) provided an empirical test of the effectiveness of perch inhibitors on smaller distribution lines in Utah, and found that they had no significant effect in terms of reducing raptor perching activity. Lammers and Collopy (2007) found similar results for larger transmission lines in Nevada.

Geophysical exploration can result in numerous impacts to sage grouse, including crushing sagebrush, creating linear disturbances through sagebrush habitat that facilitate the movements of sage grouse predators, causing direct disturbance to birds, leading to stress and/or displacement from important habitats, and direct collision mortality. For these reasons, the National Technical Team (2011) recommended, "Allow geophysical operations only by helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply." The existing RMPAs neglect to provide definable seasonal restrictions on geophysical exploration in important sage grouse habitats, and also does not prescribe that low-impact techniques (i.e., heliportable methods) be applied, and the amendments to the RMPAs need to redress this deficiency.

THE DIRECTION OF THE OVERALL CHANGES TO THE 2015 SAGE-GROUSE PLANS RISKS THE FINDING THAT THE GREATER SAGE-GROUSE NO LONGER WARRANTS LISTING UNDER THE ENDANGERED SPECIES ACT. Although the FWS found that the greater sage-grouse no longer warranted listing under the ESA in 2015, the actions that this administration has taken and proposed are undermining the reasons for that finding, imperiling the species. Walking away from the vital commitments in the BLM's 2015 Sage-grouse Plans will have unavoidable consequences for the grouse, the more than 350 species that rely on the same habitat and the many stakeholders who have benefitted from the current, flexible management of millions of acres of public lands. If the administration continues on the present track, then: * Actual protections in BLM's 2015 Sage-grouse Plans - the "foundation" of FWS's 2015 not warranted decision - would be weakened or removed altogether, despite a wealth of science showing they are needed; * Commitments to implement and fund other meaningful protections will continue to be formally abandoned or made doubtful; and, * Without reliable, effective actions to address ongoing threats to greater sage-grouse, there will no longer be a basis for finding that a listing is not warranted, leading to action by the FWS and/or the courts to protect the species and its habitat.

The FWS's 2015 finding explicitly relied on specific conservation measures in BLM's 2015 Sage-grouse Plans to address major threats, such as oil and gas development. For example, with respect to oil and gas in the Frequently Asked Questions: How do the conservation actions address the threat of oil and gas development in greater sage-grouse habitat? Oil and gas development is likely to continue throughout the greater sage-grouse range into the future, although its form and extent across the landscape may change. For this status review, the Service mapped locations of the highest potential for oil and gas development in Montana, the Dakotas, Wyoming, Colorado and northeastern Utah to quantify potential exposure of greater sage-grouse to risk of future development. The Service's analyses indicate that the federal land use plans and the Wyoming Core Area Strategy are reducing exposure of the species to fossil fuel development, as measured by the portions of the breeding population and breeding habitat. The Service estimates that the vast majority of lands with a high- to moderate potential

for oil and gas development are outside Priority Habitat. Regulatory mechanisms further reduce the risk of nonrenewable energy exposure to the breeding population and breeding habitat by more than 35 percent in Montana, Wyoming's Powder River Basin and the Dakotas, and more than 60 percent in the rest of Wyoming and adjacent portions of Colorado and Utah

The NSO buffers in the plan are likely insufficient to protect wintering sage grouse. While surface disturbance could be prohibited up to 3.1 miles around leks, sage-grouse will still avoid development within 1.75 miles of wellpads and other development during winter (Holloran et al. 2015), or within 1.9 miles of wellpads during the breeding season (Holloran 2005), as discussed above. Thus, development near these buffer zones could still cause sage grouse to avoid otherwise suitable winter areas falling within lek buffer zones. No analysis shows that enough winter habitat will be left undisturbed under existing ARMPAs to support local populations. Absent a clear definition of "winter habitat" and "winter concentration area" and the distinction between the two, BLM should adopt a plan that provides adequate disturbance and vegetation protection for all identified winter habitats. In the current Plans, it is unclear whether these terms are interchangeable or distinct concepts. The NTT defines "winter concentration areas" as: Sage-grouse winter habitats which are occupied annually by sage-grouse and provide sufficient sagebrush cover and food to support birds throughout the winter (especially periods with above average snow cover). Many of these areas support several different breeding populations of sage-grouse. Sage-grouse typically show high fidelity for these areas, and loss or fragmentation can result in significant population impacts. NTT 2011, p. 37. Winter habitat, on the other hand, may be areas that have favorable sagebrush conditions for sage grouse throughout the winter, regardless of whether sage grouse annually occupy these areas. Wintering areas not utilized in typical years may become critical in severe winters. Caudill 2013. Thus, all winter habitat should be protected. Finally, as detailed in previous comments, BLM's winter habitat health objectives must have scientific support. These objectives should require 20-30% crown cover with shrub heights 25-35 cm above the median snow level, or greater than 40 cm in height, whichever is taller. See Center for Biological Diversity Nevada RMPA DEIS Comment, p. 22. PHMA designations may not be adequate to protect sage-grouse wintering habitats. For example, in Wyoming, Dinkins et al. (2016) found that PHMAs protected 62.5% of breeding locations in Wyoming, but only 50% of wintering habitats. These researchers recommended designating winter concentration areas outside PHMAs for elevated habitat protections. BLM should suspend mineral leasing and all other development activities until all winter habitat is identified. Identified winter habitats, whether inside or outside of Priority Habitats, should be closed to future mineral leasing and materials sales and withdrawn from locatable minerals entry. For valid existing rights both agencies should impose a 3% surface disturbance limit and one pad limit, both calculated per square mile section of winter habitat; No Surface Occupancy within 1.75 miles of the edge of wintering habitats; and no high-volume roads within 1.9 miles of wintering habitats. Wintering habitats should be seasonally closed to all vehicular access between November 30 and March 15. If BLM will not protect all winter habitat as requested, BLM should suspend mineral leasing and all other development activities in winter habitat until winter concentration areas are identified. These winter concentration areas should receive the same protections as the NTT recommends for priority habitats. BLM should also tailor winter habitat objectives to 20-30% crown cover with shrub heights 25-35 cm above the median snow level, or greater than 40 cm in height, whichever is taller.

Wastewater ponds associated with coalbed methane development form breeding habitat for the *Culex tarsalis* mosquitoes that transmit West Nile virus, and have been directly linked to increases in these mosquito populations (Zou et al. 2006, Doherty 2007). The National Technical Team (2011: 19)

observed that "ponds created by coal bed natural gas development may increase the risk of West Nile virus mortality in late summer (Walker et al. 2004, Zou et al. 2006, Walker 3 Id. 4 Green et al. at 9. 52 et al. 2007b)." In addition, Kirol et al. (2015b) found that coalbed methane wastewater ponds subsidize sage-grouse nest predators, and that pond shoreline length was the single greatest correlate with sage-grouse nest failure. Greater sage grouse have essentially no ability to develop immunity to West Nile virus (Naugle et al. 2004), and outbreaks of West Nile have led to catastrophic population losses of sage grouse in habitats developed for coalbed methane in the past (Walker et al. 2004). Sinai et al. (2017) found that sage-grouse did not produce antibodies against West Nile, and in addition were susceptible to avian leukosis virus. Taylor et al. (2012) found that the synergy of oil, gas and coalbed methane impacts and West Nile would result in the functional extinction of the Powder River Basin sage grouse population in Wyoming as a result of the next major West Nile virus outbreak.

Sage grouse avoid habitats 54 surrounding roads (Braun 1986, Holloran 2005, Wisdom et al. 2011). According to BLM's own NEPA analysis: Impacts on GRSG accrue over varying distances from origin depending on the type of development: ... ? Interstate highways at 4.7 miles (7.5 kilometers) and paved roads and primary and secondary routes at 1.9 miles (3 kilometers) based on indirect effects measured through road density studies (Connelly et al. 2004; Holloran 2005; Lyon 2000) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM has admitted that roads fragment habitats and interfere with natural movements of sensitive species, and with regard to road upgrades, "Any exceptions resulting in road upgrades could further fragment habitat, cause vegetation loss, erosion, and the spread of invasive, nonnative plant species." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-313 and 4- 294, respectively. BLM's own National Technical Team (2011: 11) recommended that at minimum, vehicle traffic in Priority Habitats be limited to designated roads and trails, use existing roads for access, limit construction to realignments of existing routes that minimize impacts to sage grouse, prohibit road upgrades that change route category, consider seasonal road closures, and conduct travel planning within 5 years, reclaiming roads and trails not designated for vehicular use. Road densities are also an issue, because sage grouse avoid habitats adjacent to roads. Holloran (2005) found that road densities greater than 0.7 linear miles per square mile within 2 miles of leks resulted in significant negative impacts to sage grouse populations. This road density should be applied as a maximum density in Priority and General Habitats, and in areas that already exceed this threshold, existing roads should be decommissioned and revegetated to meet this standard on a per-square-mile-section basis. BLM's proposed plan amendment fails to provide adequate limits on road density. Limiting road and trail networks and off-road vehicle travel also is critical in limiting the spread of invasive weeds. According to BLM's own NEPA analysis, "Roads and trails are one of the main vectors of invasive weed spread, which leads to increase in FRCC and ecosystems moving away from natural fire regimes (CEC 2012)." Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 701. Off-road vehicle travel must be adequately regulated to protect sage grouse under new plans. According to BLM's own analysis, off-road vehicles are noisy, and typically exceed the background noise levels by more than 10 dBA. Northwest Colorado Greater Sage-grouse RMP Amendment DEIS at 399. This level of noise exceedance has significant negative consequences for sage grouse, as outlined in the section of this protest addressing noise. Off-road vehicle use also results in habitat degradation and destruction, disturbance of sage grouse, and proliferation of invasive weeds (NTT 2011; see also Manier et al. 2011).

winter concentration areas should receive at least the level of protection from permitted industrial activities as recommended by NTT (2011) for priority habitats. As it stands now, unlimited surface

disturbance is allowed in all winter concentration areas and winter habitat outside of priority habitats, risking significant winter habitat loss. This EIS must discuss these impacts resulting from development and sagebrush removal in winter habitat or respond to comments noting these impacts. Nor does it provide any sense of the long-term impact of winter habitat loss on the persistence of local sage grouse in the planning area. Moreover, BLM must identify baseline winter habitat and winter concentration areas to create a science-based understanding of any plan amendment's impacts on wintering sage grouse. Even if it were proper for BLM to postpone the identification of winter habitat, the EIS must analyze any specific plans as to how and when this will occur or the criteria these areas must meet for winter habitat protections to apply. And the planning amendment must provide for interim protections for these areas until mapping is complete. In the absence of interim protections, it is thus entirely possible that sage-grouse wintering areas will be irreparably damaged and sage-grouse populations lost before they can receive minimal protections that apply today under the ARMPAs, let alone the full set of protections needed for winter habitat based on the science. At minimum, any leasing or development of parcels that potentially contain winter habitat should be suspended until winter habitat and winter concentration areas are fully mapped and designated appropriate protections. This is extremely critical: Without any restrictions on sagebrush removal in wintering habitats, the habitat loss will be permanent. See Minnick 2015 (well sites lacked favorable soil conditions decades after reclamation, preventing sagebrush regrowth); cf. FEIS 4-315 (winter concentration areas "could be difficult to restore to original conditions...due to the composition and size of sagebrush in these areas"). Indeed, to the extent the EIS relies on winter habitat restoration as "mitigation" for any habitat loss, this is wishful thinking. Even a short-term loss of winter habitat would likely be detrimental to sage grouse dependent on these areas

E.3.23 Travel and Transportation Management

Travel planning should be carried out to address the risks of habitat destruction and fragmentation acknowledged in the plans.

E.3.24 Waivers, Exceptions, and Modifications

Waivers, exceptions and modifications to oil and gas lease stipulations must be subject to narrow and specific criteria so they are consistently and reliably applied, and can be effective as intended. In addition, applications for and responses to waivers, exceptions and modifications should be tracked and made available to the public.

Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. Accordingly, we recommend that each plan include language that provides: Exceptions will be considered prior to considering waivers or modifications. If the BLM determines that a waiver or modification is more appropriate, the reasons for such decisions will be documented. Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with the appropriate state wildlife agency. Modifications and exceptions are permitted if: (1) impacts are fully and verifiably offset by compensatory mitigation; or (2) there are no impacts to greater sage-grouse because of terrain or habitat type, based on consultation with the applicable state wildlife agency. Prior to granting any waivers, exceptions and modifications, BLM will insure that the U.S. Fish and Wildlife Service has the opportunity to submit information for

consideration. For no surface occupancy stipulations or stipulations in Priority Habitat Management Areas, waivers exceptions and modifications will only be granted following a 30-day public notice and comment period. BLM will maintain an ongoing record of requests for waivers, exceptions and modifications and whether those requests are granted, and will publish those cumulative results on a quarterly basis.

V. RECOMMENDED APPROACH TO WAIVERS, EXCEPTIONS AND MODIFICATION TO OIL AND GAS LEASE STIPULATIONS. The 2015 Sage-grouse Plans include numerous oil and gas lease stipulations that apply to development in order to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations. The draft amendments and EISs also rely on lease stipulations. However, the protections actually provided by the stipulations are only reliable and effective to the extent that the safeguards are applied. Waivers (permanent exemption that applies to the entire leasehold), exceptions (one-time exemption for a particular site within the leasehold) and modifications (change to the lease stipulation, either temporarily or for the term of the lease, can apply to the entire leasehold or certain areas) all permit an operator to avoid compliance with the requirements of a stipulation. Where these loopholes are permitted and used, the protections that the stipulations are supposed to provide can be undermined. Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding.⁴⁶ Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. While we can accept narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria, broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS are not acceptable. As an example, the general approach conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are more specific and include public engagement. * Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with Colorado Parks and Wildlife and following a 30-day public notice/comment period * Modifications and exceptions are permitted if: (1) impacts are fully offset by compensatory mitigation; or (2) no impacts to greater sage-grouse would occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks and Wildlife. CO Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Overall, one-time exceptions should be the preferred approach where relief is sought from protective stipulations, such that the safeguards prescribed in these stipulations will remain in place for the majority of oil and gas leases. Waivers, exceptions and modifications should only be granted from no surface occupancy (NSO) stipulations or any stipulations in PHMA after a 30-day public notice and comment period. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications.

E.4 WYOMING-SPECIFIC COMMENTS

E.4.1 Purpose and Need

Illegal Purpose & Need Unfortunately, BLM's stated need for the EIS unlawfully restricts its consideration of alternatives and mitigation measures. The stated need is: The purpose of this land use plan amendment process is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy. By limiting the purpose to "enhanc[ing] cooperation with the states" and "better align[ing] with individual state plans," BLM forecloses management options that enhance sagegrouse habitat and populations that are outside of state plans. BLM has a duty

independent from the states to protect and restore wildlife habitat on federal land and to manage lands for multiple use, including sagebrush ecosystems. BLM also has a duty to protect and restore habitat disturbed by federal energy development, including extensive oil and gas development across Wyoming's landscape. BLM's management obligations under FLPMA should guide the agency's consideration of alternatives. Additionally, BLM has lost its purpose and need from the original management plans, importantly including the need to create plans that will prevent a listing of the sage-grouse as threatened or endangered. It is in everyone's best interest to prevent a listing and BLM's plans must ensure that will happen. As demonstrated by the numerous scoping comments received by BLM, Wyomingites and citizens across the Western U.S., including farmers, ranchers, and other key stakeholders, support strong management options to protect and restore sage-grouse habitat. We ask BLM to listen to its constituents, rise above the political rhetoric, and maintain its commitment to doing its part to solve one of the greatest conservation problems facing our nation. BLM's purpose and need should be redrafted to clearly state the conservation and protection goals of the agency (and the public). Specifically, BLM should affirm that a core purpose is to maintain the FWS's "not warranted" decision.

BLM's Purpose and Need for Action Violates NEPA The DEIS states that the purpose and need for the action "is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." DEIS at 1-2. This statement of purpose and need violates the National Environmental Policy Act by foreclosing consideration of any alternative that does not "align with individual state plans..."

While BLM has some discretion over a project's "purpose and need," that discretion is not unlimited. BLM may not, for example, define the "purpose and need" so narrowly that it forecloses consideration of a reasonable range of alternatives. *Westlands Water Dist. v. U.S. DOI*, 376 F.3d 853, 867 (9th Cir. 2004); see also *City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("... an agency cannot define its objectives in unreasonably narrow terms."). Nor may BLM simply adopt the "purpose and need" advanced by a project proponent. *National Parks Conservation Ass'n v. BLM [NPCA]*, 606 F.3d 1058, 1070-72 (9th Cir. 2010). Yet, that is exactly what BLM has done here. It has developed an unreasonably narrow "purpose and need" for the Draft EIS that forecloses consideration of any alternative that does not "align with individual state plans. . . ." See DEIS Section 1.2. Further, it is apparent that this "purpose and need" was defined not by BLM, as required by NEPA, but by the states/project proponents. Thus, BLM's "purpose and need" is fundamentally flawed and corrupts the range of alternatives, along with other aspects of the Draft EIS. In order to provide a satisfactory response to the USFWS' "not warranted" finding, the BLM should redefine the purpose and need statement to reflect the statement as presented in the 2015 plans: "to develop and adopt 'adequate regulatory mechanisms' that would address the long-term 'conservation needs of the species' as the guiding and principal purpose for the sagegrouse planning process." See, e.g., ES-2 Wyoming GRSG Proposed LUPA/Final EIS May 2015. With a proper statement of purpose and need framing the analysis, the BLM would be able to develop one or more alternatives that meet that purpose and need while also more closely aligning with Wyoming's GSG conservation plan.

BLM's Purpose and Need for Action Violates NEPA The DEIS states that the purpose and need for the action "is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." DEIS at 1-2. This statement of purpose and need violates the

National Environmental Policy Act by foreclosing consideration of any alternative that does not "align with individual state plans..."

If the BLM seriously seeks to meet the "purpose and need" set forth in the RMPA, the document must clearly state one key and previously generally understood underlying assumption, namely the Wyoming sage-grouse strategy and Framework have been evaluated and the integration of the plan components into the RMPA is the preferred alternative for meeting the "purpose and need" of the RMPA. Such a conclusion draws heavily upon the work already done in the 9 Plan Amendment as well as the RMPA. The integration or alignment with the state plan would necessarily be as the plan existed on a date certain. If Wyoming decides to change its plan at a later date, such action would not automatically change the resource management allocations in the 9 Plan Amendment, RMPA and underlying RMPs. BLM would have a separate decision and NEPA compliance process to determine whether it was appropriate and legal for BLM to adopt any subsequent proposed change as federal policy. This works as a practical matter. BLM sits on the Wyoming SGIT and would be part of the discussions related to any modification of the State plan.

Pages ES-2 and I-2: Purpose and Need Statement. The purpose and need statement should more clearly express the need for the amendments. The reader can infer why the amendments are needed, but a more clear statement about the need would be helpful.

E.4.2 Issues

Analysis for the Proposed Action's combined components and instead relies primarily on the effects analysis in the 2015 EIS. Importantly, the 2015 EIS assessed the impacts of the overall management strategy (i.e. the combination of components) for each Action Alternative and did not independently assess the environmental effects of each component of the alternatives. For the Final EIS, we recommend that BLM consider the combined components in the Proposed Action, in the context of changes since the 2015 FEIS/ARMPA (e.g. withdrawal of Sagebrush Focal Areas and recent modifications to compensatory mitigation policy) to assess overall impacts to greater sage-grouse populations and trends.

Improving the Effects Analysis The Proposed Action includes management action components (labeled in the 2018 Draft EIS as "Issues") drawn from alternatives analyzed in 2015. The Draft EIS does not include a stand-alone effects

E.4.3 Livestock Grazing Management

Livestock grazing. Despite promises in 2015 to prioritize the review and processing of grazing permits and leases in sage-grouse habitat, BLM didn't even send IMs to the states with instructions in how to do so until September 2016. The initial spreadsheet for each state was ostensibly then due Feb 1, 2017 (IM 2016-141) but was not completed and provided to the public until April 6, 2017. Then, in August 2017, Secretary Zinke decided to overhaul the prioritization scheme again, stating "Revise prioritization IM to develop methods to quickly assess and report conditions on areas where proper grazing is occurring and supporting quality habitat, and focus on problem areas." Most recently, in December 2017, IM-2018-024 was issued and superseded prior policies and instead prioritized the completion of land health assessments in accordance with its new scheme, which is to be informed by a host of conditions. See <https://www.blm.gov/policy/im2018-024>. Basically, the prioritization schemes will be determined at the level of every field office, with no consistency requirement across BLM lands and no certainty of timeline

for completion. There are serious flaws with this approach. The first is that a large number of grazing allotments have never had rangeland health assessments conducted, so the ability to discern which areas have "proper grazing" is necessarily limited to the data that have ever been assessed. See PEER, <https://www.peer.org/campaigns/public-lands/public-lands-grazing-reform/blmgazing-data.html>. Additionally, not all states have Standards and Guidelines specific to sagegrouse habitat nor is monitoring necessarily occurring in seasonal habitats (if these habitats are even mapped), so there is not really a way to determine if "quality habitat" is being provided at a broad level. The earlier IM proposed prioritization based on the significance of habitat, starting with SFA and then PHMA, ensuring that the most important places are protected first, and this is a more reasonable way to approach the task at hand. Because land health evaluations prior to the 2015 ARMPAs didn't specifically address sage-grouse habitat parameters, even meeting land health standards in the past doesn't mean that the grazing allotments are providing necessary vegetation cover and ecological function for sage-grouse now.

Moreover, under FLPMA § 402(C)(2), the agency automatically renews permits in sagegrouse habitat pending review without any changes in terms and conditions. BLM has argued that this provision of FLPMA indefinitely defers compliance with all applicable laws," including the rangeland health regulations. See Defendants' Memorandum in Support of Motion for Reconsideration, Case 4:08-cv-00435-BLW, Dkt. No. 279-1 (D. Idaho Jan. 11, 2008), at 9-10, 18-19. This means that the grazing permits are never in jeopardy of actually expiring, and it serves as a disincentive for field offices to take a timely look, budget accordingly, or face the prospect of a contested grazing permit renewal decision. Western Watersheds Project sees strikingly few grazing permit renewals done with NEPA, proving that the BLM is not just not prioritizing sage-grouse habitat protection, but is not prioritizing grazing issues at all. Thus the reliance on rangeland health evaluations to correct for livestock impacts to sage-grouse habitat is misplaced, as the agency has focused extensively on wiggling out of these requirements even in critical sage-grouse habitat. Where BLM is proposing grazing projects in sage-grouse habitat, it is relying heavily on the vague and wishy-washy language of the existing plans to justify status quo proposals for heavy infrastructure, sage-grouse habitat notwithstanding. For example, Western Watersheds Project has appealed the Three Creeks decision in Utah that allows 24 new miles of fencing, 85 new troughs, and 91 miles of water pipelines - in what is nearly entirely Sagebrush Focal Areas within PHMA. There are eight leks in the project area and four within 1.2 miles of the project boundary. There are several rangeland health standards not being met due to livestock grazing. Rather than follow the lek buffers of the Utah ARMPA, prioritize sage-grouse habitat needs, and reduce grazing, the proposed action arbitrarily decides the project is on the balance "good for sage-grouse" and doesn't need to conform to the ARMPA requirements.

It appears that the current amendments are specifically designed to greenwash the reality that livestock grazing adversely impacts sage-grouse habitat. This follows the 2017 Zinke Report that indicates BLM's desire to rewrite the narrative about the adverse impacts of livestock grazing on sage-grouse habitats. It describes, "[A] perception of undue emphasis on livestock grazing in general instead of a focus on improper grazing." Zinke Report at 7. But there is no right way to do a wrong thing, and the direct and indirect impacts of livestock grazing are widespread and aren't restricted to effects related solely to vegetation parameters. From plant community conversion to flushing to predation to infrastructure to stress hormone responses, the presence of livestock in sage-grouse habitat is adversely impacting these populations. Extensive, long-term scientific literature has confirmed that livestock grazing adversely affects sagebrush ecosystems. Daubenmire (1970) described the lower resilience of sagebrush plant communities to grazing. In addition, Mack and Thompson (1982) discussed the myriad harmful effects of

livestock grazing to intermountain and Great Basin sagebrush communities that evolved without large herds of hooved mammals. Fleischner (1994) and Belsky and Gelbard (2000) reviewed the many harmful impacts of livestock grazing to arid western lands, including alteration of plant community composition and structure. Anderson and Holte (1981) described significant increases in perennial grass and shrub cover after grazing was removed from sagebrush lands in southeastern Idaho-perennial grass cover increased exponentially and shrub cover was 154 percent greater.

Livestock also may compete directly with sage-grouse for rangeland resources. Cattle are grazers, feeding mostly on grasses, but they will make seasonal use of forbs and shrub species like sagebrush (Vallentine 1990, p. 226) ... in general, forb consumption may reduce food availability for sage-grouse. This impact is particularly important for prelaying hens, as forbs provide essential calcium, phosphorus, and protein (Barnett and Crawford 1994, p. 117). A hen's nutritional condition affects nest initiation rate, clutch size, and subsequent reproductive success (Barnett and Crawford 1994, p. 117; Coggins 1998, p. 30).

The FWS articulated the threats of infrastructure in the 2010 Finding thusly: Fences: Another indirect negative impact to sage-grouse from livestock grazing occurs due to the placement of thousands of miles of fences for livestock management purposes. Fences cause direct mortality through collision and indirect mortality through the creation of predator perch sites, the potential creation of predator corridors along fences (particularly if a road is maintained next to the fence), incursion of exotic species along the fencing corridor, and habitat fragmentation (Call and Maser 1985, p. 22; Braun 1998, p. 145; Connelly et al. 2000a, p. 974; Beck et al. 2003, p. 211; Knick et al. 2003, p. 612; Connelly et al. 2004, p. 1-2).

Livestock Grazing: Please select the No Action Alternative – “Adequate Nesting Cover greater than or equal to 7 inches or as determined by ESD site potential and local variability.” The proposed change would eliminate consideration of a scientifically valid standard at the start. Adequate vegetation cover is necessary to protect nesting birds, nests, eggs, nestlings and young from sharp eyed predators. Adequate vegetation cover is necessary to protect chicks from predation as they seek water. Stomped out or overgrazed riparian areas, waterholes and springs make it difficult for chicks to survive the daily trip to get a drink of water – as they are easily seen by predators as they traverse open areas. Adequate vegetation cover is required to produce the bugs that the chicks rely on for survival as they grow. If you start with the concept that “we’ll figure out what the proper residual forage measurement is..” then it will never be studied nor monitored and arguments will continue while sagegrouse are lost.

Terms and Conditions for Livestock Grazing must remain as indicated in the No Action Alternative. If impacts to sagebrush and sage grouse occur it will be too late to recover Greater Sage-Grouse, especially since monitoring is routinely underfunded by Congress or not funded at all.

NTT Inaccurately Describes the Impacts of Domestic Livestock and Wild Horse Grazing a. Livestock Grazing Impacts The NTT Report unilaterally targets domestic livestock grazing and provides only a cursory analysis of wild horse and other ungulate impacts on rangeland conditions. The 2015 FEIS adopts the NTT Report for grazing guidance even though the Wyoming EO 2011-5, 2015-041 concluded that appropriate grazing is actually beneficial to sage-grouse habitat. As the Coalition and others have repeatedly emphasized, even USFWS in COT acknowledged that proper grazing could benefit the habitat. The NTT Report betrays sound management principles as it exhaustively lists domestic grazing restrictions, such as fences, exclosures, water developments, vegetation treatments, dispersing grazing

animals, changing seasonal pastures, and retiring grazing privileges over three pages. See NTT Report at 14-18. Even more strikingly, the NTT Report begins by listing five potential impacts of "herbivory on sage-grouse and their habitat" and immediately follows that list with a paragraph discussing livestock without addressing the similar effects by wild horses or other ungulates such as antelope, mule deer, or elk. The Report omits contradictory findings that proper livestock grazing actually benefits GRSG habitat and viable populations. J. Cagney, et al., *Grazing Influence, Objective Development, and Management in Wyoming's Greater Sage-Grouse Habitat* (2010). The 2015 Plan repeat and adopted NTT approach and then made stubble height and canopy binding. As documented in WSI, this treatment of grazing lacked any objective data other than the potential for raptors to perch on fences. The theory that livestock water breeds mosquitos has been largely discounted as the grouse appears to have adapted to the West Nile Virus. Attach. 3b, WSI at 32-33.

Eliminate Habitat Assessment Framework Even if the Habitat Assessment Framework ("HAF") is labeled as an "assessment" tool rather than a set of standards, the values in the HAF are based in the same flawed research as Table 2-2 and field offices will "assess" sage-grouse habitat on the basis of faulty assumptions and imprecise science. Merely clarifying the use of HAF will do nothing to resolve the fact that the HAF is flawed itself. The amount of variability on rangelands, (i.e. soils, timing and intensity of local precipitation, temperature fluctuations, wind, aspect, present or absence of seasonal/year long use by insects/other grazers, etc.) makes it nearly impossible to credibly offer as a management trigger or threshold any single number (i.e., 7", etc). It's still very hard to have even a credible science-based objective with a high level of confidence that the objective can be achieved even on a small scale. Attempts to extrapolate from site-scale assessments on rangelands have very little credibility because sample size has to be massive to obtain any statistical reliability. Almost all rangeland ecological sites are actually complexes of all kinds of variables. Asking any field office to attempt such herculean task is a fools errand. The Coalition has worked exhaustively with the HAF and it is very clear that the HAF was developed with very little, if any, scrutiny from the Range Science profession. It was developed and supported by mostly wildlife agency personnel or environmental groups, many with a real bias against livestock grazing in general, let alone grazing as it affects sage-grouse habitat. There is very little - often no - research to support even the concept that it is even possible to come up with, for instance as an example, how much of a forb community either helps or harms sage-grouse chicks post hatch or how many, and what kind of insects help chick survival. The heavily relied upon literature for stubble height, as we now know, just does not support a positive correlation between a particular number and a particular benefit to sage-grouse. And, on riparian areas, grouse prefer a mosaic of ecological conditions, (they love dandelions, a non-native species), not climax conditions and plant communities as defined by the NRCS. The NRCS Ecological Site Descriptions contribute almost nothing of value to this subject because they still don't contain much, if any, data on the subjects in Table 2-2. As a result, ESD's do not qualify the values in the Table or curtail the negative impacts those values would have on range management.

Page 4-17, **Livestock Management - Permit Renewals** includes the statement "This management change is commensurate with the threat grazing poses to Greater Sage-Grouse and relies on BLM's exiting grazing regulations." SER CD requests this statement be replaced with "Any adjustments to livestock grazing permits at the time of permit renewal will be done according to existing regulations for livestock grazing management (43 CFR 4100) and only after BLM has collected the appropriate trend data, performed a Standards Determination, determined causal factor(s), and completed a Conformance Review supporting the adjustment." Livestock grazing is compatible with GRSG conservation and can have a

positive impact on the species. In fact, in the 2015 non-warranted for listing decision, the U.S. Fish and Wildlife Service specifically recognized that livestock grazing is not a major threat to sage-grouse.

Page 4-17, Livestock Management - Existing Range Improvement Structures. The narrative is not clear as to what is changing. We request clarification as to how existing range improvement structures that go unevaluated for long periods suddenly have the potential for a local adverse impact on greater sage-grouse. Please rewrite the narrative to make clear for the reader.

Pages 4-17 and 4-18, Livestock Management - Riparian Area Management. This section has an overly negative tone toward livestock grazing. All livestock grazing management should be addressed as previously stated according to existing regulations for livestock grazing management (43 CFR 4100). Specifically, in the second paragraph SER CD suggests replacing "if needed" with "based upon existing regulations for livestock grazing management (43 CFR 4100)" after the phrase "Livestock grazing management would be adjusted". Again, livestock grazing is compatible with GRSG conservation and can have a positive impact on the species. In fact, in the 2015 non-warranted for listing decision, the U.S. Fish and Wildlife Service specifically recognized that livestock grazing is not a major threat to sage-grouse.

I think the standard for grass height to be 7 inches is way off the mark. These animals are developing in habitats that are grazed, allowing them to see predators from a greater distance if there is less standing forage. Habitat objectives are not standards. I think they are very subjective and it is hard to mark that progress of meeting that standard when it is a moving target. I think the land health standards are pretty good, I do not think you need to reanalyze those for the renewal of a grazing permit.

Grazing and Table 2 - WACD disagrees with the BLM decision to leave Table 2 in the Greater Sage-Grouse (GRSG) RMP amendment. Simply put, Table 2 was not included in the 2015 WY LMP Draft Environmental Impact Statement and the public did not receive adequate notice and opportunity to comment on or participate in the GRSG RMP Amendment/Revision process that culminated in the 2015 Wyoming Record of Decision for the RMP Amendment; therefore, eliminating Table 2 would be the appropriate course of action by the BLM.

To begin with, we would recommend that any grazing related applications of the 2015 plan amendments be deferred until the finalization of the proposed plan amendments under consideration here. This would help reduce confusion and help avoid ill feelings between permittees and the Agency. Additional clarity and flexibility to help permittees and BLM collaborate on projects and management of sage grouse habitat and sagebrush systems would also be helpful in building goodwill.

Improper Grazing Change Improper Grazing to Improper Ungulate Grazing. Livestock are the only grazers on the range who are efficiently and effectively managed for stocking density and duration. All grazers on the range should be held to their appropriate management level or management objective. Adding the term ungulate will better reflect the variety of grazers utilizing the range. The Conservation Objectives Team (COT) Report supports this change as their report identifies a key conservation objective of: "Conduct grazing management for all ungulates (emphasis added) in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage-grouse (e.g. shrub cover, nesting cover)."

Livestock Grazing The Fish and Wildlife Service has recognized livestock grazing as not only compatible with SageGrouse conservation, but also as not posing a major threat. Livestock grazing is a known, highly controllable factor that should be used as a tool to improve the diversity of plant communities, quality of cover and to reduce the risk of wildfires; among other habitat improvements. BLM should list and recognize the positive attributes that livestock grazing can provide.

Significant Causal Factors The term "significant causal factor" must be further defined and parameters must be set for what merits a 'significant' determination. Furthermore, all contributing grazers must be taken into account, not just livestock. Parameters should be set for how populations of other ungulates on the range will be managed in response to their contributions towards causal factors.

Vegetation Guidelines - WCCD supports the removal of a stubble height requirement for non-woody native vegetation as it relates to evaluating GSG habitat on grazing allotments. As anyone familiar with Wyoming rangeland knows, the production of native herbaceous vegetation is highly dependent on annual precipitation amounts and timing. An arbitrary height requirement cannot be used as a method of rangeland health assessment. WCCD supports the use of Ecological Site Descriptions and the identified "state," and precipitation data, to assess the ability of vegetation to attain production values such as height.

Advise local BLM offices to defer any grazing related applications of the 2015 Plan Amendments until these Draft Amendments are finalized.

Grazing I also call attention to the subtle, yet critical adjustments that are outlined in my attached detailed comments addressing the Draft EIS sections related to habitat and grazing. The RMPs spend an inordinate amount of time on an issue that is generally regarded as non-threatening to the species. If the BLM must address grazing in such detail, then it is essential that the guidance be applied correctly. While the suggested changes may seem minor, use of correct terminology and application will continue to enhance the cooperation we have in Wyoming on all lands. These suggested changes are important to continuing the positive influence land managers can have on Greater sage-grouse habitat, and are important to consistent application of management.

ES-7 Livestock Grazing "Previous management" is unclear and could be either 1985 or 2015. Impacts associated with minor changes would not result in impacts to sage grouse due to livestock grazing.

4-16 and 4-17 Livestock Management - Permit Renewals Paragraph 1 references page 4-90 which states: "Adjustments to livestock grazing management would impact livestock grazing permittees/lessees on allotments managed by the BLM not meeting the Wyoming Standards for Rangeland Health due to existing livestock grazing management. Such adjustments could include season-of-use changes, changes in stocking rates, implementation of improved grazing management practices (e.g., growing season deferment, riparian pastures, and exclosures), forage utilization limits, and conversions in kind or type of livestock. Such management changes could result in increased operating costs to the livestock operator. There are 186 out of 574 BLM allotments within core habitat not meeting the current RMP standards due to livestock grazing. Adjusting grazing practices during times of drought would occur across the National Forest and BLM Field Offices. Although these actions would help to enhance rangeland conditions and increase long-term forage production, animal unit months (AUMs) use could also decrease for some operators." While impacts may be similar to livestock grazing permittees, this section implies there would be a negative impact to GRSG. Changes proposed in this analysis would not be

similar to the No Action Alternative from 2015 because there are still management prescriptions for GRSG where there would have been none under the No Action Alternative from 2015. Paragraph 2 does not reflect reality or information provided earlier in the document. Please incorporate our edits. Paragraph 3 was not accurate. Please incorporate our edits. Paragraph 4 is redundant and confusing. Remove. Paragraph 5 is redundant with exception of the last sentence regarding "balancing grazing in upland and riparian areas". The last sentence was added to paragraph 3 revisions (highlighted) Paragraph 6 says changes would remove all management for GRSG and is incorrect. Changes proposed would keep management similar to the current management (No Action). Please incorporate our edits.
(PARAGRAPH BY PARAGRAPH TRACK-CHANGES EDITS FOUND ON P.4 OF ATTACHED COMMENT MATRIX)

4-17 Livestock Management Existing Range Improvement Structures "The impacts associated with the proposed change to MD LG 8 from the ARMPA would be minimal. The only changes between the existing management decision and the Management Alignment Alternative is to remove the requirement for the BLM to assess the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements. The potential for modification of those improvements identified as posing a risk would be evaluated and the requirement in GHMA would be removed. The BLM would be required to analyze the impact of modifying range improvements, regardless of habitat type, and the risk to Greater Sage-Grouse and other resources would need to be evaluated in any case. Because of this, there would be minimal differences between the impacts of these alternatives; however, there is the potential for increased risk of exposure to West Nile virus or other risks to Greater Sage-Grouse if structural range improvements go unevaluated for long periods; therefore, there is the potential for a local adverse impact on Greater Sage-Grouse if existing range improvements are not periodically evaluated for risks to Greater Sage-Grouse." This is incorrect; changes to MD LG 8 do not "remove the requirement for the BLM to assess the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements." MD LG 8 says: "In PHMAs, existing range improvements (e.g., fences, livestock/wildlife watering facilities) will continue to be evaluated and modified when necessary. Supplements and supplemental feeding will continue to be authorized where appropriate." which would require the BLM to "continue to evaluate and modify when necessary" meaning they would have to analyze them. Changes proposed in the Management Alignment Alternative remove redundant and unnecessary language, not requirements to analyze range improvements in PHMA.

4-17 and 4-18 Livestock Management - Riparian Area Management See comments above on MD LG 10. Changes proposed by WDA in MD LG 10 would make this analysis incorrect and Chapter 4 should be updated to reflect this.

Livestock grazing is compatible with GRSG conservation and can have a positive impact on the species. In fact, in the 2015 non-warranted for listing decision, the U.S. Fish and Wildlife Service specifically recognized that livestock grazing is not a major threat to sage-grouse. 10. Page 4-17, Livestock Management - Existing Range Improvement Structures. The narrative is not clear as to what is changing. We request clarification as to how existing range improvement structures that go unevaluated for long periods suddenly have the potential for a local adverse impact on greater sage-grouse. Please rewrite the narrative to make clear for the reader. 11. Pages 4-17 and 4-18, Livestock Management - Riparian Area Management. This section has an overly negative tone toward livestock grazing. All livestock grazing management should be addressed as previously stated according to existing regulations for livestock grazing management (43 CFR 4100). Specifically, in the second paragraph SER CD suggests

replacing "if needed" with "based upon existing regulations for livestock grazing management (43 CFR 4100)" after the phrase "Livestock grazing management would be adjusted". Again, livestock grazing is compatible with GRSG conservation and can have a positive impact on the species. In fact, in the 2015 non-warranted for listing decision, the U.S. Fish and Wildlife Service specifically recognized that livestock grazing is not a major threat to sage-grouse.

Page 2-6, Management Objective #6: This is another troubling example of this document and its apparent general intent as I read it on its own. The Management Alignment Alternative proposes to eliminate the commitment to include at least one alternative that conserves, restores, or enhances Greater Sage-Grouse habitat in the NEPA document prepared for grazing management if an effective grazing system that meets Greater Sage-Grouse habitat requirement is not already in place. This suggests that the BLM is unwilling to consider implementing grazing practices that help conserve the species. Am I confused about the intent of this proposal?

Page 4-16, Livestock Management - Riparian Area Management: The proposal would potentially disrupt and impact nesting and early brood-rearing habitat for Greater Sage-grouse in both PHMA and GHMA. Although nesting may be limited in riparian areas, risking impacts to early brood-rearing, especially along the ecotone between riparian and upland habitats is imprudent. Not balancing livestock grazing to promote beneficial forbs and grasses in nesting and early brood-rearing habitat, especially in GHMA within current occupied Sage-grouse range seems to lack the abundance of caution needed to recover this species. At the listening session in Cheyenne, the BLM indicated that it has been directed to remove balancing livestock grazing with the needs of Sage-grouse from the document. Another step backward.

E.4.4 Habitat Boundary/ Habitat Management Area Designations

Failure to Adequately Identify and Protect Priority Habitats. The 2015 Plans did not adequately identify and protect priority habitats. They identified sage-grouse habitat-in the process, reducing it by millions of acres from the COT Report PACs-then divided it into three or more categories: Sagebrush Focal Areas (SFAs), Priority Habitat Management Areas (PHMAs) , and General Habitat Management Areas (GHMAs) are present in most Plans, while the Idaho and Southwestern Montana EIS includes Intermediate Habitat Management Areas (IHMAs), the Nevada and Northeastern California EIS includes Other Habitat Management Areas (OHMAs), and the Wyoming Plans identify "core" and "connectivity" PHMAs. The agencies did not include all key sage-grouse habitats within the priority habitat designations, including all PACs and winter habitats; or encompass all SG populations and sub-populations in priority habitats. Since they did not map or identify winter habitats, they also did not apply the protections the science recommended to these important habitats. In addition, they did not consider or adequately plan for connectivity between priority habitats, providing only downgraded protections to the few habitats (mostly GHMA) supposedly intended to ensure connectivity. Each category of habitat carries its own management scheme. The only category of habitat that imposes something close to the protections the NTT and COT Reports recommended for priority habitats, including requiring any fluid mineral leasing to occur only subject to No Surface Occupancy and withdrawing the lands from locatable mineral exploration and development, is SFAs. The other two categories rely on lesser protections, some of which are proven not to work to protect sage-grouse. Now, the 2018 proposed plans seek to do away with SFA designations, reducing the protections afforded to these most significant (albeit narrowly defined) habitats. They also eliminate all or almost all protections afforded GHMAs, so that the designation is empty. Even more importantly, BLM in many cases adopts measures that provide inadequate protections based on the available science, which outlines thresholds at which significant

impacts can be expected. The lack of sufficient regulatory mechanisms to conserve sage-grouse and their habitats was identified as a primary threat leading to the USFWS warranted but precluded finding in 2010. 75 FR 13910. BLM will need to employ this plan amendment process to upgrade the existing RMPAs to meet the level of protection recommended in the National Technical Team Report at minimum in order to represent effective conservation measures that have some chance of obviating the need to list the greater sage-grouse in general, and the Northern Great Plains population in particular, as Threatened or Endangered. We are concerned that BLM may not fully apply conservation measures identified in the RMP revision, using agency discretion to create loopholes in cases where project proponents find mitigation measures to be onerous. This concern is underscored by repeated references throughout the document to exceptions granted to plan standards either with or without compensatory mitigation. RMP language should be clearly articulated that standards are indeed standards and will be applied rigorously throughout the life of the Plan.

BLM Must Designate Priority Habitats As Sage-Grouse ACECs. FLPMA requires that the BLM give priority to designating Areas of Critical Environmental Concern ("ACECs") in the land use planning process. 43 U.S.C. §§ 1701(a)(11), 1712(c). The priority afforded ACECs reflects Congress' intent to elevate the designation and protection of ACECs over BLM's default management for "multiple use." *Rags Over the Arkansas River, Inc. v. Bureau of Land Mgmt.*, No. 12-CV-0265-WJM, 2015 WL 59471, at *10 (D. Colo. Jan. 2, 2015) (citing 43 U.S.C. § 1732(a)). Indeed, the legal definition of priority is "[t]he status of being earlier in time or higher in degree or rank; precedence." *Black's Law Dictionary*, 1001 (8th ed.). Consistent with Congress's intent and with this legal definition, courts have generally held that where something holds a "priority," it comes first. See e.g. *Bramwell v. U.S. Fidelity & Guaranty Co.*, 269 U.S. 483, 490 (1926); *Western Watersheds Project v. Bennett*, 392 F.Supp.2d 1217, 1227-28 (D. Idaho 2005). Courts have also held that no priority has been afforded where a particular use has been given equal status to other uses. See e.g. *Oregon Natural Resources Council v. Brong*, 492 F.3d 1120, 1125-26 (9th Cir. 2007); *Cloud Foundation v. U.S. Bureau of Land Management*, 802 F.Supp.2d 1192, 1203-04 (D. Nev. 2011). In order to properly give "priority" to ACECs, the District of Utah has held that an agency must explain why it has not designated any ACECs it deems to meet the criteria for designation, explain how the relevant and important values that make them potential ACECs will be protected without such designation, and apply the correct criteria in making the determination not to designate them. *Southern Utah Wilderness Alliance v. Burke*, 981 F.Supp.2d 1099 (D. Utah 2013).

The BLM must comply with FLPMA's mandate that it give priority to designating ACECs here. Although BLM considered designating certain areas as ACECs in the ARMPA process, found some of them eligible, and acknowledged that ACEC designation would best protect their relevant and important values, BLM determined not to designate them. Instead, BLM created a completely new, less-restrictive designation called Sagebrush Focal Areas. BLM failed to provide an adequate explanation of its decision not to designate these areas as ACECs, including an explanation of how their relevant and important values will be protected absent such designation. Where BLM has acknowledged areas meet the criteria for ACEC designation and would be best protected as ACECs-yet has instead developed a new, less-restrictive designation for them-BLM has failed to put designation of ACECs first, in violation of FLPMA. BLM has further failed to give priority to designating ACECs because it has failed to give all Priority Habitats ACEC status. Properly applying the ACEC criteria, the BLM should have found that all Priority Habitat qualified as potential ACECs because it harbors a significant wildlife resource which is so important to the species' survival as to merit heightened restrictions on its use and development. By failing to designate all Priority Habitat as ACECs, BLM both failed to give priority to designation of

ACECs and failed to properly apply the ACEC criteria. Sage-grouse priority habitats or Core Areas meet the ACEC relevance and importance criteria because sensitive sage-grouse habitats are a wildlife resource (satisfying relevance), and a BLM Sensitive Species on the brink of an ESA listing could not more compellingly satisfy the 'importance' prong. BLM itself states, "Core areas could be considered for protection through designations of Areas of Critical Environmental Concern (ACEC) and the LUP Amendments should consider ACECs to protect Greater Sage-Grouse." E.g., Wyoming ARMPA FEIS at I-19. In the Bighorn Basin RMP revision, all PHMAs were considered under one EIS alternative for ACEC designation, but in the end none were designated in the final revised RMP. The failure to designate ACECs would violate FLPMA's direction to prioritize the designation of ACECs during the land-use planning process. This is an important shortcoming because ACEC designation brings lands so designated into the National Landscape Conservation System, making them eligible for federal funding programs that could be used for sage-grouse conservation. BLM must give priority to designating ACECs in the land-use planning process, as failure to do so would render the final decision arbitrary and capricious and in violation of FLPMA.

Our organizations hereby nominate all sage-grouse habitats (including winter habitats, PHMAs, IHMAs, GHMAs, or other sage-grouse habitats) for designation as ACECs through the plan amendment process. The designation should specify that the new ACECs must be managed to protect sage-grouse.

BLM should Expand Sage-grouse PHMA Designations to Include All Lands Designated as Priority Areas for Conservation by the USFWS, as Well as Other Key Habitats Sagebrush Focal Areas ("SFAs") are by definition a subset of PHMA, where all PHMA direction applies with additional protections overlaid in some cases. The sage-grouse amendment process removes or modifies in some states and SFA management actions have been retained, modified or removed. See, e.g., Wyoming DEIS at 2-5. Our organizations agree with the need for modification insofar as we believe SFA management actions should be expanded to more lands. In addition, we believe that all priority habitats, including SFAs must be designated as sagegrouse Areas of Critical Environmental Concern (ACECs) and managed to protect sage-grouse, as discussed in more detail above. The current Greater Sage-Grouse RMP Amendments and Revisions incorporate insufficient Priority Habitat Management Area designations in all states except Oregon, Colorado, and North Dakota. Crist et al. (2015) provided a critique that indicated that many PHMA units were too small and isolated to sustain sage-grouse populations over the long term, and also noted that a handful of large areas are strongholds of disproportionate importance to sage-grouse conservation efforts. All lands designated as Priority Areas for Conservation ("PACs") by the U.S. Fish and Wildlife Service need to be designated as Priority Habitat Management Areas and given strong, science-based protections in accord with the recommendations of the National Technical Team. In addition, expansions of PHMA are warranted in Wyoming, where the BLM and U.S. Fish and Wildlife Service erroneously incorporated reductions in state Core Area designations that were made for political, rather than scientific, purposes, and which render this state's Priority Habitat Management Areas scientifically invalid.

In Wyoming, important sage-grouse habitats that should have been designated as Core Areas were omitted from Core Area designation through the collaborative state process in 2008. This was done because the oil industry representatives on the Sage-grouse Implementation Team coerced other team members, threatening to block the adoption of any sage-grouse plans unless undeveloped sage-grouse habitats with abundant populations were excluded from Core Areas so that future drilling could proceed unimpeded by wildlife habitat conservation measures. Excluded from Core Areas during this

process were parts of the Atlantic Rim, Jonah, and Pinedale Anticline oil and gas project areas that remained undeveloped at the time, and significant acreages of important habitats in the Powder River Basin, where a coalbed methane play was in process at the time (see Molvar 2015, Figure 4). These excluded lands should be added to PHMA under the federal plans moving forward. Then, in 2010, Core Area boundaries were further gerrymandered to excluded Core Area lands previously designated that were desired for industrial exploitation by the wind industry (notably for the Chokecherry - Sierra Madre Wind Farm, as well as the DKRW coal-to-liquids plant and the Whirlwind LLC White Mountain wind farm, projects never built and subsequently abandoned). All lands eliminated from Core Area designation during the 2010 State of Wyoming boundary revision (see Molvar 2015, Figure 5) should be reinstated as PHMA through this federal process. For the Wyoming Basin population, which encompasses the rest of the state and is the most populous sage-grouse population remaining worldwide, has a chance of dropping below an effective population of 50 of 4.7% in 30 years and 21% in 100 years (Garton et al. 2015).

In addition, of the Wyoming RMP provisions for sage-grouse, the Buffalo Revised RMP stands out as requiring additional increases in PHMA designations above and beyond those listed above. According to Garton et al. (2015, Attachment 5), the Powder River population (all of northeast Wyoming including Thunder Basin National Grassland, parts of Casper Field Office, and Newcastle Field Office) has a 98.7% chance of dropping below an effective population size of 50 in 30 years, with a 55% chance of sage-grouse populations across the Great Plains (Management Zone I) dropping below 50 in 100 years. An effective population size of 50 is deep in the "extinction vortex." We are particularly concerned that the likely loss of this population through inadequate habitat protections and concomitant industrial development, along with the likely loss of the North and South Dakota populations due to intrinsic small size and vulnerability, will result in the isolation and ultimate extirpation of sage-grouse throughout the Great Plains ecosystem. In its initial designation of Core Areas, the State of Wyoming made some major errors in the Buffalo Field Office that have been implicated in subsequent population declines and threats to long-term viability for sage-grouse populations (see Taylor et al. 2012). It is important to note that many of the most populous sage-grouse leks in the Buffalo Field Office lie outside Core Area boundaries. (Buffalo FEIS 32, 33, 36).

BLM should also designate a new Core Area along the Powder River to address the inadequate spatial extent of Core Areas in the Buffalo Field Office. This designation would address the need to designate key sage-grouse habitats encompassing some of the most densely populated sage-grouse habitats in the Powder River sage-grouse population area, which were excluded from Core Area designations in 2008 contrary to the best available science in an act of state obeisance to the coalbed methane industry. To remedy these errors, BLM must designate additional PHMA to include the Core Areas denoted above, and ensure that all lands within 5.3 miles of a Core Area lek also fall entirely within Core Area PHMAs.

Changing Habitat Boundaries In Response to "New Information." It is possible that, if and when sage-grouse begin to recover, they will move into new areas and begin reoccupying restored and improving landscapes. With this in mind, it would be appropriate to provide increased habitat protections in these areas. Thus, habitat boundaries might change from GHMA to PHMA as conditions improve and occupation increases. This kind of "new information" that results in increased protections would not be objectionable. For example, we do not object to the 2015 Wyoming state Core Area boundary modifications being incorporated into the ARMPAs, however these modifications do not address the myriad and serious omissions of key Wyoming sage-grouse habitats from PHMA status, and indeed they

address these shortcomings only in very small part. However, changing habitat boundaries towards categories with lesser protections incentivizes not following the best management practices within the current category. For example, allowing exemptions and exceptions to lease stipulations and thus degrading the quality of the habitat should not then be used to downgrade protections at a SFA/PHMA/GHMA level for the same lands. It would be too easy to reclassify lands for lesser protections after allowing destruction to diminish the habitat, where the "new information" is that there is now fragmentation, noise, vegetation conversion, higher road densities, etc. Thus the habitat boundary changes should be confined to changes in one direction: increases in acreages getting greater protections. Until the sage-grouse are no longer in need of protection, there should be no loss in acres of protected habitat.

We support the No Action Alternative for Modifying Habitat Management Area Designations. The Governor's Core Areas are nice and they are interesting, but only relying on the Governor's Core Areas for federal land management is contrary to federal law and will not recover and enhance sagebrush and dependent species habitats.

Page 1-9 Line 1.5.2 Clarification of Planning Decision in the 2015 Amendments and Revisions The second bullet addresses incentivizing development outside of PHMA which is then discussed further on Page 2-14-15, Comparison of Alternatives. Topic: Leasing prioritization. While we support minimizing development in PHMA and incentivizing it outside of PHMA, areas outside of PHMA are important for genetic connectivity and should not be considered sacrifice areas from a sage-grouse perspective. See page 3-3 under "Population Estimation and Genetics" for reference to the importance of maintaining connectivity between populations to ensure genetic diversity and distribution.

Page 4-14 Modifying Habitat Management Area Designations "The BLM would continue to work with the State of Wyoming in the identification of new core and connectivity areas (PHMA)..." Winter Concentration areas should be added.

The MCD would also like to encourage the BLM to prioritize the replacement or modification of existing netwire fencing in PHMA. We have found that many miles of old net-wire fencing still exists in certain areas where sheep permits are no longer available. We have been monitoring these segments remotely using game cameras in order to gather information that can be used to quantify the before and after effects of fence modifications that will enhance migratory movements of both Antelope and Sage-grouse across the landscape. Currently, we have observed that Sage-grouse are not utilizing these areas despite the high quality habitat and can only speculate that they avoid the area because they are easily corralled by predators into the net-wire and cannot move through it quickly and don't like to fly over it. We are attempting to work with the local BLM office to remedy this issue

Feral Horses and HMAs * Although the topic of Feral Horses was dismissed from detailed analyses for purposes of this DEIS, as a point of emphasis, the MCD encourages the BLM to prioritize better management of Feral Horses, especially in Sagegrouse PHMA. Give special focus to reducing herd sizes to meet AML objectives in HMAs that overlap PHMA before doing so in HMAs that occur outside of PHMA. In addition, consider a reduction in the AML objective itself in those HMAs that are in PHMA. * Reevaluate the scientific principles of rangeland management to determine the population of feral horses and burros that the habitat can sustain. Overgrazing by feral horses and burros has reduced sagebrush and grass cover vital to Sage-grouse and has resulted in lower survival rates in those areas. Consider

that habitat degradation in PHMA is allowed in favor of non-native free-roaming feral horses but at the expense of native and wild Sage-grouse which should not be the case.

As you may recall from our comments submitted on November 27, 2017 relative to the Notice of Intent to Amend Greater Sage Grouse Resource Management Plan Revisions and Amendments for the State of Wyoming, my office and the Board of Land Commissioners are charged with managing the trust assets for the short- and long-term return to trust beneficiaries. Those comments made clear that our paramount concerns revolved around the direct and indirect impacts federal management actions/restrictions applied to priority habitat management areas (PHMA), general habitat management areas (GHMA) and agebrush focal areas (SFA) have on adjacent state trust lands. The effect of those restrictions, more times than not, make it extremely difficult, if not impossible, to responsibly manage State trust lands for income generation for our beneficiaries, which we are obligated to do as trustees of this land.

Boundary Consistencies - Campbell County supports BLM's decision to implement a regulatory mechanism that provides for more flexibility in updating RMPs when current information becomes available and has been approved and adopted by SGIT. By utilizing maintenance actions, this will allow BLM the ability to modify the RMPs, in a timely manner, to be consistent with the State EO. **Grazing and Table 2** - Campbell County disagrees with the BLM decision to leave Table 2 in the Greater Sage-Grouse (GRSG) RMP amendment. Simply put, Table 2 was not included in the 2015 WY RMP Draft Environmental Impact Statement and the public did not receive adequate notice and opportunity to comment on or participate in the GRSG RMP Amendment/Revision process that culminated in the 2015 WY USFS Record of Decision for the RMPA; therefore, eliminating Table 2 would be the appropriate course of action by the BLM. **Pre-2008 Permitted Activities** - Campbell County is concerned that the proposed action does not include a provision regarding pre-2008 permitting activities. BLM must add language consistent with

the State EO that places importance on respecting valid existing rights and specifically exempts pre2008 permitted activities from having to comply with PHMA stipulations. Campbell County recommends that BLM include the language in the RMPs specifying that pre-2008 permitted activities, such as oil and gas units and drilling and spacing units, are not subject to GRSG stipulations and that activities permitted outside of PHMA areas that are now included in PHMA areas are not subject to PHMA area stipulations.

ADJUSTING PHMA AREAS AND DOCUMENTING REMOVAL OF SFAS Pursuant to FLPMA, the BLM must "develop, maintain, and when appropriate, revise land use plans" to ensure that land management be conducted "on the basis of multiple use and sustained yield." 43 U.S.C. §§ 1701(a)(7), 1712(a); see also *Klamath Siskiyou Wildlands Center v. Boody*, 468 F.3d 549, 555 (9th Cir. 2006). Dramatic modifications in the boundary or area designated as PHMA without a plan amendment will not withstand judicial review. *Id.* at 558 ("However, even if adaptive management modifications were contemplated by the 2000 FSEIS, there must be limits to how dramatic 'modifications' can be before they are deemed 'amendments.'"). The Coalition supports modifications to the boundaries and the areas designated as PHMA in the 2018 DEIS. See ES-3; 2-5. Indeed, Judge Du's decision in the District of Nevada emphasized that designations of PHMA or GHMA that clearly overlapped non-habitat were arbitrary and capricious. *Western Exploration, LLC v. U.S. Dep't of the Interior*, 250 F. Supp. 3d at 748-50. The Coalition cautions, however, that the Management Alignment Alternative does not appear to include a public review component. Compare *Klamath*, 468 F.3d at 558 with DEIS at 2-5. The FEIS must include explicit

mention of public comment, review, and analysis for any revision or adjustment of PHMA that could be considered dramatic or meaningful.

Boundary Consistencies - WACD supports BLMs decision to implement a regulatory mechanism that provides for more flexibility in updating RMPs when current information becomes available. By utilizing maintenance actions, this will allow BLM the ability to modify the RMPs in a timely manner to be consistent with the State EO.

We recognize that some changes to boundaries will be so small that they do not require a plan amendment. Plain maintenance procedures are available to refine or clarify a previously approved decision. One example of appropriate plan maintenance provided in the BLM Land Use Planning Handbook is for "refining the boundary of an archaeological district based on new inventory data." Such actions, which do not involve formal public involvement or NEPA analysis, should only be used for small boundary adjustments of less than 3% of an existing individual habitat management area. For larger adjustments, NEPA and BLM planning rules and procedures should apply, as well as the following provisions, before any adjustment of habitat management boundaries: * Federal, state, and local agencies, and other interested stakeholders, should have the opportunity to participate. * There should be public notice of proposed changes, and an opportunity for the public to comment. * Adjustments should be based on the best available, science-based information, including all applicable peer-reviewed research papers. * Review of boundaries would occur every five years, unless more frequent adjustments are necessary. * Boundaries would generally not be adjusted to exclude non-habitat areas if those areas are wholly contained within existing management boundaries. * Areas within habitat management boundaries not currently used by sage-grouse but ecologically capable of supporting sage-grouse would not be removed from existing management boundaries. As part of this process, Wyoming may convene working groups to recommend boundary adjustments, as long as the recommendations of those groups are made available to the public for comment. Because of the concern of a future listing under ESA, any changes should not represent a decrease in the current level of conservation under the 2015 sage-grouse land use plans.

BLM Should Specify How It Will Update PHMA Boundaries to Reflect Changes to State Core Areas. ConocoPhillips generally agrees with the proposal in Alternative B of the Draft RMPA/EIS that "BLM would update its Greater Sage-Grouse habitat management areas, including biologically significant units (BSUs), in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's Executive Order revising or amending the core area boundaries." Draft RMPA/EIS at 2-5. This language, however, does not specify the mechanism that BLM will use or expects to use to update its Greater SageGrouse habitat management areas. ConocoPhillips recommends that BLM revise this language to include the statement, "Generally, BLM expects to update its Greater Sage-Grouse habitat management areas, including BSUs, through maintenance actions." This language is necessary to facilitate the timely adjustment of PHMA boundaries to reflect modifications to Core Area boundaries by the State of Wyoming. The State of Wyoming may periodically adjust its Core Area boundaries to reflect new data developed through research and monitoring efforts. BLM, however, lacks the resources to regularly revise RMPs to incorporate new greater sage-grouse information; moreover, BLM's RMP process moves too slowly to do so. BLM could rely on maintenance actions to implement these changes, which by regulation are intended to allow BLM to maintain components of RMPs "as necessary to reflect minor changes in data." 43 C.F.R. § 1610.5-4. For example, BLM appropriately utilized a maintenance action to incorporate State of Wyoming updated Core Area boundaries into its RMPs. See Plan

Maintenance, Change No. 1 (Oct. 27, 2017). For these reasons, ConocoPhillips requests that the Proposed RMPA include the statement, "Generally, BLM expects to update its Greater Sage-Grouse habitat management areas, including BSUs, through maintenance actions."

Adjustment of Habitat Management Areas WCCA applauds the BLM's proposal to align its habitat management area maps with the State of Wyoming current and future core area maps. Wyoming's Core Area Protection Strategy and the Core Area Maps were collaboratively developed and data-driven, showing core areas, connectivity areas and general distribution for the greater sage-grouse. WCCA urges the BLM to rely on the State's map and understanding of the distribution of the greater sage-grouse and to continue to rely on this map as the State updates it in the future. WCCA supports the BLM's proposal to revise its RMPs to allow for the adjustment of habitat management areas consistent with the Wyoming Core Area Maps without the need for a plan amendment. As the State of Wyoming has primary authority to manage greater sage-grouse, it is reasonable that the BLM's habitat maps would remain consistent with the State's.

Classifications of Management Areas The identification and classification of multiple levels of "Habitat Areas" is both duplicative and unnecessary. We would encourage the BLM to adapt the use of both the terminology and differentiations of "Core" and "Non-Core" to better align with the States plan.

The BLM needs to do a better job of protecting Priority Habitat Management Areas by reducing oil/gas development impacts. New development should be prioritized outside these important population areas and strong buffers maintained around sage-grouse leks.

Habitat Boundary - WCCD supports BLMs decision to implement a regulatory mechanism that provides for more flexibility in updating RMPs when current information becomes available. By utilizing maintenance actions, this will allow BLM the ability to modify the RMPs in a timely manner to be consistent with the Wyoming Executive Order 2015-4.

Additionally, the Draft EIS on page 4-15 says that "Updating the BLM's PHMA to match the State of Wyoming's core area boundaries has the potential to affect Greater Sage-Grouse and other resources through additional or fewer restrictions imposed on development and other types of land use activities." This statement lacks the scale or context needed to understand the potential impact. When Wyoming updated its core area mapping from version 3 to version 4, the areas covered by core area designation changed in size and shape. However, the net benefit was that more leks and males on lek were protected. This was a positive change. Further describing the potential impact would help the public understand in context what this can mean on the ground. Finally, on page 4-15 of the Draft EIS, the document describes how the BLM already has the ability to update mapping for crucial winter range habitats. This sentence should include the modifier "big game" to make clear what the BLM is referencing. The sentence would read, "such as aligning big game crucial winter range habitats to those delineated by the State "

Page 4-14: Modifying Habitat Management Area Designations. This section describes situations where the State of Wyoming may change its mapping of core areas. It explains that the BLM will continue to work with the State in the "identification of new core and connectivity areas (PHMA) or the removal of areas from core and connectivity (PHMA) habitat." Connectivity areas are not PHMA. Please move the parenthesis (PHMA) to behind core areas to make clear that core is PHMA, and does not include connectivity areas. Additionally, add "winter concentration areas delineated and mapped by the State of

Wyoming" to the list of habitat management areas that may change under the process for updating mapping. These too are not PHMA areas.

Habitat Boundaries The Alliance supports BLM's update to GrSG habitat management areas consistent with updates to the State of Wyoming's identification of core habitat area. Draft RMPA at 2-5 (Table 2-1). BLM states that "major changes" to the core area boundaries would require BLM to consider the changes under the requirements consistent with its NEPA obligations. Draft RMPA at 4-15. However, BLM does not provide any guidance or explanation as to what would constitute a "major change." BLM should clarify in the Final RMPA/EIS what constitutes a "major change" to core area boundaries that would trigger NEPA review.

It has been recognized that the Bear River Divide is the most Eastern point of the Great Basin but yet Wyoming is considered in a different management zone which doesn't follow protocol.

RECOMMENDATION 6: Clarify what would qualify as a major change to the core area boundaries that would require increased analysis under NEPA in order for BLM to update its PHMA boundaries.

WINTER CONCENTRATION AREAS PAW is concerned that the Management Alignment Alternative does not address revisions be made to restrictions in Winter Concentration Areas (WCAs). As we stated in our scoping comments dated November 30, 2017, the determination of restrictions to be placed on Winter Concentration Areas (WCAs) needs to be deferred pending further research. There is a lack of understanding of what, if any, level of activity poses disturbance to GRSG in WCAs. The State of Wyoming, through the Sage-Grouse Implementation Team (SGIT), of which BLM is a member, is in the process of conducting a scientific study to determine the appropriate thresholds to place on WCAs. Due to the fact that surface activities are seasonally prohibited in WCAs from December 1 to March 14, there needs to be clear knowledge, multiple lines of evidence and a body of peer-reviewed literature supporting proof that No Surface Occupancy (NSO) disturbance thresholds are warranted during those timeframes. The Wyoming RMPs are similar to the EO in that they prohibit "surface disturbing and/or disruptive activities in sage-grouse winter concentrations areas from December 1 - March 14."²¹ However, while the EO permits production and maintenance activities to take place during seasonal stipulations, the RMPs do not provide this necessary exception. As a matter of environmental health and safety, the RMPs need to be changed to allow for production and maintenance activities to take place as necessary while seasonal use restrictions are taking place. The Buffalo RMP also includes a provision to its WCA seasonal restriction that "dates may be expanded by up to 14 days prior to or subsequent to the above dates."²² This same provision is provided in both the RMPs and the EO with regard to nesting, breeding and brood-rearing seasonal restrictions; however, the Buffalo RMP is the only plan that applies the same exception to WCAs. PAW takes issue with this exception to both seasonal stipulation timeframes in that it removes a level of regulatory certainty when planning for development to take place. Operators need to be provided with ample notice that they are going to be affected by this change in order to maintain regulatory certainty. WCAs are described as areas "where large numbers of Core Population Area Greater sage-grouse congregate and persistently occupy between December 1 and March 14."²³ Identification of WCAs differs from the RMPs to the EO. The EO states: "Specifically, winter concentration areas, defined as places where large numbers of Core Population Area Greater sage-grouse congregate and persistently occupy between December 1 and March 14, should be identified and protected. Identification of winter concentration areas should be based on habitat features and repeated observations of winter use by biologically significant numbers of

Greater sage-grouse (e.g., groups of 50 Greater sage-grouse)...²⁴ While the RMPs provide a much more detailed description of what habitat features should be present in order to qualify as a WCA, they also provide that WCAs may consist of as few as 25 GRSG. PAW maintains in order to be consistent with the EO, the RMPs need to be revised to clarify that identification of WCAs is based on groups of 50 or more PHMA GRSG. It is imperative that BLM only designate WCAs in the RMPs after the areas have been designated as such by the SGIT and incorporated into the EO. There is still much to be learned with regard to appropriate disturbance thresholds and seasonal restrictions in WCAs. The EO states, "the State of Wyoming will develop appropriate local, science-based standards to manage disturbance in identified and mapped winter concentration areas."²⁵ As such, PAW strongly recommends any stipulations with regard to WCAs be deferred until new and emerging science is completed.

In August 2008 then Assistant Director, and Sage-Grouse Implementation Team member, John Emmerich provided direction to Department personnel regarding the new Executive Order for sage-grouse. In that direction Emmerich specifically outlined management in non-core (non-PHMA) for connectivity purposes saying, "Non-core areas are not to be considered sacrifice zones. We should continue to recommend BMPs that will maintain as many grouse as possible in non core habitat. Standard stipulations, other than the standard BLM stipulations already existing for non core area leasing, are still being developed internally and in coordination with BLM." Other directions on this topic contain similar language and direction to personnel. Given the disconnected boundaries of most Core/PHMA areas as mapped in Wyoming, maintaining connectivity between them is critical. If the incentivization process becomes too permissive for development in non-Core/PHMA, putting genetic connectivity at risk, Core/PHMA boundaries should be reconsidered with the purpose of more overtly incorporating connectivity into the policy.

Page 2-11, Range Improvement Projects: Again, given the status of the species, eliminating GHMAs from consideration is imprudent and shows a lack of commitment to attending to all aspects of the threat to Sage-grouse.

Page 4-14, Modifying Habitat Management Area Designations: I support this, however there should be great reluctance to remove areas from core and connectivity habitat (PHMA) given the dismal amount and condition of current Sage-grouse habitat across its range compared to historic levels. Rather, efforts should first be made to address the reasons for considering its removal from PHMA and remedying them.

Chapter 1 of the EIS explains that the purpose of this land use plan amendment is "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." (Section 1.2, p.1-2) Certain resource topics, however, were not carried forward for additional detailed analysis. One topic so listed is Special designations and management areas (which include the CDNST, a national scenic trail designated pursuant to the NTSA). The reason for this exclusion is declared to be "because they have no potentially significant impacts from actions proposed in this RMPA/EIS." The term "impacts," however, is ambiguous. It may refer to, and be limited to, the indicators listed in Section 4.13.1 of the 2015 LUP Amendment (cited above). But there may be significant impacts that do not fall within this scope. While Council on Environmental Quality regulations (40 CFR §1508.8) state that "effects and impacts as used in these regulations are synonymous," such effects (or impacts)

are much broader than what appears in the 2015 EIS. "Effects", as defined by CEQ in §1508.8 include: (a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. ... Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. We have reviewed comments submitted by Mr. Greg Warren (WY-GRSG-I-216532) with respect to the pending EIS which identifies effects (grounded on failure to conserve GSG habitat and protect cultural landscapes along national scenic and historic trails, and failure to address national trails in the affected environment and the environmental consequence) that are likely to warrant review in accordance with NEPA. In the absence of such review, we concur with his recommendation that the No Action alternative should be selected, at least for those Sagebrush Focal Areas that are found within potential National Trail Management Corridors.

E.4.5 Sagebrush Focal Area (SFA) Designations

The announced plan revisions, namely the removal of "sagebrush focal areas" from the original conservation plan text, threatens the protections for sage-grouse on millions of acres of public lands. I do not support any proposed amendments to the Greater Sage-Grouse Conservation Plan that would allow new surface disturbances or the opening of these areas (SFA's) to new hardrock mining claims. Weakening protections would have significant consequences for sage-grouse and other wildlife, sagebrush grasslands and the western communities and economies that depend on them. Rather than wasting time on trying to weaken the federal plans, the Trump administration should consider ways to improve them. Scientists have already identified gaps and deficiencies in the current conservation strategy, and have recommended measures to strengthen conservation and management of the species:

We also believe that the Notice of Cancellation of BLM's Application to withdraw SFA from locatable mineral entry is Arbitrary and Capricious. The 2015 EISs found that in order to protect and enhance Greater Sagegrouse that there was a threat from new locatable minerals development and that a withdrawal from mineral entry was warranted. To cancel this without NEPA analysis is Arbitrary and Capricious.

We live in Wyoming and respect its Governor, but public lands on BLM and USFS lands are owned by all of the citizens of the United States, and not just the Governor. The Governor and his staff spent much time and effort to develop the core area concept, but his is not the law of this land. The laws and policies of federal lands apply. It is important that BLM and USFS continue to manage with sagebrush focal areas, else additional, usable sagebrush habitat will be continually impacted and lost over time.

Sagebrush Focal Areas - Campbell County supports the Department of Agriculture and Department of the Interior's decision to remove sagebrush focal areas (SFA) from the RMPs as these areas were proposed for mineral withdrawal under the 2015 GRSG RMPs. The move to eliminate SFAs is consistent with the Department of the Interior's decision to cancel the proposed withdrawal on October 11, 2017.

While Sagebrush Focal Areas are to be removed, the Coalition notes that the SFAs were also developed without public notice or comment. In too many cases, the SFAs corresponded to Wyoming Game and Fish Department's nominations in 2005 or 2006 for areas of critical environmental concern (ACECs). The focus was on big game habitat, with sage-grouse as only a footnote. For example, in Lincoln County, the Bear Tump SFA was first nominated to manage elk habitat and to protect cultural resources.

SER CD supports the removal of Special Focal Areas designations in this Draft RMPA and DEIS as they are ambiguous and not necessary in Wyoming. The U.S. Fish and Wildlife Service's 2015 decision not to list the GRSG as threatened or endangered under the Endangered Species Act recognized the "core area strategy" of the 2015 EO as a model for conserving sage-grouse. We agree that the Bureau of Land Management (BLM) Priority Habitat Management Areas (PHMAs) are synonymous with the State of Wyoming core areas and that State of Wyoming non-core greater sage-grouse habitat is the same as BLM's General Habitat Management Areas (GMHA). Again, consistent standards across jurisdictional boundaries in Wyoming strengthen GRSG conservation efforts.

Sagebrush Focal Areas The Wyoming DEIS at ES-3 seeks information on whether the SFA designated areas contribute to achieving conservation outcomes, in addition to the relevance of the SFA habitat designation in the absence of a mineral withdrawal and if there are further constraints on mineral development within SFAs. As a part of the rangewide approach to the BLM and USFS land use plans in the previous Administration, approximately 10 million acres of available public lands were withdrawn and made inaccessible under the 1872 Mining Law, including 252,162 acres in Fremont, Lincoln, Sublette, Sweetwater, and Uinta Counties. The preview to the formality of the actual withdrawals became evident in the ROD and the ARMPAs. See Notice of Proposed Withdrawal; Sagebrush Focal Areas; Idaho, Montana, Nevada, Oregon, Utah, and Wyoming and Notice of Intent to Prepare an Environmental Impact Statement, 80 Fed. Reg. 57635-01 (Sept. 24, 2015) (notifying the public of the proposed withdrawal of BLM and USFS lands identified as SFAs in Idaho, Montana, Nevada, Oregon, Utah and Wyoming). The notice also began a two-year segregation period which prohibited location and entry from those lands identified as SFAs. However, when the NEPA process began to facilitate the withdrawals, the purported threat to the GRSG as dictated by the FWS was infinitesimal compared to the overall acreage proposed to be withdrawn. The BLM DEIS noted: "The total amount of mining related disturbance in Sagebrush habitat under the No Action Alternative [no withdrawal] would be 9,554 acres . . . , or approximately one-tenth of 1 percent of the total withdrawn area." (Emphasis added). Sagebrush Focal Areas Withdrawal Environmental Draft Impact Statement Idaho, Montana, Nevada, Oregon, Utah, and Wyoming (Dec. 2016) at 4-71. Indeed, the difference in acres that could be disturbed over 20 years between no withdrawal and a withdrawal of approximately 10 million acres was a mere 6,934 acres. Based on the erroneously calibrated threat to GRSG from mining and other resource development, on October 11, 2017, BLM allowed the two-year segregation period to expire by operation of law and cancelled the proposed SFA withdrawal. See Notice of Cancellation of Withdrawal Application and Withdrawal Proposal and Notice of Termination of Environmental Impact Statement for the Sagebrush Focal Area Withdrawal in Idaho, Montana, Nevada, Oregon, Utah and Wyoming, 82 Fed. Reg. 47248-01 (Oct. 11, 2017). The obsolescence and imprecision by which the SFA allocations remain in the current ARMPAs, including Wyoming, remains apparent. Other restrictions tied to the designation of the SFAs, if legitimate to advance GRSG conservation, can be developed with a scalpel, as opposed to the overbroad and miscalculated scope of proposed withdrawals advocated by the previous Administration. Accordingly, the LUP should be amended to eliminate the SFA allocations.

The Fatal Imbalance of the Current Wyoming Land Use Plan Afford Ample Justification to Formally and Finally Terminate the SFA Withdrawals The previous land use plans were not crafted under a premise that balanced the Congressional directives under the 1872 Mining Law and FLPMA. The Wyoming 2015 ARMPA was driven by an effort by the previous Administration to achieve an outcome under the ESA, and, out of necessity, the balance required between 1872 Mining Law and FLPMA was minimized. As observed by a senior Administration official at the time, the 2015 GRSG LUPAs were "not a planning exercise, but an effort to develop a landscape level plan to conserve the GRSG."⁶ In other words, the BLM and USFS endorsed a policy decision by the previous Administration that an ESA outcome, a Washington, D.C. directed outcome under the ESA, was to prevail over local values and considerations that the 1872 Mining Law and FLPMA accommodate.⁷ The litigation administrative record reveals that FWS Director Dan Ashe assumed command of determining when the cosmetic "good-faith" negotiations with the States advancing their land use management plans needed to be directed differently, or in some cases, terminated in favor of national ESA uniformity.⁸ Stated differently, the interested constituencies found themselves negotiating with the FWS over Federal activity wholly within the province of the BLM. On October 11, 2017, the BLM published a Notice of Cancellation of Withdrawal Application and Withdrawal Proposal and Notice of Termination of [EIS] for [SFAs] Withdrawal in Idaho, Montana, Nevada, Oregon, Utah and Wyoming ("Cancellation Notice"), 82 Fed. Reg. 47248-01 (Oct. 11, 2017). The BLM determined that "the lands are no longer needed in connection with the withdrawal. The BLM has also terminated the preparation of an [EIS] evaluating this application. Id. at 47248. It also provided notice that the two-year segregation expired by operation of law on September 24, 2017. Id. Accordingly, for the reasons stated above, the unlawful SFA withdrawals should not be revived.

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Sagebrush Focal Areas - WACD supports the Department of Agriculture and Department of the Interior's decision to eliminate sagebrush focal areas (SFA) from the RMPs as these areas were proposed for mineral withdrawal under the 2015 GRSG RMPs. The move to eliminate SFAs is consistent with the Department of the Interior's decision to cancel the proposed withdrawal on October 11, 2017.

Sagebrush Focal Areas WCCA supports the BLM's proposal to eliminate Sagebrush Focal Areas ("SFAs") from the RMPs and to rely instead on the State of Wyoming's Core Area Protection Strategy as outlined in the State of Wyoming Executive Order 2015-04 on Greater Sage-Grouse Core Area Protection ("Wyoming Executive Order"). The Core Area Protection Strategy was collaboratively developed by Wyoming's Sage-grouse Implementation Team ("SGIT"), a multi-jurisdictional, cross-governmental, and citizen-inclusive working group, and identifies habitat of particular import to the survivability of the greater sage-grouse. Including SFAs in the RMPs is redundant and unnecessary. This is especially true considering BLM's October 11, 2017 decision to cancel the withdrawal of SFAs from oil and gas development.

Sagebrush Focal Areas (SFAs). The Bureau wants to eliminate SFAs. The No Action Alternative would has designated SFAs that would be managed at Priority Habitat Management Areas (PHMAs) to

prioritize conservation actions. However, the Bureau's Preferred Management Alignment Alternative would have not areas designated as SFAs at all. There was also a recommendation for SFAs to be used for mineral withdrawal, but since the Preferred Alternative does not have designated SFAs at all, there is no need for this recommendation anymore because all sagebrush lands in Wyoming will be vulnerable to mineral withdrawals. We believe SFAs are relevant in Wyoming because they contribute to achieving conservation outcomes the State initially set out. They also protect the Greater Sage-Grouse from the harmful impacts of mineral development in Wyoming. To address this issues, American Bird Conservancy believes including a conservation alternative that designates protected areas for the Greater Sage-Grouse.

One of the agreed upon management tools was the designation of the Sagebrush Focal Areas and the management decisions that were established for these areas. This required a great of time and effort for the Wyoming stakeholders to determine which areas in Wyoming offered unique characteristics for Greater Sage-Grouse habitat and thus warranted additional protections. To simply eliminate these acres from special management does not appear to align with the goal of improving conservation outcomes.

After all the effort that went into creating the core areas for sage grouse, you seriously plan on throwing all that out the window? What has changed since those core sage grouse areas were created? Have sage grouse numbers risen so much you don't think those protected areas are important anymore? Even Gov Mead said oil and gas needed to be cautious, rather than drilling wherever they wanted and risk getting the sage grouse listed. If you take that language away from the core areas, the BLM, the oil and gas industry, along with this administration is opening the door for a future listing.

SER CD supports the removal of Special Focal Areas designations in this Draft RMPA and DEIS as they are ambiguous and not necessary in Wyoming. The U.S. Fish and Wildlife Service's 2015 decision not to list the GRSG as threatened or endangered under the Endangered Species Act recognized the "core area strategy" of the 2015 EO as a model for conserving sage-grouse. We agree that the Bureau of Land Management (BLM) Priority Habitat Management Areas (PHMAs) are synonymous with the State of Wyoming core areas and that State of Wyoming non-core greater sage-grouse habitat is the same as BLM's General Habitat Management Areas (GMHA). Again, consistent standards across jurisdictional boundaries in Wyoming strengthen GRSG conservation efforts.

Although I understand the rationale for removing Sagebrush Focal Areas, I am hesitant to approve since the designation serves somewhat as a bulwark for one aspect of the plan against the relentless attempts to weaken the conservation effort. Buffers should continue to be placed around leks to limit development and disturbance to these crucial components of the Sage-grouse annual cycle. No surface occupancy stipulations should be maintained to protect PHMA, and disturbance limits need to be retained for all GHMA and PHMA.

E.4.6 Habitat Objectives

Environmental Impacts of the Management Alignment Alternative, page 4-16, Habitat Objectives While Campbell County supports the modified language identified in or comments above under the Management Alignment Alternative in Table 2-1, page 2-6; the preferred action should have been to delete Table 2-2 and 2-3 in the ARMPA (Seasonal Habitat Objectives for GRSG Wyoming Basin Ecoregion) as it was too restrictive in providing for specific stubble height standards among other issues. However, modifying the value of a greater than or equal to 7 inches for perennial grass and forb height

indicator to reflect Ecological Site Descriptions (ESD) and potential or best available science in consideration of local variability is a more appropriate approach to land management in achieving land health standards within PHMAs only.

Vegetation Objectives Lack Support In addressing the issue of canopy and wildfire, the NTT Report cites J.W. Connelly to support the conclusion that sagebrush canopy should not be reduced to less than 15% when managing wildfire fuels. NTT Report at 26. Connelly, however, discusses a range of 10% to 30% and explicitly states that land treatments should not be based on targets, schedules or quotas. John W. Connelly, et al., Guidelines to Manage Sage-Grouse Populations and Their Habitats, 28 WILDLIFE SOCIETY BULLETIN 967-985, 77 (2000). The NTT authors omitted the complete recommendation in the Connelly paper and arbitrarily picked 15% as the target for sagebrush canopy. The 2015 Plan then made this mandatory in Table 2-2. The NTT Report also contradicts its own statistical assertions. NTT Report at 7. First, the NTT Report states that priority habitat should be managed so that 70% of the habitat is adequate. Id. A page earlier, however, the report states that 50-70% of the range must be adequate to persist. Id. at 6. The sources cited do not recommend either the upper or lower range offered by the NTT authors. Those sources cited rely on anecdotal evidence of a preferred percentage. See Attach. 4, Maxwell at 14-15. The consistent overstating or misstating the recommendations taints the integrity and accuracy of the science. The singular conclusion is that the agenda to preserve large areas of federal land overrode principles of scientific integrity at every turn and this agenda led to the 2015 Plan and the pending litigation.

While the Draft RMPA and DEIS states "The Management Alignment Alternative proposes to include clarifying language for the intent of the habitat objectives tables.", it is unclear and inadequate in representing how the tables are changed and does not clearly state what the new tables DO and DO NOT contain. The descriptions of how they are to be used is very different from exactly what is in the tables. In the SER CD's scoping comments, we recommended Tables 2-2 and 2-3 be amended in their entirety. Tables 2-2 and 2-3 are meant to represent desired conditions or habitat objectives for GRSG. The Tables were intended to be "guidance" not "standards" and applied to management using localbased ecological conditions. The broad habitat objectives found in the Tables are based on averages from across the species' range. Inconsistencies in interpretation and implementation exist between disciplines (e.g., range, wildlife, etc.) and locations (e.g., Field Offices, states, etc.). Large variations in habitat conditions and GRSG use across the range and even within Wyoming create challenges when setting habitat objectives. Habitat objectives should only be based on localized conditions, local ecological site conditions, and actual GRSG use. Additional terms and conditions should not be written into livestock grazing permits based on Tables 2-2 and 2-3.

On page 4-16, Habitat Objectives, the document states "It would also modify the value of a greater than or equal to 7 inches for perennial grass and forb height indicator to reflect ESD site potential or best available science in consideration of local variability." Modify to what? Again, what is stated is ambiguous. The exact tables as modified should be included in the RMPA and Final EIS.

Pages 4-16 to 4-18 include narratives regarding Habitat Objectives, Livestock Management - Permit Renewals, Livestock Management - Existing Range Improvement Structures, and Livestock Management - Riparian Area Management. SER CD strongly recommends these sections be based upon existing regulations for livestock grazing management (43 CFR 4100). All these sections should address GRSG conservation and grazing management through the Wyoming Standards for Healthy Rangelands,

Wyoming Standard #4 - Wildlife and Sensitive Species Habitat (43 CFR 4180.2). Additional requirements placed upon grazing management as a result of the 2015 GRSG Land Use Plan amendments burdens BLM and creates uncertainty for livestock grazing permittees. Grazing management should only be adjusted once the BLM has collected the appropriate trend data, performed a Standards Determination, determined causal factor(s), and completed a Conformance Review.

Environmental Impacts of the Management Alignment Alternative, page 4-16, Habitat Objectives While WACD supports the modified language identified in our comments above under the Management Alignment Alternative in Table 2-1, page 2-6; the preferred action would have been to delete Table 2-2 and 2-3 in the ARMPA (Seasonal Habitat Objectives for GRSG Wyoming Basin Ecoregion) as it was too restrictive in providing for specific stubble height standards among other issues. Providing language to clarify the intent of the habitat objectives tables specifically language that would "...modify the value of a greater than or equal to 7 inches for perennial grass and forb height indicator to reflect Ecological Site Descriptions (ESD) potential or best available science in consideration of local variability..." is a more appropriate management approach to achieving land health standards within PHMAs.

In Table 2-1, for Management objective 6, we comment that developing specific objectives for grouse seasonal habitats is fine but we comment that BLM should monitor local Field offices to insure that objectives do not turn into Standards. The WSGB would also request that the BLM contact the NRCS and strongly encourage them to develop, ASAP, in consultation with the University of Wyoming, ESD's that will be much more useful to local BLM Range Cons and grazing permittees on the subject of grouse habitats.

We comment that the language at the top of page 2-9 is inconsistent with the previous narratives that correctly conveys that habitat "standards" are inappropriate. Please edit this portion of the narrative to remove any indication that habitat "standards" are appropriate.

Clarification of Habitat Objectives The clarification that Habitat Objectives are not standards is extremely welcome and we fully support the position that a single indicator is not enough to determine habitat suitability. We also appreciate the clarification of riparian area grazing management for forbs and grasses. We welcome the approach that analyses of alternatives would not be needed for the renewal of a grazing permit if current livestock grazing meets Land Health Standards while providing sage grouse habitat. We believe it is consistent with the U. S. Fish and Wildlife Services' recognition of livestock grazing as compatible with Sage-grouse conservation and not a major threat to Sagegrouse habitat. If the land health standards are not being met or progress is not being made toward meeting the standard, an evaluation would be made to determine if livestock grazing is a significant causal factor. We agree clear metrics must be developed to ensure objectivity in such a determination.

Table 2-2 - Habitat Objectives WCCA supports the BLM's proposed changes to the language surrounding the Tables on Seasonal Habitat Objectives for GRSG Wyoming Basin Ecoregion and NE Wyoming (Tables 2-2 and 2-3 [ARMPA], Table 2-6 [Buffalo] and Table 2-7 [Cody and Worland]) in the existing RMPs. Many of the objectives provided in this table, including those for stubble height, are too restrictive and unachievable in most of Wyoming, and not based on local, site-specific data. While the existing RMPs provide that the objectives contained in these Tables are "dependent upon site capability and local variation," this and other similar caveats are inappropriately contained in a footnote to the tables. The BLM is correct to elaborate on this, clarifying that "not all areas . . . would be capable of achieving the indicator values" and stating that the "values in the tables should be considered as initial

references and do not preclude development of local desired conditions or utilizing other indicators/values." Moreover, WCCA appreciates the BLM's proposal to include this new language as a preamble to the Tables, rather than a footnote.

In the Management Alignment Alternative, Sweetwater County supports the clarification of habitat objective tables which are to be used to: *Assess habitat suitability for sage-grouse following the BLM policy on sage-grouse habitat assessments *Evaluate land use plan effectiveness for sagegrouse conservation, and *Provide a basis to develop measurable project objectives for actions in BLM-designated GRSF Habitat Management areas when considered alongside land health standards, ecological potential and local information

Habitat Objectives Table While, great strides have been made to clarify the use of the Habitat Objectives Table, there are still areas of uncertainty including:

Stubble Height While it is implied that a fixed number stubble height objective (i.e. 7") has been removed, it is never clearly stated. Moving forward, site potential should be informed by Ecological Site Descriptions (ESD's) with local variances taken into account.

The now infamous "Table 2.2", the Habitat Objectives Table, has been the focus of our strongest objections to the 2015 9-Plan RMP Amendments. We continue to urge that this table be removed entirely from the plans as it is subject to being utilized in an inappropriate manner to influence grazing decisions. However, if it is to remain, it is critical that the 7" objective be removed. The proposed clarification that Habitat Objectives are not standards but can "inform the assessment of Land Health Standards" is also essential to meaningful amendment of current plans.

Page 4-16: Habitat Objectives. The Habitat Objectives section should be updated to include the new literature questioning the efficacy of the seven inch height objective. Additional comments described in table below.

2-7 Table 2-2 Preamble The phrase "suitability within a home range" is not accurate and does not reflect the need to define "suitability" at the local level. Indicators are used to assess condition of habitat using values developed for each attribute, not habitat suitability; the HAF repeatedly notes this concept and states "habitat characteristics should be used as tools for assessing habitats" (HAF pg. 20), "suitability is determined by the relationship among the several indicator values" (HAF pg. 20) and "site suitability descriptions require an interpretation of the relationships between all of the indicators and other factors" (HAF pg. 29). As written, the language specific to "home range" does not reflect the HAF in its entirety or the 3rd and 4th Order of the HAF. Further, Wyoming has not defined "home ranges" for GRSG populations and the attributes in the table do not reflect habitat indicators for HAF 3rd Order (home range of a population; see HAF pages 7 and 17).

2-7 Table 2-2 "Adequate nesting cover is determined by ESD site potential or best available science in consideration of local variability." This section pertains to the removal of 7" in Table 2-2. While it appears that this is actually a change within the table it is not entirely clear. Please clearly state that this is a replacement of the numeric value with this language and replace "is" with "as".

4-16 Habitat Objectives "The Management Alignment Alternative proposes to include clarifying language for the intent of the habitat objectives tables. It also would modify the value of a greater than or equal

to 7 inches for perennial grass and forb height indicator to reflect ESD site potential or best available science in consideration of local variability. Impacts associated with this alternative would be similar to those identified in the No-Action Alternative in the ARMPA's Final EIS. This would not affect Greater Sage-Grouse conservation in Wyoming. It is likely that the impacts of clarifying language for the intent of the habitat objectives tables and modifying the 7-inch indicator for perennial grass and forb height would be minimal. There are existing mechanisms throughout the ARMPA and other RMPs that allow for adjustments, if necessary. Because the Management Alignment Alternative continues to stress the importance of providing nesting cover, local impacts on Greater Sage-Grouse would also be minor." Changes to the table would NOT be similar to the No-Action Alternative of the 2015 ARMPA. The No-Action Alternative from 2015 does not have a table. Remove redundant and confusing language in the second paragraph.

Winter Concentration Areas The State of Wyoming, through the Sage-Grouse Implementation Team, is currently conducting a scientific study to determine the appropriate disturbance thresholds to place on winter concentration areas. Until that scientific study is complete, BLM should not impose unproven and unsupportable conservation measures in winter concentration areas. BLM should also provide flexibility to manage the winter concentration areas consistent with the findings of the ongoing study without the need for additional NEPA review. The Draft RMPA does not modify the surface disturbing and/or disruptive activities timing limitation in GrSG winter concentration areas applicable from December 1 to March 14. The Wyoming Plan imposes a similar timing limitation in winter concentration areas but does allow for production and maintenance activities to occur during seasonal stipulations. The GrSG Plans and the Draft RMPA do not provide this exception. Greater Sage-Grouse Draft RMPAs for Wyoming August 2, 2018 Page 10 of 11 BLM should revise the Final EIS and Resource Management Plan Amendment to allow for production and maintenance activities to occur in winter concentration areas during seasonal stipulations. This exception is necessary for environmental health and safety, and should not require a drawn out request for an exception on a case-by-case basis. Each of the Wyoming RMPAs and the Wyoming Plan include a provision that allows for expansion of seasonal restrictions by up to 14 days prior to or subsequent to the applicable timeframes for nesting, breeding and brood-rearing seasonal restrictions. However, only the Buffalo RMPA includes this provision for winter concentration areas. The inconsistency between the Buffalo RMPA and other Wyoming RMPAs creates unwarranted regulatory uncertainty for operators, which discourages economic activity. BLM should remove the exception to seasonal restrictions in the Buffalo RMPA for winter concentration areas that permits the expansion of the timing limitation by up to 14 days prior to or subsequent to the define timeframe. Additionally, the Wyoming Plan identifies winter concentration areas based on habitat features and repeated observations of groups of 50 or more GrSG. Wyoming Executive Order 2015-4 at A-5. Conversely, each of the current RMPs in Wyoming specify that winter concentration areas may consist of 25 GrSG. BLM stated that the purpose of the Draft RMPA was to "enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and or conservation measures and DOI and BLM policy." Draft RMPA at ES-2, 1-2. As discussed above, Alternative B would update GrSG habitat management areas consistent with the State of Wyoming's core habitat area identification. Draft RMPA at 2-5 (Table 2-1). Consistent with BLM's stated purpose to align with the Wyoming Plan and the BLM's proposal to conform its GrSG habitat management areas to the State of Wyoming, BLM's identification and classification of winter concentration areas should be consistent with the Wyoming Plan's classification. BLM should clarify in the Final RMPA/EIS that winter concentration areas will be based on habitat features and the repeated observation of 50 or more GrSG.

With respect to the ARMPA Habitat objective #6, as presented in Table 2.1, the elimination of the following language in the Preferred Alternative appears to make this alternative much less protective of Greater Sage-Grouse habitat, "If an effective grazing system that meets Greater Sage-Grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances Greater Sage-Grouse habitat in the NEPA document prepared for grazing management." In addition, the language in the preferred alternative eliminates the word "priority" habitat. It's unclear if this is deliberate or not, but both omissions appear to provide less protection of the habitat that needs to be protected the most.

The plans should also restore prioritization for vegetative management to ensure public lands maintain habitat functionality.

While the Draft RMPA and DEIS states "The Management Alignment Alternative proposes to include clarifying language for the intent of the habitat objectives tables.", it is unclear and inadequate in representing how the tables are changed and does not clearly state what the new tables DO and DO NOT contain. The descriptions of how they are to be used is very different from exactly what is in the tables. In the SER CD's scoping comments, we recommended Tables 2-2 and 2-3 be amended in their entirety.

Tables 2-2 and 2-3 are meant to represent desired conditions or habitat objectives for GRSG. The Tables were intended to be "guidance" not "standards" and applied to management using local-based ecological conditions. The broad habitat objectives found in the Tables are based on averages from across the species' range. Inconsistencies in interpretation and implementation exist between disciplines (e.g., range, wildlife, etc.) and locations (e.g., Field Offices, states, etc.). Large variations in habitat conditions and GRSG use across the range and even within Wyoming create challenges when setting habitat objectives. Habitat objectives should only be based on localized conditions, local ecological site conditions, and actual GRSG use. Additional terms and conditions should not be written into livestock grazing permits based on Tables 2-2 and 2-3. 7. On page 4-16, Habitat Objectives, the document states "It would also modify the value of a greater than or equal to 7 inches for perennial grass and forb height indicator to reflect ESD site potential or best available science in consideration of local variability." Modify to what? Again, what is stated is ambiguous. The exact tables as modified should be included in the RMPA and Final EIS. 8. Pages 4-16 to 4-18 include narratives regarding Habitat Objectives, Livestock Management - Permit Renewals, Livestock Management - Existing Range Improvement Structures, and Livestock Management - Riparian Area Management. SER CD strongly recommends these sections be based upon existing regulations for livestock grazing management (43 CFR 4100). All these sections should address GRSG conservation and grazing management through the Wyoming Standards for Healthy Rangelands, Wyoming Standard #4 - Wildlife and Sensitive Species Habitat (43 CFR 4180.2). Additional requirements placed upon grazing management as a result of the 2015 GRSG Land Use Plan amendments burdens BLM and creates uncertainty for livestock grazing permittees. Grazing management should only be adjusted once the BLM has collected the appropriate trend data, performed a Standards Determination, determined causal factor(s), and completed a Conformance Review. 9. Page 4-17, Livestock Management - Permit Renewals includes the statement "This management change is commensurate with the threat grazing poses to Greater Sage-Grouse and relies on BLM's existing grazing regulations." SER CD requests this statement be replaced with "Any adjustments to livestock grazing permits at the time of permit renewal will be done according to existing regulations for livestock grazing management (43 CFR 4100) and only after BLM has collected the appropriate trend data, performed a

Standards Determination, determined causal factor(s), and completed a Conformance Review supporting the adjustment."

Page 2-6, Seasonal habitat objectives for Greater Sage-Grouse: The language here for both the No Action Alternative and the Management Alignment Alternative is gobbledygook. Some translation into language a normal human being could understand should have been included. I defer comments on this to someone who is familiar enough with it to be able to distinguish differences.

E.4.7 Adaptive Management

The BLM has not implemented the existing plans and yet seeks to undermine them further. The agency's proposed plan revision and amendments universally weaken the ARMPAs themselves, further weakening the plans protections for sage-grouse across the range. While not all proposed amendments are universal across plans, the cumulative impacts of any of the reduced protections must be considered. For example, undermining the effectiveness of habitat objectives through weakening the language around conformance in grazing management affects the significance of and relative conservation provided by the lek buffers, etc. BLM's piecemeal approach to these amendments under the guise of state-by-state consistency means that the overall effects to sage-grouse are even less comprehensible or certain to provide adequate conservation than the ARMPAs themselves (which also did not provide a rangewide hard look).

We are also concerned that adaptive management triggers will be tied to populations and demographics. It is a well-established principle that for sage-grouse, there is a time-lag for population responses to habitat impacts, taking two to ten years before population changes become measurable (Holloran 2005, Walker et al. 2007, Harju et al. 2010). As a result, the appropriate decision-point for changing management strategies would actually be 2-10 years before population declines are noted (in the best-case scenario that monitoring reliably recognizes a downturn as caused by a management problem versus population cyclicity, which is also problematic), which means that by the time that adaptive management changes are adopted it is already too late, the damage has been done, and because industrial infrastructure is rarely removed once in place the damage has become effectively irreversible. The 'hard trigger' of listing the greater sage-grouse as a Candidate Species has already occurred, so federal agencies should adopt the strongest possible protections immediately rather than waiting for a later time when conditions for the sage-grouse are even more dire.

Throughout the sage-grouse RMP amendment process, BLM officials at the state and local levels have resisted the adoption of strong, science-driven habitat protection measures for sage-grouse, and advocated for greater discretion and flexibility such that lesser levels of protection would be permissible on a case-by-case basis. By creating sage-grouse protections that are optional, discretionary, and/or subject to waivers, modifications, and/or exceptions, the federal agencies place the authority to undermine or cast aside science-based sage-grouse protections into the hands of officials who have been resisting such protections throughout the process. If the goal of this plan amendment is adequate sage-grouse conservation measures, it is arbitrary and capricious and an abuse of discretion to empower local agency officials who may be weak-willed, sympathetic to maximizing commercial uses of the land at the expense of wildlife, or even hostile to sage-grouse conservation to choose not to enforce sage-grouse conservation measures. If certainty of implementation is to be achieved, then the federal agencies must adopt mandatory protection measures such that local agency personnel have no choice but to impose

scientifically appropriate sage-grouse conservation measures in every case where there is a potential conflict between sage-grouse conservation and other uses of the land.

Page 4-18 Adaptive Management "The only change for adaptive management would be at the implementation level, when the Adaptive Management Working Group identifies a process for returning to previous management." Change to; The only change for adaptive management would be at the implementation level, when the Adaptive Management Working Group identifies a process for returning to previous management, in addition to the original option of further adapting management, each based on the causal factor analysis."

Table 2-1 Alternatives Comparison, page 2-13, Adaptive Management Triggers With regard to adaptive management, Campbell County recommends that the RMPs be revised to be consistent with the EO. The EO incorporates an approach that considers current conditions, impacts, restoration, monitoring and trends. Overlapping adaptive management processes only leads to confusion and inefficient implementation. This process must be streamlined between the federal agencies and policies should defer to states to the greatest extent possible which will assist in minimizing confusion. In addition, Campbell County supports the continued coordination with Local Working Groups (LWG) as they are best suited to be able to provide first-hand information regarding on the ground impacts. LWGs are also capable of providing recommendations to reverse adaptive management actions to assist in resolving issues and meeting long-term management strategies.

We support the concept of adaptive management triggers and returning to previous management when objectives of an interim management strategy are met. We look forward to the opportunity to review the work of an Adaptive Management Working Group to define a process to review and reverse adaptive management actions once the identified causal factor is resolved and will engage with them as the group allows.

Adaptive management decisionmaking must be open and transparent The BLM's proposed management alignment alternative creates an Adaptive Management Working Group that "would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g. returning to previous management once objectives of interim management strategy have been met.>"). DEIS Table 2-1 at p. 2-13. We have a number of concerns with this process and offer suggestions for improving it. First, as discussed in the attached June 8, 2018 letter to Ryan Zinke, from Dr. Matt Holloran and twenty other distinguished sage-grouse scientists, it appears that BLM has not integrated into the proposed plan amendments several "decision support tools and monitoring approaches that, if employed, would facilitate the adaptive implementation of sage-grouse management strategies (Synthesis pgs. 25 and 29)." We encourage BLM to follow the recommendations of the USGS and the sage-grouse scientists by integrating these tools into the agency's decisionmaking process. Second, the BLM should identify and publically disclose the membership of this group, along with their affiliations, credentials, and expertise. Membership should be limited to representatives of state and federal agencies and, if necessary, designated third-party participants with technical expertise deemed essential to the process. Second, the BLM should ensure that the group operates in a fully open and transparent manner with adequate advance notice of meetings and public access to recordings and meeting minutes. All records of the group should be made readily available to the public without the need for a FOIA request. Third, the BLM should prohibit individuals with a financial interest in the action from participating on the working group or joining its discussions. Fourth, proposed decisions to return to previous management

should be available for pre-decisional public review and comment. All of these measures are necessary to ensure scientific integrity and fundamental credibility of the process.

Table 2-1 Alternatives Comparison, page 2-13, Adaptive Management Triggers With regard to adaptive management, WACD recommends that the RMPs be revised to be consistent with the EO. The EO incorporates an approach that considers current conditions, impacts, restoration, monitoring and trends. Overlapping adaptive management processes only leads to confusion and inefficient implementation. This process must be streamlined between the federal agencies and policies should defer to states to the greatest extent possible which will assist in minimizing confusion. In addition, WACD supports the continued coordination with Sage-Grouse Local Working Groups (LWG) and local Conservation Districts as they are best suited to be able to provide first-hand information regarding on the ground impacts. LWGs and Conservation Districts are also capable of providing recommendations to reverse adaptive management actions to assist in resolving issues and meeting long-term management strategies.

On page 2-13, in the narrative on "adaptive management", the WSGB comments that the concept of adaptive management allows for more than just a "reversal" of adaptive management actions once a causal factor has been identified and resolved. We comment that adaptive management should be considered as a concept to modify LUP decisions when those decisions prove to be either unnecessary or inappropriate in the future. Adaptive management is the ability to "learn as we go along" and LUP's should be dynamic documents, not rigid documents that contain decisions that cannot be modified when they deserve to be modified.

Adaptive management decisionmaking must be open and transparent The BLM's proposed management alignment alternative creates an Adaptive Management Working Group that "would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g. returning to previous management once objectives of interim management strategy have been met.>"). DEIS Table 2-1 at p. 2-13. We have a number of concerns with this process and offer suggestions for improving it. First, as discussed in the attached June 8, 2018 letter to Ryan Zinke, from Dr. Matt Holloran and twenty other distinguished sage-grouse scientists, it appears that BLM has not integrated into the proposed plan amendments several "decision support tools and monitoring approaches that, if employed, would facilitate the adaptive implementation of sage-grouse management strategies (Synthesis pgs. 25 and 29)." We encourage BLM to follow the recommendations of the USGS and the sage-grouse scientists by integrating these tools into the agency's decisionmaking process. Second, the BLM should identify and publically disclose the membership of this group, along with their affiliations, credentials, and expertise. Membership should be limited to representatives of state and federal agencies and, if necessary, designated third-party participants with technical expertise deemed essential to the process. Second, the BLM should ensure that the group operates in a fully open and transparent manner with adequate advance notice of meetings and public access to recordings and meeting minutes. All records of the group should be made readily available to the public without the need for a FOIA request. Third, the BLM should prohibit individuals with a financial interest in the action from participating on the working group or joining its discussions. Fourth, proposed decisions to return to previous management should be available for pre-decisional public review and comment. All of these measures are necessary to ensure scientific integrity and fundamental credibility of the process.

We would also ask BLM to clarify the "Adaptive Management Working Group" that is referenced. What will be its structure, who will serve on it and what responsibilities and/or authorities will it have. We cannot lend our support for this provision until we have a better understanding of the membership of this group and the manner in which it will function.

Adaptive Management WCCA supports the BLM's proposal to require the Adaptive Management Working Group to define a process to review and reverse adaptive management actions once the factor identified as causing the negative impacts to the sage-grouse is resolved. Under the existing plan, there is no process for returning to previous management once the issue has been identified and fixed, leaving the agencies or permittees responsible for implementing management actions that are likely no longer necessary for the health of the species.

The Bureau planned on using an adaptive management plan that included soft and hard triggers to respond to negative effects to Greater Sage-Grouse and its habitat. Now the Bureau plans to have an Adaptive Management Working Group review and reverse the adaptive management actions once the identified causal factor is resolved. This working group could potentially lead to biases about how the Greater Sage-Grouse and its habitat will be managed. It would allow the working group to set the tone for the effectiveness for the conservation efforts in Wyoming. American Bird Conservancy believes a well-defined adaptive management strategy based on the conservation alternative provided

Adaptive Management Working Group More clarity is needed on who would comprise the Adaptive Management Working Group along with their roles and authorities.

Improve plan monitoring and oversight, including providing training to field staff and the necessary incentives to ensure proper implementation. The plans should contain metrics by which conservation success can be measured. Conservation metrics will help in effective management of the habitat and reduce wasting personnel time and limited funds.

Define the membership of the referenced "Adaptive Management Working Group" and the manner in which it will operate.

Monitoring and Adaptive Management Monitoring is a critical and well-developed component of the Wyoming RMPA and its Adaptive Management Plan given the value of the resource and the large scale of its habitat. The timing of monitoring and the data collected informs adaptive management actions. The Draft EIS incorporates by reference, Appendix D (Core Area Strategy) and Appendix H (Guidelines for Implementation and Adaptive Management) of the 2015 ROD/ARMPA, and other tools, such as the Wyoming Game and Fish Department Protocols for Treating Sagebrush in GHMAs as key guidelines and objectives for conservation success. The Wyoming adaptive management strategy includes a two-tiered system of hard and soft triggers for the greater sage-grouse and its habitat. These triggers identify population and habitat thresholds which, if exceeded, would result in a change in how BLM addresses management of the greater sage-grouse in that area. The Draft EIS references include soft triggers that represent an intermediate threshold where management changes are needed to prevent a severe decline, whereas hard triggers represent a more direct action to stop a severe deviation from the greater sage-grouse conservation objectives. In its October 2015 finding that listing the greater sage-grouse under the Endangered Species Act was not warranted, USFWS states, "Further, in response to monitoring, activities allowable under the Federal Plans may be adjusted based on adaptive management criteria to provide an immediate, corrective response to identified triggers for populations or habitat

declines." ³ We recommend the Adaptive Management Plan in Final EIS include the actions that would be taken in the event that soft-trigger and hard-trigger deadlines are not met.

Adaptive Management The Alliance supports BLM's proposed changes to adaptive management strategies in Alternative B that would "define a process to review and reverse adaptive management actions once the identified causal factor is resolved." Draft RMPA at 2-13 (Table 2-1); Draft RMPA at 4-18. The Wyoming Plan provides a concrete adaptive management trigger (declines in affected leks caused by the project), rather than vague, unidentified soft triggers. Wyoming Executive Order 2015-4 at B-10. The Wyoming Plan Adaptive Management provision provides lessees with regulatory certainty and concise criteria to warrant a return prior management strategy. The Adaptive Management Working Group charged with defining the process to review and reverse adaptive management actions under Alternative B should adopt the Monitoring/Adaptive Response provision set forth in the Wyoming Plan.

As to the adaptive management working group, the makeup of the membership of this group should be specified and their authority and responsibilities made clear.

We support the concept of adaptive management triggers and returning to previous management when objectives of an interim management strategy are met. We look forward to the opportunity to review the work of an Adaptive Management Working Group to define a process to review and reverse adaptive management actions once the identified causal factor is resolved and will engage with them as the group allows.

SER CD strongly supports the removal of the phrase "net conservation gain" from all management actions across all RMPs. The term "net conservation gain" is not clearly defined and understood which allows for potential arbitrary and capricious implementation.

Monitoring and Adaptive Management Monitoring is a critical and well-developed component of the Wyoming RMPA and its Adaptive Management Plan given the value of the resource and the large scale of its habitat. The timing of monitoring and the data collected informs adaptive management actions. The Draft EIS incorporates by reference, Appendix D (Core Area Strategy) and Appendix H (Guidelines for Implementation and Adaptive Management) of the 2015 ROD/ARMPA, and other tools, such as the Wyoming Game and Fish Department Protocols for Treating Sagebrush in GHMAs as key guidelines and objectives for conservation success. The Wyoming adaptive management strategy includes a two-tiered system of hard and soft triggers for the greater sage-grouse and its habitat. These triggers identify population and habitat thresholds which, if exceeded, would result in a change in how BLM addresses management of the greater sage-grouse in that area. The Draft EIS references include soft triggers that represent an intermediate threshold where management changes are needed to prevent a severe decline, whereas hard triggers represent a more direct action to stop a severe deviation from the greater sage-grouse conservation objectives. In its October 2015 finding that listing the greater sage-grouse under the Endangered Species Act was not warranted, USFWS states, "Further, in response to monitoring, activities allowable under the Federal Plans may be adjusted based on adaptive management criteria to provide an immediate, corrective response to identified triggers for populations or habitat declines."³ We recommend the Adaptive Management Plan in Final EIS include the actions that would be taken in the event that soft-trigger and hard-trigger deadlines are not met.

ADAPTIVE MANAGEMENT PAW is supportive of the provision under the Management Alignment Alternative for the RMPs to be revised to include a process to reverse adaptive management actions once baseline populations of GRSG return. PAW recommends BLM's adaptive management process be further revised to be fully consistent with the EO. For example, the EO Adaptive Management Plan specifically provides: "[i]f declines in affected leks (using a three-year running average during any five year period relative to trends on reference leks) are determined to be caused by the project, the operator will propose adaptive management responses to increase the number of birds. If the operator cannot demonstrate a restoration of bird numbers to baseline levels (established by pre-disturbance surveys, reference surveys and taking into account regional and statewide trends) within three years, operations will cease until such numbers are achieved."¹² The RMPs currently provide a much more difficult to implement adaptive management plan which includes soft triggers which are "any deviation from normal trends in habitat or population in any given year"¹³ and hard triggers which are indicators "that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect."¹⁴ The response to both triggers is to make changes to management, either to apply more restrictive measures or defer continued operations. We question the validity and ability of BLM to affect the prescribed responses since they will result in changes to management prescriptions and likely require subsequent NEPA analysis.

RECOMMENDATION 8: Adopt the adaptive management plan that is included in the EO as it is sufficient and includes a provision that operations will be allowed to resume once baseline populations return.

Page 2-13, Adaptive management triggers: The Management Alignment Alternative proposes to . . . reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met)." Here again, I am apparently not understanding. If a certain type of management has resulted in impacts so bad that remedial measures are necessary, then that management is not appropriate. Returning to it once the problem is fixed makes no sense (Doing the same thing over and over again and expecting a different result is a form of insanity).

E.4.8 Mitigation

Mitigation Standards. 1. Effectiveness of Compensatory Mitigation Should the BLM propose to allow compensatory mitigation in lieu of compliance with disturbance density and other requirements, restrictions must not be waived with the approval of off-setting mitigation. We call upon the BLM to reach a determination regarding the effectiveness of each category of compensatory mitigation to result in no net loss of sagebrush populations for the area in question. Please document any and all scientific studies that conclude that compensatory mitigation efforts have yielded an increase in sage-grouse populations for the area to which mitigation efforts apply. We are unaware of any cases in which a compensatory mitigation program has resulted in a significant increase in sage-grouse compared to an untreated landscape. The fact that "compensatory mitigation" funding frequently is used to purchase conservation easements is problematic, because this is a paper transaction with legal ramifications preventing future potential losses, but can never yield population gains to offset the very real and immediate losses of sage-grouse habitats and populations incurred as a result of industrial development. As Doherty et al. (2016) stated, "we suggest that, birds, not acres or dollars spent, would be the best currency in conservation plans...." BLM must document population-level benefits for sage-grouse to validate offsetting mitigation efforts. The details of mitigation must not be deferred to subsequent

implementation teams because it prevents the EIS from analyzing the impacts of alternatives taking into account "offsetting" mitigation, and fails to analyze the effectiveness of mitigation measures, both of which would violate NEPA.

Sage-grouse habitat is disappearing According to the National Interagency Fire Center, over 2 million acres of sage-grouse habitats burned in 2017, with 626,268 acres burning in 2016, and 562,734 acres burning in 2015 (NIFC 2017). This is significant new information that was not considered under the previous RMP Amendment process. BLM must carefully consider the significant losses in sage-grouse habitats that have occurred since the plan amendments were put in place, and factor in the role that these impacts might play, both directly and cumulatively, in sage-grouse population persistence and recovery under all alternatives, while accounting for any changes in sage-grouse habitat protections. Large fires of high frequency can extirpate sage-grouse populations (Pedersen et al. 2003). A landscape mosaic of burns may not meet the nesting habitat needs of sage-grouse (Nelle et al. 2000), and may also fail to meet grouse habitat requirements during other seasons (Wamboldt et al 2002). Fire was an uncommon occurrence in sagebrush habitats in presettlement times, with natural fire return intervals in Wyoming big sagebrush average 100-240 years (Baker 2007). Wyoming big sagebrush recovers slowly after fires, which typically result in 100% sagebrush mortality; recovery to pre-fire canopy cover takes over 100 years (Cooper et al. 2007). Baker (2007) examined the same issue and projected that Wyoming big sagebrush recovery following fire ranges from 50 - 120 years; for mountain big sagebrush, the recovery period was estimated at 35 - 100 years. BLM must identify which mitigation measures will be employed and take the legally required 'hard look' at their effectiveness. Western Watersheds Project understands that BLM's mitigation policy has been revoked, the DRMPA does not identify which measures would be considered "mitigation", and therefore there is no way for the agency (or the public) to evaluate whether the measures could provide benefits to sage-grouse. This omission merits supplementation of the Draft Analysis; vague references to future mitigation without specifying what that mitigation might look like are meaningless. Neither the public nor the agency can evaluate whether "compensatory mitigation" is appropriate and lawful without defining which measures might be employed. Its impact analysis must also account for the primacy of cheatgrass invasion in determining patterns of rangeland fire. According to BLM's past NEPA analysis, "The positive feedback loop between fire and invasive plant species may be the greatest impact on fire management and GRS (Abatzoglou and Kolden 2011)." Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 701. BLM further elucidates, In Oregon 19th and early 20th century grazing practices, along with introduction and spread of invasive plant species and the practice of fire suppression in the 20th century, have all contributed to fire suppression and to increasingly destructive wildfires. Oregon Greater Sage-grouse RMP Amendment DEIS at 4-10. BLM's past NEPA analysis concedes, "In the absence of cheatgrass, Wyoming big sagebrush sites can take 150 years to recover." Nevada - Northeast California Greater Sagegrouse RMP Amendment DEIS at 608. When cheatgrass is present, it can take over following disturbance, forming a monoculture characterized by unnaturally frequent fire return intervals that can effectively prevent the recovery of sagebrush and perennial grasses on a long-term if not permanent basis. For Oregon, BLM states, "In Wyoming big sagebrush sites, full recovery to pre-burn sagebrush canopy cover conditions will take over 100 years (Cooper 2007);..." Oregon Greater Sage-grouse RMP Amendment DEIS at 3-70. More generally, BLM states, "Sagebrush recovers slowly from fire; most species do not resprout but must be replenished by winddispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, sagebrush can reestablish itself within five years, but a return to a full pre-burn community cover can take 50 to over 100 years (Baker 2011)." Oregon Greater Sage-grouse RMP Amendment DEIS at 4-10. For these

reasons, BLM must incorporate science-based measures to reduce the spread of cheatgrass, including rest from livestock grazing, into any future sage-grouse plan amendments, and must also rest burned areas for two years or more from livestock grazing, to allow native perennial grasses to recover and to reduce the distribution of weed seeds on newly burned areas.

The threat of habitat loss and the proverbial "death by a thousand cuts" is further exacerbated by DOI's recent decision to not require compensatory mitigation (BLM Instruction Memorandum 2018-093, July 24, 2018). The Management Alternative also calls for removing the net conservation gain standard and also suggests deference to the states' mitigation plan. Under the existing 2015 plan (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts to a net conservation gain standard, yet there is no analysis or disclosure of the environmental consequences of that decision. Given this fact, and that BLM IM 2018-093 states the BLM will no longer require compensatory mitigation - a significant policy change to say the least - a supplemental analysis disclosing how this change would impact habitat loss and effectiveness of the BLM's conservation plans for sage-grouse is warranted. Even if deferring to the states' mitigation plan - which does not require mitigation unless the 5% disturbance cap is exceeded - we struggle seeing a landscape scale scenario where loss of habitat over time isn't the outcome. This could seriously threaten the standing of the 2015 not warranted decision unless rectified. We request that a supplemental NEPA analysis be performed.

We also would point out that rangewide greater sage-grouse populations are still occupying basically the same amount of habitat base, which continues to support approximately the same population range that was recently proposed for listing. The not-warranted decision was predicated not only on stopping habitat loss, but also improving and expanding quality habitat conditions. Without gaining some uplift beyond current baseline through protection and restoration, including use of compensatory mitigation, in both priority and general habitat, we should only expect to maintain about the same population range that would be further in jeopardy should habitat loss continue. Mitigation that at least provides a no-net-loss standard and also accounts for uncertainty and risk (thus some level of potential gain) is fundamental to the long-term sustainability of sagebrush and sage-grouse.

On page 3-3, the statement "Restoration activities occur mainly at the implementation level..." raises questions about what this means (we assume project-level) and how this level interacts with broader spatial context and landscape-level goals and how this would be tracked and analyzed.

We support the No Action Alternative for Compensatory Mitigation Strategies. We need a Net Conservation Gain because sagegrouse have lost so much already. If we only save the best of the best, we will continue to lose the rest. This will result in the Greater Sagegrouse as being listed as Threatened or Endangered in policy terms, but in real terms, we will lose an icon of the West when we lose sagebrush and Greater Sage-Grouse... and Mule Deer, and Pronghorn, and Elk and Burrowing Owls and Pygmy Rabbits and all the other species that rely on healthy sagebrush habitats for survival.

Net Conservation Gain The BLM public notice states: "At the request of the State of Wyoming, the Management Alignment Alternative in the Draft RMPA/EIS proposes a change to compensatory mitigation by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. " We support the proposed change. Net Conservation Gain should only be required when a species is listed under ESA to recover the species to a level where listing is no longer necessary. The concept of 'no net loss' adopted by the State of Wyoming and in accordance with SO 3353 is more

appropriate for management of sensitive species. Net Conservation Gain is not the goal or appropriate level of achievement for land management agencies that are multiple use agencies. Achieving a net conservation gain should only be required and applied when it is necessary for an already listed species under ESA to be protected until it can be delisted, and that jurisdiction remains with the United States Fish and Wildlife Service, (USFWS). Further, once a species has been proven recovered through adaptive management, appropriate changes in management should take place to revert back to previous policy.

Compensatory Mitigation Standard The BLM public notice states: "In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans. " The release of the BLM Instructional Memorandum 2018-093 on July 24 states: "Except where the law specifically requires, the BLM must not require compensatory mitigation from public land users. While the BLM, under limited circumstances, will consider voluntary proposals for compensatory mitigation, the BLM will not accept any monetary payment to mitigate the impacts of a proposed action. Further, from the finding "While FLPMA in some instances may be interpreted to authorize various forms of the mitigation hierarchy, such as avoidance and minimization, it cannot reasonably be read to allow BLM to require mandatory compensatory mitigation for potential temporary or permanent impacts from activities authorized on public lands. Even if FLPMA authorizes the use of compensatory mitigation, it does not require project proponents to implement compensatory mitigation. "TBCC suggests this new IM be reflected in the final RMP to ensure consistency across all public lands. TBCC agrees the BLM should not require compensatory mitigation on public lands. In many instances, compensatory mitigation is not needed due to requirements under other regulatory programs such as Wyoming Department of Environmental Quality and the Surface Mine Control and Reclamation Act (SMCRA). These agencies have extensive reclamation requirements that exceed the Seasonal Habitat objectives outlined in the RMP. Reclamation in Wyoming includes activities such restoring the post mining land use on thousands of mined acres, construction of streams and reservoirs, creation of wildlife habitat and features, and revegetation of the disturbed area. BLM should revise the Draft RMP/EIS to include provisions that recognize reclamation performed by coal mining operations. These reclamation performance standards are more than sufficient to support the life-stage requirements of Greater sage grouse. This renders compensatory mitigation unwarranted and unnecessary for mines in Wyoming. BLM and USFS have required some compensatory mitigation in their stipulations for development of individual project, ranging from major Lease By Applications to minor disturbances in the past. For example, a scoria mining lease in Thunder Basin National Grasslands (TBNG) included a stipulation that required the project proponent supply funds for cheat grass control. We believe actions such as these are not necessary and should not be continued in the future.

Compensatory mitigation is not needed everywhere or for all activities in the State of Wyoming. For example, surface coal mines are under the regulatory authority of the Wyoming Department of Quality and have extensive reclamation requirements that exceed the Seasonal Habitat objectives outlined in the draft resource management plan. BLM states that new information continues to reaffirm the understanding that Greater Sage-Grouse is a species that selects for large, intact landscapes and habitat patches. The landscape aspects of reclamation (including activities such as complete reconstruction of many thousands of acres of land surface, reconstruction of streams and reservoirs, creation of wildlife

habitat and features, and full revegetation of the entire disturbed area) can fully support the life-stage requirements for Greater Sage-Grouse, rendering the need for compensatory mitigation duplicative, unwarranted, and perhaps counter-productive.

Page 3-10 State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework (Framework) "mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect core population area Greater sage-Grouse and/or occupied non-core area leks." connectivity areas and winter concentration areas should be added to be consistent with the Framework.

Page 4-18 & 4-19 Compensatory Mitigation and Net Conservation Gain "Any impacts associated with the need for compensatory mitigation, or the applicability of compensatory mitigation, would be identified at the site specific project level." This statement limits it to site specific level. There should be the ability to address it at the project level as well.

In addition, we pointed out that the term "net conservation gain" does not exist in Executive Order 2015-4 Greater Sage Grouse Core Area Protection (SGEO) and stated that we feel that "no net gain" is unnecessary because adequate protection are provided by the Wyoming's Core Area Strategy.

2.3.2 Management Alignment Alternative, page 2-4, Compensatory Mitigation With regard to compensatory mitigation requirements, Campbell County supports the Wyoming EO wherein compensatory mitigation is only required in core areas (identified by BLM as Priority Habitat Management Areas (PHMAs)) and only if specific core area (PHMA) thresholds are exceeded. We further support the idea of consistent application of compensatory mitigation ratios as outlined in the Wyoming EO Compensatory Mitigation Framework. In order for the RMPs to be consistent with the EO in these areas, the RMPs need to be changed to eliminate all compensatory mitigation requirements outside of core areas (identified by BLM as General Habitat Management Areas (GHMAs)) and to only require compensatory mitigation in core areas (PHMAs) when specific thresholds are exceeded. In addition, Campbell County supports the removal of the net conservation gain standard from all management actions across all RMPs and supports the BLM intent to follow the Wyoming EO regarding the Revised Greater Sage-Grouse Compensatory Mitigation Framework.

Finally, regarding the use of compensatory mitigation to receive timing stipulation relief for mineral development, the exception criteria in the RMPs needs to be revised in order for BLM to be able to systematically grant such relief as allowed by the Wyoming Compensatory Mitigation Framework and additional NEPA should not be required in order to grant timing stipulation exceptions. As it currently stands, exceptions from timing stipulations are only allowed as follows: "The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected." (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse, September 2015, Appendix B Fluid Mineral Stipulations, page 124.)

Table 2-1 Alternatives Comparison, page 2-13, Compensatory Mitigation See comments noted above under 2.3.2 Management Alignment Alternative. Table 2-1 Alternatives Comparison a e 2-14 Recreation Facilities and Net Conservation Gain Campbell County strongly supports BLM's decision to remove the "net conservation gain" standard from all RMPs as outlined in the Draft RMPA DEIS. We support language that focuses on the mitigation hierarchy of avoid, minimize, mitigate and the Wyoming EO regarding Compensatory Mitigation Framework. Therefore, the "net conservation gain" standard should be eliminated from this heading. In addition, Campbell County supports language that is consistent with the State EO.

Environmental Impacts of the Management Alignment Alternative, page 4-18, Compensatory Mitigation and Net Conservation Gain Consistent with our comments above, Campbell County supports the removal of the "net conservation gain" standard and should be eliminated from this heading. In conclusion, Campbell County believes the steps taken by the BLM to align with the Wyoming Executive Order is critical to successful species and habitat management. Coordinating and combining resources between the state, local governments and federal agencies ensure the success of long-term approaches that benefit all parties affected by the Greater Sage-Grouse and conservation management.

The DEIS does not reflect recent revocation of compensatory mitigation standards developed by the previous administration. As a result, much of the underlying assumptions remain, notwithstanding the lack of any legal authority and clear direction that federal land users should not face environmental extortion every time they file a permit.

ALTERNATIVE MITIGATION APPROACH The DEIS states that "[w]e request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans." DEIS at 2-4. The Coalition has objected to sweeping compensatory mitigation for the past 13 years. CLG has consistently explained that neither NEPA nor FLPMA authorize or require mitigation of impacts. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) (distinguishing between discussing mitigation and requiring it). Analysis and disclosure of the impacts and no unnecessary and undue degradation are the hallmark of BLM's duties. *Id.* More recent case law requires that mitigation be similar and proportional to the impacts. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013) (applying takings analysis to scope of permissible mitigation).

Net Conservation Gain Must Be Abandoned The Coalition appreciates the BLM's admission that the Net Conservation Gain standard was not publicly reviewed and, therefore, fatally flawed as a component of the 2015 Plans. *Id.* The net conservation gain standard was one of the reasons that the Coalition filed its petition for review of the 2015 Plan. As the Coalition emphasized in its protest of the 2015 Plan and its scoping comments and cooperating agency materials, the BLM has no authority to require mitigation of public land users that exceeds the undue and unnecessary degradation standard in FLPMA. See 43 U.S.C. 1782(b). Moreover, with new policies and directives, the BLM lacks any secondary authority to implement a "net benefit", "net gain", or other standard that improves sage-grouse habitat as a condition for a permit or lease. See BLM Instruction Memorandum 2018-093 (July 24, 2018); see also U.S. Fish and Wildlife Service Mitigation Policy, 83 Fed. Reg. 36472 (July 30, 2018) ("In light of the change in national policy reflected in Executive Order 13783 and Secretary's Order 3349, the comments received by the Service, and concerns regarding the legal and policy implications of compensatory mitigation, particularly compensatory mitigation with a net conservation gain policy, the Service has concluded that it is no

longer appropriate to retain references to or mandate a net conservation gain standard in the Service's overall mitigation planning goal within each document. Because the net conservation gain standard is so prevalent throughout the Mitigation Policy, the Service is implementing this conclusion by withdrawing the Mitigation Policy.") In Section 302 of FLPMA, Congress has spoken to the discrete issue of what standard may or may not be applied to federal land management. *Chevron U.S.A. Inc. v. Natural Res. Def. Council*, 467 U.S. 837, 842 (1984) ("In interpreting an agency's enabling or organic statute, we 'employ[] traditional tools of statutory construction' to determine 'whether Congress has directly spoken to the precise question at issue.'"). Aside from the wilderness study areas, FLPMA provides that public lands shall be managed to avoid "undue and unnecessary degradation." The courts have found FLPMA to inherently allow some degradation. See *Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 76-78 (D.C. Cir. 2011) (FLPMA's unnecessary or undue degradation standard must be read in light of BLM's responsibility under FLPMA to ensure public lands are managed under multiple use and sustained yield.); *Gardner v. U.S. Bureau of Land Mgmt.*, 638 F.3d 1217, 1222-1223 (9th Cir. 2011) (Section 1732(b) does not mandate BLM to adopt restrictions that would completely exclude off-road vehicle use in a specific area.).

Requiring that any change in habitat be accompanied by additional action to improve habitat far exceeds BLM's authority under FLPMA or NEPA. Case law sets similar standards under the Endangered Species Act (ESA) changes to critical habitat. See also *Butte Envtl. Council v. U.S. Army Corps of Eng'rs*, 620 F.3d 936, 947-48 (9th Cir. 2010) (FWS's determination that critical habitat under the Endangered Species Act would be destroyed was thus not inconsistent with its finding of no 'adverse modification' because the project would affect only a very small percentage of each affected species' critical habitat); see also *Rock Creek Alliance v. U.S. Forest Service*, 703 F. Supp.2d 1152, 1198 (D. Mont. 2010) (adverse modification of critical habitat under ESA allowable if effects are fully discussed and affected area is relatively insignificant). If the courts allow modification to critical habitat without "net conservation gain" then certainly wildlife habitat management for sage grouse cannot require more. Interpreting FLPMA as giving BLM the authority to require Net Conservation Gain or any improvement at BLM's discretion makes the undue and unnecessary degradation standard in FLPMA meaningless. No court will allow such an interpretation when the law so clearly states public lands shall be managed for undue and unnecessary degradation.

Policy to Improve the Status of Sensitive Species Does Not Override FLPMA Land Management Standard BLM cannot rely on Manual 6840's sensitive species habitat "improvement" provisions as authority to undercut the law's clear direction. See Manual 6840.1H2a(1) ("It is also in the interest of the public for the BLM to undertake conservation actions that improve the status of such species so that their Bureau sensitive recognition is no longer warranted." (Emphasis added)). The manual only refers to the status of the species as measured by a host of metrics and does not refer to any single factor (i.e. population, habitat, seasonal mortality). FLPMA sets the controlling standard for land management. And, federal law supersedes agency policy so BLM improvement of habitat and species numbers does not mean BLM can impose "improvement" policies over and above the undue and unnecessary degradation standard. Manual 6840 is an agency directive and enjoys little if any deference under established case law. Federal land agencies since 1984 have relied on the decision of *Chevron v. Natural Res. Defense Council*, 467 U.S. 837 (1984) to justify and defend any decisions. Over the past 15 years, the courts have significantly narrowed the scope of deference accorded to these agency directives. In *U.S. v. Mead Corp.*, 533 U.S. 218, 232 (2000), the Supreme Court held that agency policy in the form of a tariff letter enjoyed little if any deference. Just a few months ago, the Supreme Court set aside a regulation that

contradicted the law in *SAS Institute Inc. v. Iancu*, 138 S.Ct. 1348 (2018) and signaled growing support to reverse *Chevron*. FLPMA clearly mandates undue and unnecessary degradation as the management standard outside of wilderness study areas. Any management of sensitive species to improve their status must conform to the letter of the law. From these principles, it is clear that the DEIS needs substantial revision. The 2018 DEIS states that a project proponent would "[r]eplace occupied habitat developed outside PHMA by improving habitat in PHMA." DEIS at 2-7. Aside from the fact that the BLM never had, and most recently, has explicitly disclaimed any authority to require improvement of sage-grouse habitat, this provision would burden non-habitat with excessive impacts by removing forage for wildlife and livestock without any corresponding analysis of those impacts. As written, the Alignment Alternative increases development opportunities in non-PHMA while prioritizing mitigation efforts in PHMA without disclosing the secondary effects of that prioritization to livestock permittees or wildlife habitat or other development, such as transmission lines, mineral development, solar facilities or mine operations.

Any Mitigation Must Conform to FLPMA Standards The most defensible approach to mitigation is to closely abide by the plain language of federal statutes as to the extent that those principles can be accomplished by the State of Wyoming's Compensatory Mitigation Framework ("Framework"). The Coalition recognizes that the State of Wyoming's Compensatory Mitigation Framework includes a "net conservation gain" concept, but Wyoming's Core Area Strategy, EO 2015-04, does not include that concept and the BLM is not bound to follow state programs that conflict with federal law. The Framework, however, gives federal land permittees and licensees increased flexibility to operate on federal lands within sage-grouse habitat. The Coalition supports a mitigation program that will increase the ability of operators to produce energy, support local economies, and promote the custom and culture of Wyoming and the Framework may help operators continue to work in Wyoming absent any unlawful standard to improve sage-grouse habitat.

SER CD strongly supports the removal of the phrase "net conservation gain" from all management actions across all RMPs. The term "net conservation gain" is not clearly defined and understood which allows for potential arbitrary and capricious implementation.

SER CD supports the BLM deferring to the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework for all applications of compensatory mitigation if it is determined that site-specific project conservation measures are inadequate for the conservation of greater sage-grouse and compensatory mitigation is required.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining

activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

Despite its essential role in the overall conservation strategy, the BLM's proposed Management Alignment alternative strips 'net conservation gain' from all management actions across all RMPs (DEIS Table 2-1 at 2-14) and fails to disclose the environmental consequences likely to result from that decision. And while the DEIS states that "the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities" and requests public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans (DEIS at ES6) it is clear that DOI and BLM have already decided the issue. BLM Instruction Memorandum No. 2018-093, issued on July 24, 2018 - a little over a week before the close of the public comment period for this DEIS- states that the BLM will no longer require compensatory mitigation to achieve net conservation gain for greater sage-grouse. Instead, the BLM intends to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework." DEIS at 2-4. The BLM must prepare a supplemental analysis disclosing how this significant policy change may impact the efficacy of the BLM's conservation plans. This dramatic change in policy raises additional concerns. First, unlike the 2015 ARMPA, the State's mitigation framework does not require compensatory mitigation until and unless density and disturbance "thresholds" have been exceeded. Consequently, oil and gas development that meets the EO thresholds can take place in core habitat without any requirement for compensatory mitigation to offset the impacts. This obviously results in a net loss of habitat. Second, the BLM has never established that the State of Wyoming has the legal authority to require compensatory mitigation. So, while Wyoming Executive Order 2018-3, issued by Governor Mead on July 23, 2018, reiterates that "compensatory mitigation is an essential component of a long-term conservation strategy..." neither the mitigation framework nor the Governor's EO cite to any legal authority to support the state's plan to impose compensatory mitigation. The lack of a reference to specific legal authority to support the imposition of compensatory mitigation of course raises the question whether such authority exists. We recommend that before adopting this approach the BLM should ask the state to provide an Attorney General's Opinion setting forth this authority. In light of BLM IM 2018-093, the AG Opinion should specifically address the State's authority to require compensatory mitigation on federal lands. We are of course concerned that a successful legal challenge of the state's authority to require compensatory mitigation could result in a situation where compensatory mitigation is not implemented on federal lands, or worse, anywhere within Wyoming.

Net Conservation gain At the request of the State of Wyoming, the Management Alignment Alternative in this Draft RMPA/EIS proposes a change by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. We support this proposed change. The concept of 'no net loss' adopted by the State of Wyoming and in accordance with SO 3353 is more appropriate for management of the species in core habitat.

Complementing these regulatory requirements for Wyoming mines are the additional local and private conservation efforts. Wyoming Mining Association believes the BLM must acknowledge these efforts in the Draft RMP/EIS, especially when they go above and beyond the requirements of the mining permits in Wyoming, or when BLM is a party to the efforts. One example of such an effort is one of the largest and most inclusive Candidate Conservation Agreements ever developed under the Endangered Species Act, and in which numerous Wyoming mining operations are active participants.

Habitat objectives outlined in the draft resource management plan. Because this required mine reclamation is a landscape activity, we contend it meets BLM's understanding that Greater sage-grouse is a species that selects for large, intact landscapes and habitat patches. Reclamation in Wyoming includes activities such as complete reconstruction of many thousands of acres of land surface, construction of streams and reservoirs, creation of wildlife habitat and features, and full revegetation of the entire disturbed area. This can, and is, being done to fully support the life-stage requirements for Greater sage-grouse and many other species, rendering compensatory mitigation duplicative, unwarranted, and perhaps counter-productive.

Compensatory Mitigation and Voluntary actions Compensatory mitigation is not needed everywhere or for all activities in the State of Wyoming. For example, our membership, the Wyoming mining operators work under the regulatory authority of the Wyoming Department of Environmental Quality. All operations have extensive reclamation requirements that exceed the Seasonal www.wyomingmining.org

Under this Conservation Agreement, the Thunder Basin Grasslands Prairie Ecosystem Association, along with BLM, U.S. Fish and Wildlife Service, and several other federal and state agencies entered into an Interagency Memorandum of Understanding (MOU) to promote coordination and collaboration between parties and define how the conservation strategy will apply within and adjacent to the Thunder Basin National Grasslands. The RMP will be deficient if this and other local and state and private conservation actions are not acknowledged, especially when that BLM is party to the action or effort. BLM already requires compensatory mitigation through stipulations for development for individual projects such as Leases By Application (LBAs). And recently, release of the BLM Instructional Memorandum 2018-093 on July 24 suggests that compensatory mitigation "must not" be applied as a requirement to users of public lands except where it may be required by specific laws. Wyoming Mining Association believes these new requirements must be included in the modified RMP in order to ensure consistency across all public lands with all agency policies and directives.

In summary of this point, the BLM should revise the Draft RMP/EIS to include provisions that recognize reclamation performed by mining operations in Wyoming is already conducted under an extensive regulatory program and is more than sufficient to support the life-stage requirements of Greater sage-grouse. This renders compensatory mitigation unwarranted for mines in Wyoming. Mitigation that is performed under the umbrella of a Conservation Agreement or other state or local or private conservation efforts must not be overlooked in the RMP. The BLM has acknowledged through Memoranda of Understanding for CCAAs (for example) that they are not likely to impose additional conservation measures or lease restrictions to operators or entities with lands covered by Conservation Agreements. The Draft RMP/EIS needs to clearly recognize these commitments by the agency and remove the requirements for additional compensatory mitigation.

Mitigation Framework We believe that a comprehensive mitigation policy provides one of the best opportunities to achieve both sustainable energy development and conservation goals. We therefore

encourage the BLM to fully incorporate the State's mitigation framework in the RMP revisions. Where impacts cannot be avoided or minimized, a well-designed compensatory mitigation program should be implemented in order to achieve the multiple-use objectives of federal lands. However, compensatory mitigation is not needed everywhere or in every circumstance. Local collaborative conservation efforts can help provide mitigation benefits as well, especially when they go above and beyond existing regulatory requirements. We would again encourage the BLM to acknowledge the Association's integrated CCAA/CCA/CA along with other private or state conservation efforts that provide benefit to the species.

Modifying Habitat Management Area Designations The Wyoming DEIS is requesting comment on the "[in]tegration of flexibility into the plans to be able to adjust habitat management area boundaries without the need for plan amendment." Wyoming DEIS at ES-3. Under FLPMA, 43 U.S.C. §§ 1701-1785, requirements for land use planning on public land include that the BLM, under the Secretary of the Department of the Interior, "develop, maintain, and when appropriate, revise land use plans" to ensure that land management be conducted "on the basis of multiple use and sustained yield." 43 U.S.C. §§ 1701(a)(7), 1712(a); see also *Klamath Siskiyou Wildlands Center v. Boody*, 468 F.3d 549, 555 (9th Cir. 2006). As between plan maintenance and plan revisions, "these provisions were created as complements, and taken together they ensure that whatever resource management plans are changed in any meaningful way, the changes must be made by amendment (i.e., supported by scientific environmental analysis and public disclosure)." This is consistent with FLPMA's requirement that the BLM ensure the "views of the general public" and "third-party participation" are adequately incorporated into the land planning process. [Citation omitted.] This interpretation is also supported by provisions of FLPMA that require the BLM to manage public lands in accordance with resource management plans once they have been established." *Klamath Siskiyou Wildlands Center* at 557. In the Ninth Circuit, the test is that the dividing line between plan maintenance and plan revisions is if a "dramatic change in policy" effectuates a change in a "term or condition" in the existing RMP. *Id.* at 559-60. Under 43 CFR § 1610.5-4, plan maintenance actions are limited to further refining or documenting a previously-approved decision incorporated in the plan." Further, "maintenance shall not result in expansion in the scope of resource uses or restrictions, or change the terms, conditions and decisions of the approved plan." By contrast, 43 CFR § 1610.5-5 requires more extensive plan amendment triggered by "the need to consider monitoring an evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan."

The BLM Land Use Planning Handbook, H-1601-I, Part VI, Chapter (H) further directs that land use plan maintenance is limited to "clarifying a previously approved decision incorporated into the plan" including such examples as refining the boundary of an archeological district based on new inventory data and refining the known habitat of a special status species addressed in the plan based on new information, and, upon new discovery of a sage-grouse lek, and applying an existing oil and gas lease stipulation to a new area. *Id.* at 44. The Commenters support the laudable purposes of flexibility for adjustment of HMAs without the need for a plan amendment. The issue is how to define the outer reaches of "plan maintenance" from material changes that would warrant the formality of land use plan amendments under FLPMA. The DEIS Management Alignment Alternative proposes to update and make adjustment to HMAs and include language that would allow the BLM to update the HMAs through plan maintenance "when appropriate, based on the most updated best available science." Such efforts to reflect the accurate habitat on the ground would serve the laudable purpose of allowing infrastructure

and economic development to occur in areas that would not impact the species. See Wyoming DEIS at ES-3.

Compensatory Mitigation i. The BLM Has Conceded that Net Conservation Gain Was Unlawfully Inserted into the Wyoming ARMPA Under NEPA For purposes of the proposed RMP changes: "At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS proposes a change to the compensatory mitigation by modifying the net conservation gain standard for compensatory mitigation that the BLM incorporated into its plans in 2015." Wyoming DEIS at ES-6. But as correctly stated in the Wyoming DEIS, the public was not afforded the opportunity to comment on this mitigation standard to be applied for GRSG conservation because it came well after the DEIS was published and comment period closed. *Id.* Accordingly, the United States concedes this key feature of the 2015 RMP as fatally defective as a matter of NEPA process review.

Net Conservation Gain, as a Mitigation Requirement, Is Not Authorized under FLPMA There is no lawful authority by the BLM to impose "net conservation gain" in an RMP, even if it is a desired environmental mitigation baseline by some constituencies to this BLM LUP review. FLPMA represents a "balance of two vital - but often competing - interests": the "need for domestic sources of minerals, food, timber, and fiber from the public lands," and the protection of "the quality of scientific, scenic, historical, ecological, environmental, air, and atmospheric, water resource, and archeological values." *Mineral Policy Center v. Norton*, 292 F. Supp. 2d 30, 33 (D.D.C. 2003) (quoting 43 U.S.C. §§ 1701(a)(12) and (a)(8)). FLPMA contemplates and accepts that authorized land uses can have impacts on Federal lands. The statute requires the Secretary to "take any action necessary to prevent unnecessary or undue degradation of the [public] lands," 43 U.S.C. § 1732(b), a provision referred to as the "UUD" standard. BLM's regulations define UUD, for mining purposes, as prohibiting "conditions, activities, or practices" that are "not reasonably incident to prospecting, mining, or processing operations." 43 C.F.R. § 3809.5 (quotation marks omitted). Even if desired, the UUD standard does authorize the BLM to limit the degradation of public land resources resulting from authorized uses. The agency may prohibit not only unnecessary impacts but also those impacts that, despite being necessary to an authorized land use, are undue or excessive. As directed by Congress, FLPMA accommodates reasonable public land development in order to fulfill the vision of the multiple use mission of Western public lands. Accordingly, flexibility within designated habitat management areas is accommodated through the UUD degradation standard as a direct expression of Congress. GRSG conservation-range wide-can comfortably be implemented to compensate for reasonable land use within important GRSG habitat without confronting FLPMA's delicate balancing of land use and land stewardship.

Truly Voluntary Conservation Should Be Accounted for in the Wyoming Plan Amendment In IM 2018-093, the BLM recently had cause to define the parameters of voluntary compensatory mitigation. According to IM 2018-093, compensatory mitigation as a condition of permitting is not authorized under any organic direction under FLPMA as a required condition to use public lands. However, compensatory mitigation that a project proponent proposes continues to be a tool, but, importantly, must be voluntary. According to the BLM, compensatory mitigation is "voluntary" when a project proponent's activities, payments, or in-kind contributions to conduct offsite actions to minimize the impacts of a proposed action are free of coercion or duress, including the agency's withholding of authorization for otherwise lawful activity, or the suggestion that a favorable outcome is contingent upon adopting the compensatory mitigation program. Indicia of voluntary compensatory mitigation are that the BLM not explicitly or implicitly suggest that project approval is contingent upon proposing compensatory

mitigation or that doing so would reverse or avoid an adverse finding. If voluntary, a project proponent may proffer such mitigation and the BLM may consider such voluntary compensation as a means to reach a finding of no significant impact ("FONSI") or as a part of a proposed designed feature of a project. See IM 2018-093. Commenters' members have engaged in voluntary ESA conservation activity, including candidate conservation agreement with assurances ("CCAAs") on private surface and candidate conservation agreement (CCA, without assurances) on Federal surface. The construct, operation, and funding of these agreements have been, and will continue to be, a fundamental part of the business model of companies whose activities may affect species with special status designations or their habitat. Accordingly, to the extent such voluntary conservation is reaffirmed and voluntarily implemented, they must be accounted for appropriately in this LUPA as an asset to GRS conservation.

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compensatory mitigation program. Indicia of voluntary compensatory mitigation are that the BLM not explicitly or implicitly suggest that project approval is contingent upon proposing compensatory mitigation or that doing so would reverse or avoid an adverse finding. If voluntary, a project proponent may proffer such mitigation and the BLM may consider such voluntary compensation as a means to reach a finding of no significant impact ("FONSI") or as a part of a proposed designed feature of a project. See IM 2018-093. Commenters' members have engaged in voluntary ESA conservation activity, including candidate conservation agreement with assurances ("CCAAs") on private surface and candidate conservation agreement (CCA, without assurances) on Federal surface. The construct, operation, and funding of these agreements have been, and will continue to be, a fundamental part of the business model of companies whose activities may affect species with special status designations or their habitat. Accordingly, to the extent such voluntary conservation is reaffirmed and voluntarily implemented, they must be accounted for appropriately in this LUPA as an asset to GRSG conservation.

Good mitigation policy and practice is one of the best opportunities to achieve sustainable development and conservation goals. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives.

Do not strip the fundamental mitigation goal of "net conservation gain" from the plans. A no net loss of habitat merely prevents additional habitat loss and is not adequate to achieve long-term conservation of sage-grouse.

2.3.2 Management Alignment Alternative, page 2-4, Compensatory Mitigation With regard to compensatory mitigation requirements, WACD supports the Wyoming EO wherein compensatory mitigation is only required in core areas (identified by BLM as Priority Habitat Management Areas (PHMAs)) and only if specific core area (PHMA) thresholds are exceeded. We further support the idea of consistent application of compensatory mitigation ratios as outlined in the EO's Compensatory Mitigation Framework. In order for the RMPs to be consistent with the EO in these areas, the RMPs need to be changed to eliminate all compensatory mitigation requirements outside of core areas (identified by BLM as General Habitat Management Areas (GHMAs)) and to only require compensatory mitigation in core areas (PHMAs) when specific thresholds are exceeded. In addition, WACD supports the removal of the net conservation gain standard from all management actions across all RMPs and supports the BLM intent to follow the Wyoming EO regarding the Revised Greater Sage-Grouse Compensatory Mitigation Framework.

Table 2-1 Alternatives Comparison, page 2-14, Recreation Facilities and Net Conservation Gain WACD strongly supports BLMs decision to remove the "net conservation gain" standard from all RMPs as outlined in the DRMPA DEIS. We support language that focuses on the mitigation hierarchy of avoid, minimize, mitigate and the Wyoming EO regarding Compensatory Mitigation Framework. Therefore, the "net conservation gain" should be eliminated from this heading.

MITIGATION The DEIS contains language requesting comments on how the Bureau of Land Management (BLM) should consider and implement sage-grouse mitigation and we are pleased to respond to that request. The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request

public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans. The Wyoming DEIS also removed the requirement of a net conservation gain standard for their mitigation programs. We oppose that removal. BLM publication of Instruction Memorandum No. 2018-093 (IM) on July 24, 2018, contradicts much of the Conservancy's research and information on sage grouse mitigation - and mitigation generally. Specifically, the IM prohibits BLM from requiring or enforcing compensatory mitigation measures, stating: BLM will not impose, and will not build mechanisms for it to enforce, mandatory compensatory mitigation into its official actions, authorizations to use the public lands, and any associated environmental review

Further, to the extent that BLM could rely on the range of alternatives originally evaluated for the 2015 Wyoming Plan (which it cannot, as discussed above), those alternatives are of no help. None of those alternatives disclaimed the authority to impose "compensatory mitigation" as a means of offsetting unavoidable impacts on sage-grouse. In fact, compensatory mitigation was incorporated into all alternatives. In conclusion, IM 2018-093 requires "substantial changes" to the Draft EIS's Management Alignment Alternative that are not evaluated in the Draft EIS or the 2015 Wyoming Plan. Accordingly, BLM must now prepare a supplemental EIS to evaluate the elimination of the new prohibition on compensatory mitigation.

Mitigation (avoidance, minimization, and compensation) as adopted in the 2015 BLM land use plans is an effective and well-established tool that the Fish and Wildlife Service relied upon to support its decision not to list the Greater Sage-Grouse as threatened or endangered under the Endangered Species Act. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent framework for reviewing use requests and meeting their multiple use and sustained yield mandates. The 2015 BLM sage-grouse plans employed the mitigation hierarchy to help reach their goal of protecting sage-grouse while also allowing multiple uses to proceed by ensuring that associated impacts to habitat are fully offset.

[Wyoming's Compensatory Mitigation] Framework as the primary tool to evaluate and quantify debits and calculate the number of credits required for compensatory mitigation." MOU at 6. Furthermore, land users should not be required to adhere to two separate compensatory mitigation structures, one administered by BLM and one administered by the State. Because the USFWS has lauded the State's management of greater sage-grouse, see, e.g., 80 Fed. Reg. 59,857, 59,883 (Oct. 2, 2015), BLM appropriately may defer to the State's Compensatory Mitigation Framework.

BLM Should Eliminate the Compensatory Mitigation Standard of "Net Conservation Gain."

ConocoPhillips agrees with BLM's proposal to eliminate the requirement that compensatory mitigation provide a "net conservation gain to the species including any accounting for uncertainty associated with the effectiveness of such mitigation." See Draft RMPA/EIS at 2-13 (modifying Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse ("9-Plan ARMPA"), MD SSS 4 (2015); Buffalo Approved RMP at 339 (2015)). The mitigation standard of "net conservation gain" is no longer consistent with federal and Departmental policy because the Secretarial Order and Presidential Memorandum upon which the standard of "net conservation" was premised have been rescinded and revoked, respectively. See Executive Order No. 13,783 of March 28, 2017, 82 Fed. Reg. 16,093 (Mar. 31, 2017) (rescinding Presidential Memorandum of November 3, 2015, Mitigating Impacts on Natural Resources from

Development and Encouraging Related Private Investment); Secretarial Order No. 3349 (Mar. 29, 2017) (revoking Secretarial Order 3330 (Oct. 31, 2013)). Furthermore, the mitigation standard of "net conservation gain" is inconsistent with the Federal Land Policy and Management Act (FLPMA). This statute contains no mitigation requirement and only allows BLM to reject land uses that will result in "unnecessary or undue degradation" to the public lands. See 43 U.S.C. § 1732(b). Moreover, BLM lacks authority to condition development of valid existing federal oil and natural gas leases on a requirement that lessees provide compensatory mitigation. Finally, the standard of "net conservation gain" requires land users to provide compensatory mitigation that exceeds, and therefore is disproportionate to, the impacts of development. For these reasons, ConocoPhillips agrees with BLM's proposal to remove the "net conservation gain" standard from the Draft RMPA/EIS. BLM Should Adopt Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework. ConocoPhillips supports the Draft RMPA/EIS's proposal that BLM "[a]dopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework Draft RMPA/EIS at 2-13 (modifying 9-Plan ARMPA, MD SSS 4; Buffalo Approved RMP at 339). This proposal is consistent with BLM's commitment in its 2017 Memorandum of Understanding (MOU) "to promote a cohesive and consistent conservation strategy for the greater sage-grouse and its habitat in Wyoming." In that MOU, BLM agreed "to incorporate

BLM, however, should revise the language in Alternative B that BLM "[a]dopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal policy." Draft RMPA/EIS at 2-13 (emphasis added). Specifically, BLM should eliminate the suggestion that it need not adopt the State of Wyoming's Compensatory Mitigation Framework if it is inconsistent with federal policy. RMPs are subject to public review and comment and coordination with states, local governments, and tribes, but federal policies are not. In FLPMA, Congress expressly directed public and stakeholder involvement in the development of RMPs, requiring that BLM "shall allow an opportunity for public involvement and by regulation shall establish procedures to give Federal, State, and local governments and the public, adequate notice and opportunity to comment upon and participate in the formulation of plans and programs relating to the management of the public lands." 43 U.S.C. § 1712(f); accord 43 C.F.R. §§ 1610.2, 1610.3-1, 1610.5-2. By contrast, agency policies need not be subject to any public comment or other stakeholder review. 5 U.S.C. § 553(b)(3)(A). The Final RMPA/EIS should not allow changes to governing Compensatory Mitigation Framework based on the whims of BLM policy. This concern is not abstract. Between 2013 and 2016, BLM and the Department of the Interior issued a suite of policies specifically addressing compensatory mitigation. See Secretarial Order 3330 (Oct. 31, 2013); BLM Manual 1794-1, Mitigation (Rel. 1-1782 Dec. 22, 2016); BLM Handbook 1-1794-1, Mitigation (Rel. 1-1783 Dec. 22, 2016); 81 Fed. Reg. 83,440 (Nov. 21, 2016). Yet not all this guidance was subject to meaningful public comment. Conceivably, BLM could unilaterally resurrect these or similar policies and, if inconsistent with Wyoming's Compensatory Mitigation Framework, decline to rely on the State's framework. Therefore, BLM should remove the statement that it will defer to the State's compensatory mitigation framework "to the extent consistent with federal . . . policy." BLM Should Only Limit Noise within PHMA.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss

of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

Despite its essential role in the overall conservation strategy, the BLM's proposed Management Alignment alternative strips 'net conservation gain' from all management actions across all RMPs (DEIS Table 2-1 at 2-14) and fails to disclose the environmental consequences likely to result from that decision. And while the DEIS states that "the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities" and requests public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans (DEIS at ES6) it is clear that DOI and BLM have already decided the issue. BLM Instruction Memorandum No. 2018-093, issued on July 24, 2018 - a little over a week before the close of the public comment period for this DEIS- states that the BLM will no longer require compensatory mitigation to achieve net conservation gain for greater sage-grouse. Instead, the BLM intends to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework." DEIS at 2-4. The BLM must prepare a supplemental analysis disclosing how this significant policy change may impact the efficacy of the BLM's conservation plans. This dramatic change in policy raises additional concerns. First, unlike the 2015 ARMPA, the State's mitigation framework does not require compensatory mitigation until and unless density and disturbance "thresholds" have been exceeded. Consequently, oil and gas development that meets the EO thresholds can take place in core habitat without any requirement for compensatory mitigation to offset the impacts. This obviously results in a net loss of habitat. Second, the BLM has never established that the State of Wyoming has the legal authority to require compensatory mitigation. So, while Wyoming Executive Order 2018-3, issued by Governor Mead on July 23, 2018, reiterates that "compensatory mitigation is an essential component of a long-term conservation strategy..." neither the mitigation framework nor the Governor's EO cite to any legal authority to support the state's plan to impose compensatory mitigation. The lack of a reference to specific legal authority to support the imposition of compensatory mitigation of course raises the question whether such authority exists. We recommend that before adopting this approach the BLM should ask the state to provide an Attorney General's Opinion setting forth this authority. In light of BLM IM 2018-093, the AG Opinion should specifically address the State's authority to require compensatory mitigation on federal lands. We are of course concerned that a successful legal challenge of the state's authority to require compensatory mitigation could result in a situation where compensatory mitigation is not implemented on federal lands, or worse, anywhere within Wyoming.

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Recognition of the State of Wyoming's role in Wildlife Management and Conservation Strategy We particularly welcome the greater recognition of the Wyoming's role in managing wildlife species in general and, specifically, in the conservation of the Greater SageGrouse. It is clear that BLM has made an effort to align the draft plan amendment more closely to Wyoming's Sage-grouse strategy. This is appreciated. The deference to state mitigation plans and removal of all references to the concept of "net conservation gain" is welcomed by our industry. We were pleased to see that the draft plan amendment removes the requirement for BLM assessment of the potential risk to sage grouse from existing structural range improvements in the General Habitat Management Areas and recognizes Wyoming's identified "de minimus" activities including fencing and small water impoundments. Further, we would support proceeding with the development of a concurrent Programmatic NEPA analysis on all activities deemed "de minimus" by the state of Wyoming. Furthermore, the elimination of Sagebrush Focal Area (SFAs) designations is also an important change that allows for the BLM plan to be more closely aligned with the Priority Habitat Management areas (PMHAs) within Wyoming's Core Areas.

Mitigation WCCA supports the BLM's removal of the phrase "net conservation gain" from all management actions across all RMPs. This change is consistent with the rescission of BLM policies and Executive and Secretarial Orders requiring net conservation gain, without which the BLM has no authority and direction to require mitigation above and beyond impacts. The BLM should instead rely on the Council on Environmental Quality NEPA regulations relating to mitigation, as proposed in the RMPA. Additionally, WCCA fully supports the BLM's proposal to adopt and defer to the Wyoming Compensatory Mitigation Framework regarding the applicability and determination of compensatory mitigation.

There were significant changes the compensatory mitigation that need to be addressed in order to improve the conservation efforts for the Greater Sage-Grouse. First, in the 2015 FEIS, or No Action Alternative, the Bureau would have been required to ensure mitigation that provided a net conservation gain to species by avoiding, minimizing, and compensating for harmful impacts. In the Preferred Management Alignment Alternative, the Bureau now wants to follow the State's Greater Sage-Grouse Compensatory Mitigation Framework and remove the "net conservation gain" from all management actions. Second, in the No Action Alternative, if the conservation measures taken during the construction of recreational facilities were inadequate for the conservation of Greater Sage-Grouse, the Bureau would require and ensure compensatory mitigation that provides a net conservation gain to the species. In the Management Alignment Alternative, when the conservation measures taken during the construction of recreational facilities are inadequate, the Bureau would give deference to the Wyoming's Greater Sage-Grouse Compensatory Mitigation framework, and the State would determine compensatory mitigation. However, due to the anticipated cumulative impacts in the planning area, American Bird Conservancy sees that "net conservation gain" standard as necessary to the vitality of the Greater Sage-Grouse in Wyoming. The "net conservation gain" standard would help ensure the Greater Sage-Grouse population can recover and flourish once again.

Sweetwater County supports the Management Alignment Alternative concept of no net conservation gain. Concerning references to the Wyoming Compensatory Mitigation Framework", Sweetwater County agrees with this framework, but only if the compensatory mitigation is implemented within the county impacted and as close as possible to the area of environmental disturbance. Sweetwater County may be more supportive of the State of Wyoming Compensatory Mitigation Framework if a sage grouse mitigation bank was located within the county.

The language in Section 4.3 on Pages 4-18 and 4-19 of the RMPA, under the heading "Compensatory Mitigation and Net Conservation Gain," must be modified to reflect that the Framework is only designed to offset residual impacts that remain after avoidance and minimization measures are implemented and does not include any provision for "net gain".

The language in Section 4.5 on Page 4-20 of the RMPA should be modified to reflect the previous 9 Plan Amendment analysis and USFWS', BLM's and the federal court's consistent endorsement of Wyoming's sage-grouse core area strategy. Specifically, Section 4.5 should reference the analysis completed in Appendix D of the 9 Plan Amendment and the detailed description of what is required for compensation to meet the rigor required by the Federal Land Policy and Management Act (FLPMA) and NEPA. Appendix D to the 9 Plan Amendment describes specific measures that can and should be implemented by the BLM to meet the objectives identified in the Conservation Objectives Team report. (COT report 2013). Starting on page D-5, Appendix D contains a detailed explanation as to how the BLM can "STOP POPULATION DECLINES AND HABITAT LOSS" consistent with COT Objective I. Step 1 in the process requires that BLM to determine the adequacy of the proposal (Appendix D to 9 Plan Amendment at pp. D-9). Step 2 involves the evaluation of the proposal for consistency with the Land Use Plan, which, when paired with other changes to Appendix B below, makes imminently more sense (Appendix D to 9 Plan Amendment at pp. D-9 to D-15). Step 3 is to apply avoidance and minimization consistent with NEPA's mitigation definition (Appendix D to 9 Plan Revision at p. D-15). Step 4 discusses how BLM will deploy compensatory mitigation. (Appendix D to 9 Plan Revision at pp. D-15 to D-18). Ignoring for a minute the reference to the currently defunct WAFWA Management Zone Regional Mitigation Strategy, the detailed provisions for "compensation" set forth in Appendix D are particularly intriguing and demonstrate that the BLM has fully analyzed the central facets of the Framework. By simply cross walking the provisions of Appendix D with the language in the Framework, it is clear that the "Compensation" section undoubtedly relies heavily upon the Framework. Both the Framework and Appendix D address the following provisions in almost identical terms: -Project impact valuation using a common, standardized calculation methodologies (see Appendix D to 9 Plan Amendment at pp. D-16 and D-17 and Framework at pp. 6-9); -Compensatory mitigation options (see Appendix D to 9 Plan Amendment at p. D-17 and Framework at pp. 2 and 6); -Compensatory mitigation siting (see Appendix D to 9 Plan Amendment at p. D-17 and Framework at pp. 2-6); -Compensatory mitigation compliance and monitoring (see Appendix D to 9 Plan Amendment at p. D-17 and Framework at pp. 2-6); -Compensatory mitigation reporting (see Appendix D to 9 Plan Amendment at p. D-17 and Framework at p. 5); and -Compensatory mitigation program standards and implementation guidelines (see Appendix D to 9 Plan Amendment at p. D-17 and Framework at pp. 2-9). Even with these considerable similarities, Appendix D to the 9 Plan Amendment should still be modified to remove reference to "net gain" and the references to the "WAFWA Management Zone Greater Sage-Grouse Conservation Team." Additionally, references to the "WAFWA Management Zone Regional Mitigation Strategy" should be deleted and replaced with language that compensation will be deployed consistent with EO 2015-4 and the Framework. To create a pointless federal committee (which, to date, has not

been missed) and engage needless procedural acrobatics is unnecessary and duplicative considering the standing federal/state SGIT and existing direction provided in Executive Order 2015-4 and Framework. To do otherwise will only create confusion, waste federal and state resources and invite more federal/state inconsistencies.

Appendix B must be clarified through limited modifications or replaced, in its entirety, with the Framework. BLM Wyoming has generally interpreted the 9 Plan Amendment as not allowing seasonal and other exceptions within core and non-core sage grouse areas. The only latitude recognized by the BLM State Office is if the operator can demonstrate the stipulation should not have applied in the first place (mapping etc.) or the conditions on the ground have changed since mapping was done (i.e. wildfire, etc.). As a practical matter, BLM's position rejects Wyoming's support of limited exceptions, modifications or waivers, which have been a part of the Wyoming strategy since 2008. The Wyoming BLM State Office is even more hostile to using the compensatory mitigation envisioned in the Framework to serve as a basis for relief from the various stipulations (including relief from seasonal stipulations), conditions of approval and other restrictions applied to federal lands. While exceptions have been granted by the BLM, the process for granting relief is arbitrary and not consistent with the 9 Plan Amendment, EO 2015-4, Appendix H to EO 2015-4 and the Framework.

To further safeguard a logical reading of "modified Appendix B," the Department and BLM should immediately issue instructional guidance to Wyoming BLM field offices to interpret the modified language to permit exceptions, including seasonal relief, consistent with the Framework and to fully engage and coordinate their permitting with the Wyoming Game and Fish Department. In the alternative, BLM could follow the lead of the U.S. Forest Service and simply delete Appendix B and replace it, in its entirety, with the Framework. No matter the path chosen by BLM to finally achieve consistency with Wyoming's sage-grouse conservation strategy, which is contemplated both in the Notice of Intent for the RMPA and EIS and by FLPMA, BLM must also craft its procedures to ensure that seasonal stipulation relief and other exceptions are considered and approved at the point the Application(s) for Permit to Drill (APD) are submitted. Such a process is especially appropriate where a project-level environmental impact statement has been completed and seasonal stipulation relief and other exceptions are fully analyzed for a particular field or development.

statement of the programmatic evaluation of the Wyoming plan as documented in the various agency actions, including BLM. As noted previously, implementation of true alignment will not occur unless the RMPA, EIS and Record of Decision contain explicit statements of policy and direction. The available options include: 1. Insertion of a simple statement to the effect the RMPA, EIS and Record of Decision's treatment of alignment with the Wyoming strategy (as of a date certain) supersedes anything to the contrary contained within the 9 Plan Amendment; 2. Formal adoption of Wyoming EO 2015-4, Appendix H thereto and the Framework (as of a date certain) as the Wyoming BLM Sensitive Species Policy applicable the Greater sage-grouse habitat management in the final RMPA, EIS and Record of Decision; or 3. Release of detailed guidance within the RMPA, EIS and Record of Decision to interpret the provisions of the 9 Plan Amendment and RMPA to align with the Framework. Any of these three options or some variant thereof would be consistent with the "purpose and need" of the RMPA and EIS, Secretarial Order 3353 and BLM's Manual 6840 Section 2. To further develop the rationale for this statement, we will address each of the cited documents in turn.

Section 2. IMPACT OF ADOPTING STATE OF WYOMING GREATER SAGE- GROUSE -

COMPENSATORY MITIGATION FRAMEWORK BLM alignment with the Wyoming strategy will benefit the statewide sage-grouse population. However, alignment with the Wyoming strategy will not occur without direct language in the RMPA, EIS and final Record of Decision ordering such a result. The RMPA and EIS do not explicitly address specific language contained in the 9 Plan Amendment that must be changed to meet the "purpose and need," address inconsistencies between state and federal management direction and achieve the Trump Administrations interest in "energy dominance". Ideally, the preferred alternative would clearly delineate modified, direct language or at least a clarification of the interpretation of the language to align with EO 2015-4, specifically including the Framework . The RMPA and EIS reflect further analysis of the Wyoming mitigation strategy, which supplements the 9 Plan Amendment's analysis of EO 2015-4's exception and compensatory mitigation process that existed at the time the 9 Plan Amendment was adopted. We have previously noted the approval of the Wyoming approach by the USFWS, BLM and the courts. Wyoming's program has been assessed and endorsed in numerous forums. While the RMPA and EIS reference USFWS' approval of the Wyoming plan, it would benefit from a clear summary

Central to the State's mitigation policy is the Framework. As background, the Framework starts with the following language: Compensatory mitigation may be accomplished in two primary manners. The first are "conservation credits," which maintain existing habitats in a landscape context, provide for long-term management consistent with the needs of the species, and remove potential threats to the species from human activities. The second are "restoration credits," which may be used to restore habitats that have been lost or severely impacted and did not meet the habitat needs of the species. Full suitability of lost or severely impacted sites may take decades. However, to provide incentives to restore habitats impacted by historic activities, restoration credits will be given to sites that have improved from lost or severely impacted to a stable and functional condition that demonstrates a positive trend toward suitability (over a period of 5 years) and is currently occupied by GSG. Restoration credits must demonstrate the stability, functionality and occupation before any credits are awarded. The Framework goes on to specify certification requirements for conservation credits, which, as noted previously, are mirrored in the requirements for compensation in Appendix D of the 9 Plan Amendment at Pages D-16 through D18, and quantification methodologies to calculate the "debts" associated with impacts to both PHMA and GHMA.

Pathfinder Ranches has repeatedly opposed the inclusion of "net gain" in every policy revision, NEPA review and project that has been undertaken before and since the adoption of the 9 Plan Amendment. Our most expansive comment on this score came in response to the prior administration's Potential Revision of the U.S. Fish and Wildlife Service (Service) Mitigation Policy and Endangered Species Act Compensatory Mitigation Policy (ESA-CMP) (see Docket No. [FWS-HQ-ES2015-0126 or FWS-HQ-ES-2015-0165]), which is attached for your reference and for the record as Attachment B. Pathfinder Ranches' USFWS Mitigation Policy comments were truncated in favor of the following in Pathfinder Ranches' scoping comments for this RMPA: The Obama Administration's shift from a "no net loss" standard to net gain or "conservation benefit" is clearly on questionable or non-existent legal grounds. As a practical matter the addition of "net gain" to mitigation analysis simply muddies the water, particularly since "net gain" is truly in the eye of the beholder. BLM, USFWS, federal agencies and project proponents will invest time and money in an exercise unsupported by the organic acts supporting the federal action under review, namely FLPMA. The concept of "net gain" is contrary to every common sense, prior policy or dictionary definition of mitigation. BLM's inclusion of "net gain"

may reflect a preference for how it thinks the law should work, but it does not reflect what the law actually requires. To the crux of the matter, many in the Department have focused on the fact that the Framework imposes offsets at a level greater than 1:1 as a signal that it, de facto, imposes a net gain-esque requirement. This interpretation misreads the logic behind the Framework offset calculation and does not take into account the many discussions with industry, BLM and other parties leading up to its adoption rooted in an emphasis on only requiring offsets that were necessary to offset the residual impacts that exist after avoidance and minimization are pursued and implemented. In fact, the offset calculations in the Framework are viewed by the state as an incentive to avoid and minimize as much of the impact as possible to avoid the more intense offset requirements in the more sensitive sage-grouse habitat types (i.e. .6 mile no surface occupancy (NSO) buffer, 1.9-mile haul road limitation, etc.). Even then, the higher ratios are designed to only address the residual impact that exists after avoidance and minimization are applied. And the logic works in practice. If a project is designed to impact one acre in the .6-mile NSO buffer, the residual impact is 10 debits. If the proponent redesigns the project and misses the buffer, the residual impact is 0 and 0 debits are calculated. Should the Department disregard the ratios in the Framework in favor of a 1:1 structure, it risks a system that treats all habitat the same, irrespective of its utility to the species, and undercutting the value of the core/non-core area distinction that is at the heart of the Wyoming sage-grouse conservation strategy. For instance, if impacts in the GHMA .25-mile NSO buffer are mitigated at the same rate as impacts in the PHMA .6-mile NSO buffer, there is no incentive or policy direction to move the impact outside of PHMA. 1:1 is 1:1 and the well siting decision will be made without consideration for the impact on the species and the viability of the Courtendored Wyoming core area strategy. In sum, the Wyoming Framework is not "net gain" by another name. It is a structure designed to encourage development in an orderly manner and offset residual impacts.

Beyond the organic FLPMA language, various BLM Handbooks, guidance, regulation, RMPs, EISs and practical implementation have followed the mitigation heirarchy for decades. What is needed is a disciplined statement that residual effects be properly analyzed, and the compensatory mitigation be calculated in a manner to only offset residual effects. The vehicles available to provide compensatory mitigation should be limited only by the requirement that the compensatory mitigation fully offset the effects in terms of degree of harm, length of harm and viability over time commensurate with the impact. Further, the offset must exist before the harm is created. The State of Wyoming has generally rejected "in lieu fee" approaches to compensatory mitigation in the context of sage-grouse, because such programs focus on future mitigation for current harm and have often become "pay to play" programs. While Wyoming's policy may seem strict-such discipline is necessary if Wyoming expects to conserve adequate habitat and population to avoid a future listing under the ESA. Mitigation has proven to be generally successful. Unfortunately, as has been recounted, mitigation has taken the form of "blackmail" to extract excess resource rents to support other agency missions or political agendas on various occasions. These infrequent aberrations have occurred when one or more of three key principles are violated: (1) mitigation is calculated in a manner that is not equal to what is necessary to offset the impact to the resource; (2) the calculation of mitigation requirements and impacts are not sciencebased or figured in a similar manner (i.e. credits and debits are calculated to be equivalent); and/or (3) the mitigation is not what is necessarily best for the species (as a whole) and is, instead, limited by the geographic, individual population or process preferences of a particular land manager.

The net-net of prior mitigation approaches is that industry felt extorted (and was in many instances) and the sage-grouse lost ground, literally and figuratively. Using mitigation dollars that should have gone to

on-the-ground avoidance, minimization and true compensatory mitigation for sage-grouse to fund federal and state salaries and clean up other, non-sage-grouse related messes on federal lands does little for a species that is at constant risk of being petitioned for listing under the ESA is foolhardy considering the catastrophic impacts that a listing would have on state and federal economic development. To finally and fully address the issues related to compensatory mitigation for sagegrouse on federal lands, the easiest, most logical and most defensible approach is for BLM to fully adopt the Framework, including its provisions for seasonal exception relief. In so doing, BLM will limit any on-ramps to extortion, avoid unnecessary disputes with the State, secure unsecured core and other important habitats in furtherance of USFWS' conservation approach to the species and finally provide certainty and investment-grade assurances to the industry pursuant to EO 2015-4 and the Trump Administration's pursuit of energy dominance.

The draft Greater Sage-grouse Amendment Environmental Impact Statement specifically asked for the public's ideas and comments on mitigation. We were disappointed that the BLM chose to IM 2018-093 Compensatory Mitigation before the close of the comment period. However, we would still like to share our views on the future BLM Mitigation Policy. Our proposed conservation bank, the Dempsey Ridge Conservation Bank (DRCB) in western Wyoming, was initiated after a conversation with Wyoming Governor Mead. The discussion focused on the need to create mitigation opportunities that provide biological and financial assurances, to both permitting agencies and private developers, that focus on conservation of habitat values impacted by energy and infrastructure development. Besides contributing to the establishment of permanent biological open space that compensates for development impacts, such mitigation should be affordably managed in perpetuity. As a private sector company highly interested in this endeavor, we have partnered with the State of Wyoming in the development of the DRCB, and, in that process, offered our expertise in an advisory capacity to State agencies as they draft their statewide mitigation policy. We recognize that the BLM has historically been reluctant to require compensatory mitigation or to use off-lease habitat to offset impacts from projects that are permitted by the BLM. However, given the nationwide push over the past two decades to revise national, long-term mitigation strategies, we believe the timing is appropriate to revisit BLM's policies to take advantage of some recent advances in designing and employing mitigation options.

We believe that the Federal Land Policy and Management Act (FLPMA) provides direction for the BLM to require mitigation for impacts that create long-term damage to our natural resources. FLPMA outlines a comprehensive approach under which the federal government generally would manage its public lands in ways that protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources and archeological values. Additionally, FLPMA declared that the BLM should preserve and protect certain public lands in their natural condition, provide food and habitat for fish and wildlife, and provide for outdoor recreation and human occupancy and use. While this can, at times, create a challenging management task, continued partnership with stakeholders while enlisting their help can help in accomplishing the BLM's goals.

We understand and agree that the BLM cannot impose arbitrary or capricious mitigation measures upon proponents of development projects within BLM's jurisdiction; however, the BLM should strive to avoid and minimize impacts to sensitive habitat and establish an efficient and affordable mitigation strategy if impacts cannot be avoided. This falls in line with the BLM's principles of multiple use and sustained yield. By requiring an offset to the long-term impacts of development activities, the BLM will actually help to ensure future development opportunities because the overall habitat and conditions for

species will remain stable or even improve. It is in the BLM's interest to access future energy resources by developing a mitigation policy that maintains a healthy baseline of habitat available for species across the range. Compensatory mitigation and specifically approved conservation banks can do that.

We recognize that requiring mitigation for significant development impacts, as well as only considering as mitigation habitat that is within BLM jurisdiction is a departure from previous BLM policies. However, we believe employing common-sense approaches to conserving our natural heritage while facilitating use of our nation's natural resources should be an integral part of BLM's multiuse agenda. Further, considering off-lease mitigation gives project proponents more affordable options to comply with such a policy. For example, a conservation bank is typically less expensive than other options because mitigation credits have already been vetted and approved by permitting agencies, they contribute to regional conservation plans, they are efficient to obtain, they can be obtained in small or large increments as needed, and, they allow the developer to transfer liability of a successful mitigation project to the conservation banker. This cost-effective option allows the project proponent to focus on what he does best; develop energy or infrastructure.

In summary, we encourage the BLM to establish a mitigation policy that encourages avoidance and minimization of habitat impacts, and then requires compensation for development impacts with the goal of no net loss in habitat values across the range for important species habitat. Just as it is important for industry to have clarity as to what the BLM will ask from them in issuing permits, it is important to know that the BLM is committed to protecting our natural heritage with all possible tools; tools that have been employed and proven successful and, importantly, are accepted by industry. We welcome any questions or thoughts about this opportunity for a reasonable compensatory mitigation policy. Given our team's experience in establishing prudent mitigation strategies across the United States, we believe we are in a position to provide useful input to help the BLM achieve its objectives as a trustee agency for some of our nation's most incredible lands.

Maintain a strong "net conservation gain" standard. Sage-grouse habitat is largely found on federally-managed public lands, and in order to offset development and properly manage these lands, the BLM must have a strong science-based plan that includes this standard so as to give the species a chance at long-term recovery. A no net loss of habitat merely prevents additional habitat loss and is not adequate to achieve long-term conservation of sage-grouse.

Maintain or strengthen the mitigation policy. Good policy and practice is one of the best opportunities to achieve sustainable development and conservation goals. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives.

Compensatory Mitigation - WCCCD supports the BLM's Adoption of the State of Wyoming's Greater Sage Grouse Compensatory Mitigation Framework, and the removal of the phrase "net conservation gain" from all management actions across all RMPs.

In general, the proposed amendments relating to livestock grazing have the potential to provide needed flexibility and will, if appropriately implemented, foster a more collaborative relationship that will inure to the benefit of sage-grouse conservation. WSGA strongly supports the removal of requirements for "net conservation gain" and deference to the state's mitigation requirements. Wyoming has worked over the past several years to develop a functional mitigation system. We support this state effort.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

Despite its essential role in the overall conservation strategy, the BLM's proposed Management Alignment alternative strips 'net conservation gain' from all management actions across all RMPs (DEIS Table 2-1 at 2-14) and fails to disclose the environmental consequences likely to result from that decision. And while the DEIS states that "the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities" and requests public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans (DEIS at ES6) it is clear that DOI and BLM have already decided the issue. BLM Instruction Memorandum No. 2018-093, issued on July 24, 2018 - a little over a week before the close of the public comment period for this DEIS- states that the BLM will no longer require compensatory mitigation to achieve net conservation gain for greater sage-grouse. Instead, the BLM intends to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework." DEIS at 2-4. The BLM must prepare a supplemental analysis disclosing how this significant policy change may impact the efficacy of the BLM's conservation plans. This dramatic change in policy raises additional concerns. First, unlike the 2015 ARMPA, the State's mitigation framework does not require compensatory mitigation until and unless density and disturbance "thresholds" have been exceeded. Consequently, oil and gas development that meets the EO thresholds can take place in core habitat without any requirement for compensatory mitigation to offset the impacts. This obviously results in a net loss of habitat. Second, the BLM has never established that the State of Wyoming has the legal authority to require compensatory mitigation. So, while Wyoming Executive Order 2018-3, issued by Governor Mead on July 23, 2018, reiterates that "compensatory mitigation is an essential component of a long-term conservation strategy..." neither the mitigation framework nor the Governor's EO cite to any legal authority to support the state's plan to impose compensatory mitigation. The lack of a reference to specific legal authority to support the imposition of compensatory mitigation of course raises the question whether such authority exists. We recommend that before adopting this approach the BLM should ask the state to provide an Attorney General's Opinion setting forth this authority. In

light of BLM IM 2018-093, the AG Opinion should specifically address the State's authority to require compensatory mitigation on federal lands. We are of course concerned that a successful legal challenge of the state's authority to require compensatory mitigation could result in a situation where compensatory mitigation is not implemented on federal lands, or worse, anywhere within Wyoming.

Mitigation Page ES-6 of the Draft EIS requests comment on how the BLM should consider and implement mitigation, including compensatory mitigation, for the Greater sage-grouse. In Wyoming, the BLM should defer to the State's assessment of how to apply avoidance, minimization and, if necessary, compensatory mitigation to address impacts to this State-managed species. The State's analysis and recommendations should be considered in the National Environmental Policy Act (NEPA) processes. To better achieve this, Table 2-1 on pages 2-13 and 2-14 of the Draft EIS should be adjusted to read: Within all habitats across all RMPs: Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulation, and policy. The State of Wyoming will analyze a project or site-specific proposal and make recommendations on the appropriate avoidance, minimization and, if necessary, compensatory mitigation required to reduce impacts to the Greater sage-grouse. The BLM will follow the National Environmental Policy Act process in evaluating the State's recommendation to determine whether avoidance, minimization, and other mitigation measures have been achieved in accordance with the Council on Environmental Quality's mitigation hierarchy. The BLM will defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation.

Having the State analyze proposals first and then make recommendations to the BLM will expedite the review process. In Wyoming, the State permits the same activities that occur on federal land, from oil and gas, to coal mining and water development. The State's jurisdiction also extends to state and private land. Therefore, the State is already conducting its own review of the projects proposed on federal land and identifying the avoidance and minimization measures necessary to manage for Greater sage-grouse, and, where necessary, calculating the amount of compensatory mitigation required. The State already conducts this analysis across all jurisdictional boundaries in Wyoming. Recognizing the State will conduct the initial review results in a more consistent application of the State's strategy and it better aligns BLM's management of the species' habitats with the State's management of the bird. There should be no federal concern about the State taking the lead on making recommendations to the BLM because the BLM and other federal agencies have fully analyzed and offered recommendations on improving the State's strategy. For years the BLM has worked with the State in developing and implementing the State's strategy. The BLM has a seat at the table on the Sage-Grouse Implementation Team (SGIT), which regularly meets to review emerging science and address issues impacting the species. The BLM and the State regularly meet to review development proposals in Greater sage-grouse habitats and share information pursuant to a Memorandum of Understanding. This includes sharing information on the implementation and use of the Executive Orders and Framework, under which the State assesses how best to avoid and minimize impacts to Greater sage-grouse habitats, and calculates compensatory mitigation credits when necessary. I have recently signed a new Executive Order 2018-3, Compensatory Mitigation Credit Provider Approval Process. The BLM will play an important role as a member of the Compensatory Mitigation Oversight Group to review potential new compensatory mitigation credit providers and provide recommendations important to the BLM's mission.

The BLM's analysis of the State strategy is evident in the Approved RMP Amendments for Buffalo, Cody, and Worland, and Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs-Green River and Jack

Morrow Hills (collectively 9 Plan Amendments). The BLM's 9 Plan Amendments analyzed and integrated the State's strategy, supports the State's population objectives and commits the BLM to developing resource solutions in cooperation with the State. 9 Plan Amendment at 1-10, and Management Objectives 3 and 9. It explains that offsite mitigation will be consistent with the State's strategy and the BLM will utilize the SGIT and other State plans, analyses, and sources of information to guide development of conservation objectives for local management of Greater sage-grouse habitats. 9 Plan Amendments, General Management Directions 3, 14, 15, 16, 17 and 20. And, while recognizing the United States Fish and Wildlife Service's determination that the State's strategy adequately protects the Greater sage-grouse and its habitats, the BLM commits to following the State's strategy for avoiding, minimizing, and compensating for impacts to the species in Wyoming. 9 Plan Amendments at 35 (Onsite and Offsite Mitigation, Management Direction for Sensitive Status Species Number 4). Finally, the process aligns with the CEQ's Guidance and the BLM's NEPA Handbook for incorporating by reference non-NEPA documents, so long as the BLM makes the information publicly available. 40 C.F.R. § 1502.1; BLM NEPA Handbook H-1790-1 at 26. It aligns with the BLM's guidance on Sensitive Status Species that emphasizes coordinating with the State, integrating State analyses, and relying on the work done by the State. BLM Special Status Species Management Manual, MS-6840.06.2(D). And it aligns with the BLM's new Instruction Memorandum 2018-93. The BLM has determined that it will not require off-site compensatory mitigation unless voluntarily proposed by a project proponent. However, Instruction Memorandum 2018-93 was written to accommodate Wyoming's Framework and review process. Because Wyoming is a dual-permitting state, project proponents will be required to follow the State's process to determine whether compensatory mitigation is required by the State. Those same project proponents will have the option of requesting that any compensatory mitigation required by the State be applied during the BLM's review process. The Instruction Memorandum calls for the BLM to review the State's compensatory mitigation requirements during the federal agency's review of the project as a NEPA alternative, when requested by a project proponent. This review structure outlined here should apply to all of the BLM's permitting and review processes involving Greater sage-grouse management, including exceptions to the stipulations and other requirements imposed on activities within Greater sage-grouse habitats. Therefore, similar changes should be made throughout the amendments to reflect the process.

Page 4-18: Compensatory Mitigation and Net Conservation Gain. The first sentence describing impacts to Greater sage-grouse from following the BLM's National Environmental Policy Act process in determining avoidance, minimization, rectification, and reducing over time "at the site-specific project level" should be changed to read "at the project and site specific level." This change would capture both single well analyses and multiple well large project analyses, such as the Normally Pressured Lance project. The BLM's processes address impacts at multiple levels and the EIS should reflect the varying levels.

Mitigation Standard and Strategy The Preferred Alternative in the Draft EIS proposes to modify the "net gain compensatory mitigation standard" included in the 2015 Final EIS/ARMPA. As a result, the Draft EIS does not assess whether the revised mitigation standard would result in a net conservation gain to the species. The EPA recommends the Final EIS include the full revised mitigation strategy including a discussion of the extent to which it differs from the net gain conservation standard and the 2015 impact analysis. The Draft EIS also requests comment on a net conservation standard. Additionally, it notes the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. CEQ Regulations at 40 CFR

Part 1508.20 require mitigation include three components: avoid, minimize, and compensate ("mitigation hierarchy"). The 2015 EIS notes if impacts from BLM actions that result in habitat loss and degradation remain after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the species. If BLM determines compensatory mitigation is not appropriate on public lands, then EPA recommends the Final EIS assess and discuss the impact of this decision on greater sage-grouse habitat, population and conservation status.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

Despite its essential role in the overall conservation strategy, the BLM's proposed Management Alignment alternative strips 'net conservation gain' from all management actions across all RMPs (DEIS Table 2-1 at 2-14) and fails to disclose the environmental consequences likely to result from that decision. And while the DEIS states that "the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities" and requests public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans (DEIS at ES6) it is clear that DOI and BLM have already decided the issue. BLM Instruction Memorandum No. 2018-093, issued on July 24, 2018 - a little over a week before the close of the public comment period for this DEIS- states that the BLM will no longer require compensatory mitigation to achieve net conservation gain for greater sage-grouse. Instead, the BLM intends to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework." DEIS at 2-4. The BLM must prepare a supplemental analysis disclosing how this significant policy change may impact the efficacy of the BLM's conservation plans. This dramatic change in policy raises additional concerns. First, unlike the 2015 ARMPA, the State's mitigation framework does not require compensatory mitigation until and unless density and disturbance "thresholds" have been exceeded. Consequently, oil and gas development that meets the EO thresholds can take place in core habitat without any requirement for compensatory mitigation to offset the impacts. This obviously results in a net loss of habitat. Second, the BLM has never established that the State of Wyoming has the

legal authority to require compensatory mitigation. So, while Wyoming Executive Order 2018-3, issued by Governor Mead on July 23, 2018, reiterates that "compensatory mitigation is an essential component of a long-term conservation strategy..." neither the mitigation framework nor the Governor's EO cite to any legal authority to support the state's plan to impose compensatory mitigation. The lack of a reference to specific legal authority to support the imposition of compensatory mitigation of course raises the question whether such authority exists. We recommend that before adopting this approach the BLM should ask the state to provide an Attorney General's Opinion setting forth this authority. In light of BLM IM 2018-093, the AG Opinion should specifically address the State's authority to require compensatory mitigation on federal lands. We are of course concerned that a successful legal challenge of the state's authority to require compensatory mitigation could result in a situation where compensatory mitigation is not implemented on federal lands, or worse, anywhere within Wyoming.

Compensatory Mitigation The Alliance supports the modification of compensatory mitigation requirements in Alternative B, specifically that BLM "follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the CEQ mitigation hierarchy as appropriate at the site-specific project level." Draft RMPA at 2-13 -2-14 (Table 2-1). This modification is consistent with federal law and the Wyoming Plan. The Alliance also supports the modification to compensatory mitigation in Alternative B to adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework. Id. The Wyoming Greater Sage-Grouse Compensatory Mitigation Framework- Attachment H to the Wyoming Plan-follows the mitigation hierarchy, provides regulatory certainty, and allows for flexibility and optionality to ensure success. Furthermore, the Wyoming Greater Sage-Grouse Compensatory Mitigation Framework does not impose a net conservation gain standard, and BLM should adopt this approach. Additionally, with respect to BLM's request for alternative approaches to compensatory mitigation, the Alliance recommends that BLM allow and encourage applicant-proposed mitigation measures. Project proponents have the best knowledge of site-specific issues attendant to projects and can identify pragmatic mitigation options that are cost-effective and efficient. Greater Sage-Grouse Draft RMPAs for Wyoming August 2, 2018 Page 6 of 11 Finally, BLM should expressly recognize and account for voluntary conservation efforts, including pre-siting avoidance and minimization efforts.

Timing Stipulations The State of Wyoming grants timing stipulation relief consistent with the Wyoming Compensatory Mitigation Framework. To receive this relief, operators are required to offset the stipulations with conservation credits, which allow for temporary lek impact in exchange for long-term habitat conservation easements. Timing stipulation relief is only permitted after the Wyoming Game and Fish Department evaluates the proposal to ensure consistency with the Wyoming Mitigation Compensatory Mitigation Framework. Under this framework, timing stipulation relief provides significant benefits to GrSG in addition to cost savings for operators. First, surface disturbance activities are limited when relief is granted, including avoiding moving equipment to and from development sites. Second, the long-term habitat easements provided by conservation credits protect large areas of Core habitat critical to GrSG conservation. The operative Wyoming RMPAs include timing stipulation relief through exceptions, waivers and modifications. However, the exception, waiver and modification language in the Wyoming RMPAs should be clarified. Currently, the Wyoming RMPAs state: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and

does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. BLM should clarify this language to state that each sentence is a separate basis for an exception, not a single, three-part basis. Consistent with the Wyoming Plan, BLM also needs to clarify that stipulations are intended to protect GrSG at a landscape level, not individual leks or populations. See Wyoming Plan at Attachment H. BLM should also include language in the Final EIS and Resource Management Plan Amendment specifying that operators can seek and receive timing limitation stipulation relief consistent with the process utilized by the State of Wyoming and the Wyoming Compensatory Mitigation Framework. Greater Sage-Grouse Draft RMPAs for Wyoming August 2, 2018 Page 7 of 11 BLM should also revise the exception, waiver and modification criteria in the Final EIS and Resource Management Plan amendment to state that exceptions to stipulations can be granted if: (1) The action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success; (2) The action is designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat and may be exempted from this limitation; or, (3) In coordination with the WGFD, BLM determines that granting an exception would not adversely impact the statewide population being protected.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

Despite its essential role in the overall conservation strategy, the BLM's proposed Management Alignment alternative strips 'net conservation gain' from all management actions across all RMPs (DEIS Table 2-1 at 2-14) and fails to disclose the environmental consequences likely to result from that decision. And while the DEIS states that "the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities" and requests public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans (DEIS at ES6) it is clear that DOI and BLM have already decided the issue. BLM Instruction Memorandum No. 2018-093, issued on July 24, 2018 - a little

over a week before the close of the public comment period for this DEIS- states that the BLM will no longer require compensatory mitigation to achieve net conservation gain for greater sage-grouse. Instead, the BLM intends to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework." DEIS at 2-4. The BLM must prepare a supplemental analysis disclosing how this significant policy change may impact the efficacy of the BLM's conservation plans. This dramatic change in policy raises additional concerns. First, unlike the 2015 ARMPA, the State's mitigation framework does not require compensatory mitigation until and unless density and disturbance "thresholds" have been exceeded. Consequently, oil and gas development that meets the EO thresholds can take place in core habitat without any requirement for compensatory mitigation to offset the impacts. This obviously results in a net loss of habitat. Second, the BLM has never established that the State of Wyoming has the legal authority to require compensatory mitigation. So, while Wyoming Executive Order 2018-3, issued by Governor Mead on July 23, 2018, reiterates that "compensatory mitigation is an essential component of a long-term conservation strategy..." neither the mitigation framework nor the Governor's EO cite to any legal authority to support the state's plan to impose compensatory mitigation. The lack of a reference to specific legal authority to support the imposition of compensatory mitigation of course raises the question whether such authority exists. We recommend that before adopting this approach the BLM should ask the state to provide an Attorney General's Opinion setting forth this authority. In light of BLM IM 2018-093, the AG Opinion should specifically address the State's authority to require compensatory mitigation on federal lands. We are of course concerned that a successful legal challenge of the state's authority to require compensatory mitigation could result in a situation where compensatory mitigation is not implemented on federal lands, or worse, anywhere within Wyoming.

The plans should continue to prioritize oil and gas leasing and development away from sagegrouse habitat.

The BLM plans must also maintain a strong standard to avoid damage to habitat and to restore habitat where impacts are unavoidable.

The potential threat to greater sage-grouse from hard rock mining is heightened further by BLM's recent decision to avoid requiring compensatory mitigation to achieve a net conservation gain for sage-grouse. See BLM Instruction Memorandum No. 2018-093, July 24, 2018. Under the exiting 2015 ARMPA (the DEIS no-action alternative) the BLM would require compensatory mitigation to offset the impacts of mining, especially important if the BLM determined that valid existing rights limited the agency's ability to enforce the density and disturbance limits. In those circumstances, the ability to compensate for the loss of habitat and other environmental disturbances associated with mining operations would lessen the impact and, with the application of compensatory mitigation, potentially achieve a net conservation gain for greater sage-grouse. No more. Mining in greater sage-grouse habitat would, in all cases, result in a net loss (i.e., removal) of habitat, except in the unlikely event that the project proponent volunteers to provide compensatory mitigation. The BLM's position is to defer to the State's plan, and to rely on the State's assurance that it would require compensatory mitigation for impacts related to hard rock mining activities that exceed density and disturbance thresholds or fail to comply with timing and surface use stipulations. We hope so, but are concerned by the state's reluctance to identify any constitutional, statutory or regulatory authority that would allow it to require compensatory mitigation, particularly for hard rock mining taking place on federal lands. To address this concern, we recommend that BLM receive a State Attorney General Opinion setting forth the legal authority for the state's compensatory

mitigation framework. Without this, the BLM (and USFWS) have no assurance that an adequate regulatory mechanism exists for requiring compensatory mitigation.

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SER CD supports the BLM deferring to the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework for all applications of compensatory mitigation if it is determined that site-specific project conservation measures are inadequate for the conservation of greater sage-grouse and compensatory mitigation is required.

Mitigation Standard and Strategy The Preferred Alternative in the Draft EIS proposes to modify the "net gain compensatory mitigation standard" included in the 2015 Final EIS ARMP A. As a result, the Draft EIS does not assess whether the revised mitigation standard' would result in a net conservation gain to the species. The EPA recommends the Final EIS include the full revised mitigation strategy including a discussion of the extent to which it differs from the net gain conservation standard and the 2015 impact analysis. The Draft EIS also requests comment on a net conservation standard. Additionally, it notes the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on

public lands is appropriate and consistent with applicable legal authorities. CEQ Regulations at 40 CFR Part 1508.20 require mitigation include three components: avoid, minimize, and compensate ("mitigation hierarchy"). The 2015 EIS notes if impacts from BLM actions that result in habitat loss and degradation remain after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the species. If BLM determines compensatory mitigation is not appropriate on public lands, then EPA recommends the Final EIS assess and discuss the impact of this decision on greater sage-grouse habitat, population and conservation status.

Sage Grouse Habitat Restoration is not going to be accomplished by cutting Juniper, lets have true, real Habitat Restoration. I can remember in the 1950's when the Grouse was prolific, so what has changed? We are DRIER! I am not blaming man but it is drier, we have lost many of our springs and our meadows where the Sage Grouse chicks could get small grasses, forbes and bugs. If we want RESTORATION we must restore our meadows. We can put pipes into our dried up springs and using small solar panels once again put moisture back on our meadows. We can also utilize the existing developed water resources the cattlemen use in the summer and make it Sage Grouse friendly and available which it isn't at the present time. I worked for many years keeping the water supplied to the cattle so I know it can be done. So called guzzlers are very expensive and are not the answer because Sage Grouse don't like to go down to the water level where they can't see if there's a predator. Spring restoration would be much more cost effective.

NET CONSERVATION GAIN PAW strongly supports the removal of the "net conservation gain" standard from all management actions across all RMPs as outlined in the DRMPA/DEIS. We have long held that the net conservation gain mitigation standard established in the RMPs is unreasonable and difficult if not impossible to measure, and needs to be eliminated. We agree with BLM's assessment that, "[t]he impacts associated with the removal of the compensatory mitigation standard of "net conservation gain" would have minimal impacts across the range of Greater Sage-Grouse in Wyoming"³ and that the State's "compensatory mitigation framework provides a replacement of habitat, including indirect effects, with assurances and durability of the life of the impact".⁴ As such, we support the removal of the net conservation gain standard from all management actions across all RMPs and BLM's intent to "[f]ollow the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework" as listed in the DRMPA/DEIS as a key aspect of the Management Alignment Alternative.⁵

COMPENSATORY MITIGATION As stated in our comments above, PAW strongly supports BLM's adoption of the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework wherein compensatory mitigation is only required in PHMA when exceeding specific PHMA thresholds (such as maximum density and disturbance thresholds) and not to affect a net conservation gain. The Framework is the system devised by the State to calculate residual impacts after avoidance and minimization measures have been used to the fullest extent. In this way, the Compensatory Mitigation Framework meets FLPMA's requirement to avoid unnecessary and undue degradation and the portion of the impact that remains after all avoidance and minimization measures have been used is addressed through compensatory mitigation. Adoption of the Framework will not only provide added regulatory certainty to industry, it will also provide better protection for GRSG. This is clearly outlined by BLM in the DRMPA/DEIS wherein it states, "alignment with the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework would result in more consistent application of compensatory mitigation and would likely result in improved conservation of Greater Sage-Grouse in Wyoming."⁶

We further support BLM's proposed process regarding compensatory mitigation wherein "[t]he BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other measures in accordance with the CEQ mitigation Hierarchy as appropriate at the site-specific project level and would defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation."⁷ This is consistent with the State having the lead role in managing GRSG. With regard to BLM's request for alternative approaches to requiring compensatory mitigation, PAW is open to on-the-ground projects as a means to satisfy compensatory mitigation requirements if BLM can determine a reasonable and consistent exchange rate that applies statewide and allows operators the choice between projects and mitigation credits as the means of compensatory mitigation. For example, determine a number of acres of juniper removal that could be exchanged for timing stipulation relief for one rig for one season in non-core. Furthermore, PAW supports offsets in the form of conservation credits as noted earlier in our comments.

RECOMMENDATION 4: Adopt the State of Wyoming's Compensatory Mitigation Framework as it is the system devised by the State to provide habitat replacement after avoidance and minimization measures have been used to the fullest extent, and also satisfies BLM's obligations under FLPMA to avoid unnecessary and undue degradation.

In light of BLM IM No. 2018-093 dated July 24, 2018 regarding compensatory mitigation (CM IM), PAW maintains there is nothing in the CM IM that precludes BLM from approving stipulation exception requests that have been approved by the Wyoming Game and Fish Department (WGFD). The State has the lead role in managing Greater Sage-Grouse (GRSG) and permits oil and gas on federal, state and private land in Wyoming. As stated in our previous comments on July 18, 2018, it is important to note that stipulation exceptions are not systematically granted and the State of Wyoming has a process and parameters in place which includes evaluation by the Wyoming Game and Fish Department (WGFD) to ensure that avoidance and minimization have been used and the proposed project is consistent with the State's Compensatory Mitigation Framework. As such, it makes sense that stipulation exceptions approved by the State should be honored by BLM.

The current process for GRSG exception requests as devised by the State is as follows: 1. An operator determines it would like to obtain a stipulation exception, such as a timing stipulation exception, and provides a request to the WGFD that includes documentation of the avoidance and minimization measures that are already part of the project design. PAW Supplemental Comments - GRSG DRMPA/DEIS August 2, 2018 Page 2 2. The WGFD reviews the proposal and makes a determination of whether or not to approve the exception request. 3. If the exception request is granted, the WGFD documents such approval of the exception in a letter that is part of the state-approved APD. The letter will include any conditions of approval associated with the exception request, such as travel plans, etc. Through this process, the operator voluntarily engages with the WGFD for an exception request. With this in mind, the operator would submit the WGFD exception approval letter to the BLM as part of its federal APD package. BLM can and should approve the exception as endorsed by the WGFD - adopting the environmental analysis of impacts associated with the exception and the balancing avoidance, minimization and compensatory mitigation measures inherent in the State's Compensatory Mitigation Framework - and include the exception in the APD decision record. It is important to note that it will be necessary for BLM to grant exceptions related to GRSG at the point of APD approval which needs to be provided for in the Final Wyoming GRSG RMP Amendment. PAW maintains the CM IM fully

supports BLM's ability to grant stipulation exceptions in exchange for voluntary compensatory mitigation as outlined in the State of Wyoming's Compensatory Mitigation Framework.

Conceptually, I support the proposal to adopt the Wyoming Greater Sage-Grouse Compensatory Mitigation Framework and to follow recommendations of the Adaptive Management Working Group, which is responsible for reviewing and reversing actions in response to improved habitat conditions. However, due to habitat alteration and degradation, the Sage-grouse currently occupies only its historic range. It is crucial that the species and its habitats be increased to levels at which we can be assured Sage-grouse can be self-sustaining over the long term. Therefore, conservation efforts should be strongly directed towards increasing habitat acreage and quality, not just 'no net loss'

Pages ES-6 and 2-4: The BLM is requesting, . . . public comment about how the BLM should consider and implement mitigation with respect to Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans." The BLM is proposing, at the request of the State, to change compensatory mitigation by modifying the net conservation gain standard. As best I can tell (page 2-14), it isn't just a modification; it is elimination of 'net conservation gain' from the land use plan. The species currently occupies half of its historic range, it has been declared to be in jeopardy, in Wyoming oil and gas reserves underlie most of Sage-grouse habitat, and the 'on-the-ground' and 'behind-the-scene' threats continue relentlessly. The BLM is proposing to eliminate the concept of net conservation gain and is even waffling on compensatory mitigation.

Page 2-13: The amendment proposes to eliminate the requirement for, mitigation that provides a net conservation gain to the species including any accounting for any uncertainty associated with the effectiveness of such mitigation." Rather, it is settling for recommendations from the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework (to the extent consistent with federal law, regulations, policies, and any other diminishment of the effort). The GSGCMF will undoubtedly make appropriate recommendation for compensatory mitigation (not that it will be necessarily implemented in full). However, once again, efforts should be being made to claw back sufficient habitat, and protect it with reasonable measures, so the species does not remain in an intense custodial care status for the foreseeable future. Not advocating for net conservation gain at this point is another indication of the agency's seriousness about conserving the species.

Page 4-19, Compensatory Mitigation and Net Conservation Gain: The BLM states, "The impacts associated with the removal of the compensatory mitigation standard of 'net conservation gain' would have minimal impacts across the range of Greater Sage-Grouse in Wyoming." The justification is that the state's compensatory mitigation framework provides a replacement of habitat.. ." Replacement is not gain. This change appears to diminish the effort to conserve the species.

E.4.9 Prioritization of Mineral Leasing

Mineral development is one of the principal threats to the survival of greater sage-grouse populations and the health and suitability of its habitats. The National Technical Team (2011:19) observed, There is strong evidence from the literature to support that surface-disturbing energy or mineral development within priority sage-grouse habitats is not consistent with a goal to maintain or increase populations or distribution. None of the published science reports a positive influence of development on sage-grouse populations or habitats. Furthermore, "Negative responses of sage-grouse to energy development were consistent among studies regardless of whether they examined lek dynamics or demographic rates of

specific cohorts within populations." *Id.* The USFWS' Conservation Objectives Team (2013: 43) recommended the following: "Avoid energy development in [Priority Areas for Conservation] (Doherty et al. 2010). ... If avoidance is not possible within PACs due to pre-existing valid rights, adjacent development, or split estate issues, development should only occur in non-habitat areas, including all appurtenant structures, with an adequate buffer that is sufficient to preclude impacts to sage-grouse habitat from noise, and other human activities." Federal agencies should pay attention to their own experts. According to the National Technical Team (2011: 21), "we recommend excluding mineral development and other large scale disturbances from priority habitats where possible, and where it is not limit disturbance as much as possible." In the case of unleased lands or leases that are expiring, avoidance is always possible. The National Technical Team (2011) recommended that BLM recommend Priority Habitats for withdrawn from mineral entry, closed to future leasing for fluid minerals, coal, and leasable minerals, and closed to mineral materials sales. For fluid minerals, BLM proposes to close 27,299 acres to fluid mineral leasing (FEIS at 52), out of almost 700,000 acres of Priority Habitats that the agency's own experts recommended for closure based on the best available science. For the reasons set forth above, Priority Habitats should be withdrawn from leasing for coal, fluid minerals, and non-energy leasable minerals, and other forms of mineral materials extraction.

Oil and gas/Fluid Mineral Leasing and Development BLM has failed to properly implement the plan amendments related to oil and gas leasing and development. As noted above, the plans relied on three key components for addressing threats from oil and gas development: (1) attachment of an NSO stipulation to leases on PHMA; (2) attachment of controlled surface use and timing limitation stipulations to leases on GHMA; and (3) prioritization of leasing and development of fluid mineral resources outside of greater sage-grouse habitat. All three provisions have been inadequately applied in practice. To begin, the lease stipulations on PHMA and GHMA are subject to exceptions, modifications, and waivers, which are granted frequently and with little documentation. A recent GAO study of BLM field offices found that of the 54 recorded exception decisions, from four offices that could provide data, 49 exception requests were approved and 5 were denied-that is, exception requests were granted 90% of the time. See U.S. Gov't Accountability Off., GAO-17307, *Oil and Gas Development: Improved Collection and Use of Data Could Enhance BLM's Ability to Assess and Mitigate Environmental Impacts* 16 n. 24 (Apr. 2017). That same study found that BLM's decisions to grant such exceptions, modifications, and waivers often takes place in the dark, without written justification, oversight, documentation of the request or field office's decision, or additional NEPA analysis. *Id.* at 11-21. The report concluded, "BLM may be unable to provide reasonable assurance that it is meeting its environmental responsibilities." *Id.* at Intro. BLM's willingness to grant modifications, waivers, and exceptions-and without transparency or public participation-creates large loopholes that render the lease stipulations ineffective and afford the sage-grouse insufficient protection.

In regard to prioritization, the current DEIS relies on NEPA analysis done for the 2015 FEIS. DEIS at E-6. However, the BLM has failed to meet its oil and gas leasing prioritization obligation as stated in the 2015 ARMPA: Prioritization Objective-In addition to allocations that limit disturbance in PHMAs and GHMAs, the ARMPAs prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs to further limit future surface disturbance and to encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and, as such, protect important habitat and reduce the time and cost associated with oil and gas leasing development. It would do this by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation.

Great Basin ROD and ARMPA at I-23. On December 27, 2017, the BLM Assistant Director, Energy, Minerals and Realty Management issued Instruction Memorandum 2018-026 to all subordinate offices with guidance on implementing the oil and gas leasing prioritization objection. IM 2018-026 replaced the previous prioritization guidance (IM 2016-143). The new guidance eliminated IM 2016-143's habitat-based prioritization sequence and parcel-specific factors to consider. Instead, the new guidance fails to meet the prioritization objective because it turns prioritization into merely an exercise in managing BLM's work flow: "Where the BLM has a backlog of Expressions of Interest for leasing, the BLM will prioritize its work first in non-habitat management areas, followed by lower priority habitat management areas (e.g., GHMA) and then higher priority habitat management areas (i.e., PHMA, then SFA)." IM 2018-026.

The new guidance also fails to meet the prioritization objective because it relies on voluntary measures: Stipulations such as No Surface Occupancy (NSO) and Controlled Surface Use may be used as the BLM implements the GRSG Plans. The BLM can use these stipulations to encourage lessees to acquire leases outside of GRSG PHMA due to fewer restrictions in those areas than in higher priority habitat management areas. In addition, the BLM will continue to work with parties who file expressions of interest and potential lessees to voluntarily prioritize leasing in less-sensitive areas. IM 2018-026. The BLM can and should ask the oil and gas industry to walk away voluntarily from sage-grouse habitat the industry would like to lease, but those requests are insufficient to protect greater sage-grouse from extirpation and extinction. As a result of the flawed IM and BLM's erroneous interpretation of prioritization, the plans have not achieved their goal of guiding development away from identified sage-grouse habitat. In fact, roughly 43% of all parcels offered for oil and gas leasing since 2015 have contained sage-grouse habitat. Mineral leasing on PHMA appears to have actually increased since the issuance of the 2015 Sage-Grouse Plans. A 2017 study of the overlap between sagegrouse habitat and energy development across the West found that only 4% of existing mineral leases contain PHMA. See Chad LeBeau and Grant Gardner, *Analysis of the Overlap between Priority Habitat Management Areas and Existing and Potential Energy Development across the Western United States* at i (June 9, 2017). Given the extent of sage-grouse habitat already encumbered by existing mineral leases and the scientific consensus on regarding the need to protect those habitats, the current ARMPAs' treatment of existing mineral leases is grossly inadequate to protect the species' habitat needs, and falls far short of the agencies' available authority to impose conditions of approval on mineral development. Although the existing Plans are insufficient, for all of the reasons summarized above, and set forth in more detail in the appended Complaint filed by environmental groups challenging the Plans, they are better than no protections at all. These protections must stay in place pending any plan revisions. And, rather than further weakening the protections sage-grouse require, as the Zinke Report recommended, any new process should strengthen sage-grouse protections to comply with what the best available science explains the birds need.

Lease Stipulations Within the minimum royalty and rental bounds of the MLA's specific terms, the courts have affirmed a broad grant of authority to the Secretary to dictate the terms and stipulations applicable to any particular lease, including a complete prohibition on surface use (the relatively common "No Surface Occupancy," or NSO" stipulation), limitations on the allowable siting of wells and other facilities, seasonal or other timing limitations on when particular lease-allowed activities may be conducted, and both general and species-specific stipulations disclosing the potential presence of threatened, endangered, or other special status species, and retaining authority to modify or disapprove activities accordingly. MLA regulations specify that stipulations become part of the lease and override inconsistent

provisions of the standard lease term. The lease and its stipulation are a contractual instrument, and new stipulations cannot be unilaterally added by the United States without lessee consent. Lease stipulations can be - and frequently are - "modified" or "waived" to relieve lessees from their obligation to comply. Leases can be cancelled if improperly issued or the lessee violates law or regulations, administratively prior to production, or through judicial proceedings once a well is producing. At the Secretary's discretion, leases can also be "suspended," and the running of their lease terms put temporarily on hold, both "for the purpose of encouraging the greatest ultimate recovery of coal, oil, gas . . . and in the interest of conservation of natural resources."

To rectify these problems, BLM should impose, as terms of the Resource Management Plan, Conditions of Approval on all existing fluid mineral leases consistent with the recommendations of the Sage-Grouse National Technical Team, including no new surface occupancy on existing federal leases (with exceptions for occupancy of no more than 3% outside a 4-mile lek buffer, if the entire leasehold is within such habitat).

On page 4-38 in the DEIS, it claims that "impacts related to changes in the prioritization of leasing outside of PHMA would be likely to beneficially affect Greater Sage-Grouse conservation in Wyoming." This is a flawed claim with no scientific or even logical underpinning. We strongly recommend the DEIS incorporate the 2015 plan (no action alternative) leasing prioritization approach to strengthen the incentive to develop away from priority habitat.

We support the No Action Alternative for Fluid Mineral Leasing. Leasing should be prioritized outside of both PHMAs and GHMAs. As stated earlier, it is important to protect sagebrush and sagegrouse habitats everywhere they occur, not just in the core or priority areas. When money is accepted for a Fluid Mineral Lease a Right to access and extract that mineral is understood. It is not sufficient to say that, "Oh, we'll analyze impacts at the Exploration and Development stages", as the Right has precedence over restrictive measures if they preclude reasonable development. So, please develop the non-habitat areas first.

Page 4-19 Prioritizing of Fluid Mineral Leasing "This action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other non-habitat areas." This is making the assumption that all GHMA is not sage-grouse habitat. Change to "This action identifies that the BLM would prioritize leasing outside PHMA as a method of incentivizing development in unsuitable sage-grouse habitat in GHMA and outside the range of sage-grouse habitat."

LEASING PRIORITIZATION The Coalition has repeatedly commented that (1) the BLM does not authority to prioritize leasing activity; (2) that the State of Wyoming has already "prioritized" sage-grouse habitat by performing an extensive evaluation of existing oil and gas fields and areas of interest and that no further "prioritization" is supported; and (3) that there is no analysis that "prioritization" of leasing outside of PHMA will benefit sage-grouse. The Coalition made the same or similar comments regarding the Utah DEIS and, now, recognizing the error of the prioritization language, the Utah BLM has removed any leasing priority from the Management Alignment Alternative. The Wyoming Core Area Strategy does not include any prioritization concept and thus, like the Utah BLM, the Wyoming BLM should strive this provision entirely.

The DEIS fails to disclose the impacts of the BLM's radically different interpretation of the requirement in the 2015 greater sage-grouse conservation plans to prioritize oil and gas leasing and development

outside core (PHMA) areas. Under the subheading, Prioritization of Fluid Mineral Leasing, the DEIS states that: [t]his action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other non-habitat areas. Impacts associated with prioritizing leasing outside PHMA would be beneficial to Greater Sage-Grouse conservation in Wyoming, with the potential for locally adverse impacts on habitat in GHMA. This would be a result of potentially concentrating development in the GHMA or non-core areas; however, locally adverse impacts would not be likely to affect the conservation of Greater SageGrouse in Wyoming. DEIS at 4-19 This statement suggests that BLM actually intends to prioritize leasing and development outside core area, but the on-the-ground reality appears quite different. According to Mike Madrid, an oil and gas expert in the BLM Wyoming State Office, the Wyoming BLM is not prioritizing leasing outside core area. Rather, the Wyoming BLM is offering lease parcels nominated by industry, regardless of whether the parcels are inside or outside core area.

the DEIS claims that "impacts related to changes in the prioritization of leasing outside of PHMA would be likely to beneficially affect Greater Sage-Grouse conservation in Wyoming." DEIS at 4-38. This rather astonishing claim is made without reference to any supporting data or information. The BLM should explain and document how "the change proposed to fluid mineral leasing prioritization under the Management Alignment Alternative" will benefit greater sage-grouse. Further, the EIS should be supplemented with an analysis and disclosure of impacts likely to result from indiscriminate and now widespread leasing in greater sage-grouse core areas. The analysis should include information, data, tables, maps etc., that reveal the recent surge in oil and gas leasing in core habitat, and present an assessment of the potential impacts to greater sage-grouse from leasing and subsequent potential development of hundreds of thousands, if not millions, of acres in core habitat. The EIS should also explain how prioritization of oil and gas leasing and development -as described in the 2015 sage grouse plans- has changed in light of Department of Interior policies and BLM instruction memorandum, including but not limited to Instruction Memorandum No. 2018-026. The BLM's approach to prioritization, or more accurately, its non-approach, is directly contrary to the justification set forth in the USFWS's 2015 "not warranted" finding, which determined that: "The Federal Plans prioritize the future leasing and development of nonrenewable-energy resources outside of sage-grouse habitats." See 80 FR 59858, 59891, October 2, 2015. Since this is clearly not the case, the BLM must explain what it meant when it committed to prioritizing leasing outside of core habitat, and analyze in this EIS the impacts of its revised understanding.

Instead of amending the plans by weakening protections, pointedly prioritizing oil and gas development over protected species, BLM should focus on engaging communities in the decisions necessary to implement the plans as they are. Give the plans a chance to work. The recently issues Instruction Memoranda generally retreat from the protections set out in previous guidance to field staff in 2016. The first IM, issued in December 2017, reverses existing policy, directing BLM field offices to prioritize oil and natural gas leasing and drilling projects outside of the most sensitive sage grouse habitat. Instead, it states that BLM "does not need to lease and develop outside of [grouse] habitat management areas before considering any leasing and development within [grouse] habitat." The second IM, issued in January 2018, eliminates requirements for public notice and comment "when conditions worsen and there is a need for action" under adaptive management provisions in the grouse plans. It also shortens the public protest period for oil and gas lease sale parcels to 10 days from 30 days

Development on existing leases should be managed per regulations that are currently in place, which limit surface occupancy and disturbance. Years of research leave no doubt that sage-grouse do not do well in close proximity to energy development. More development in the most important habitat will not help conserve the species.

Density and Disturbance Cap We oppose changes to the Density and Disturbance Cap, for the reasons set out below. The decision by the FWS not to list sage-grouse under the Endangered Species Act (ESA) noted the importance of the caps to sage-grouse protection: Each Federal Plan includes a disturbance cap that will serve as an upper limit (the maximum disturbance permitted). Anthropogenic disturbance has been identified as a key impact to sage-grouse. To limit new anthropogenic disturbance within sage-grouse habitats, the Federal Plans establish disturbance caps, above which no new development is permitted (subject to applicable laws and regulations; e.g., General Mining Law of 1872, and valid existing rights). This cap acts as a backstop to ensure that any implementation decisions made under the Federal Plans will not permit substantial amounts of new disturbance within the distribution of sage-grouse on BLM and USFS lands. In addition to the percent disturbance cap at the BSU and project scales, the BLM and USFS will use a density cap related to the density of energy and mining facilities during project-scale authorizations. If the disturbance density is greater than an average of 1/259 ha (1/640 ac) in PHMA, the project will either be deferred or co-located in an existing disturbed area (subject to applicable laws and regulations, such as the General Mining Law of 1872, valid existing rights, etc.). There is a substantial body of scientific literature concluding that discrete anthropogenic activities that are present in sagebrush have negative effects on sage-grouse. The extent of these effects varies based on the size, intensity and persistence of the human activity, and can range from displacement to local extirpation of sagegrouse.

Leasing BLM has used specific factors to guide prioritization of leasing outside sage-grouse habitat. For instance, in assessing the December 2017 lease sale for the Vernal Field Office (https://eplanning.blm.gov/epl-front-office/projects/nepa/80165/130450/158729/Final_Vernal_EA.pdf), BLM created a chart evaluating how certain prioritization considerations applied to parcels (existing lease, existing unit, field-EIS, high gas potential, high oil potential), completed site visits to confirm conditions on the ground, and then only included parcels in the lease sale that met the majority of the criteria. We propose that the BLM use the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; importance for connectivity or seasonal habitat * Population trends in applicable zone or biologically significant unit * Distance from existing disturbance * Distance from existing infrastructure - roads, well pads, pipelines * Need for additional infrastructure - estimated surface disturbance * Adjacent to existing lease - yes/no/proximity * Within existing oil and gas unit * Within existing master leasing plan * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high BLM will conduct site visits to confirm conclusions, as needed. Decisions to include nominated lease parcels in sage-grouse habitat in lease sales will be based on the following evaluation of criteria: - Parcels that do not have moderate or high potential should not be offered. - Parcels that have high quality habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed should not be offered. - Parcels that are in close proximity to existing disturbance and infrastructure, and are already within an existing oil and gas unit or master leasing plan that has been analyzed in an environmental impact statement may be considered for leasing. - Parcels outside priority habitat should be considered for leasing prior to parcels in PHMA. Development BLM will prioritize development outside sage-grouse habitat by considering the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority,

important, general); quality of habitat; quality of habitat; importance for connectivity or season habitat * Population trends in applicable zone or biologically significant unit * Distance from a lek * Need for new infrastructure - estimated surface disturbance * Ability to use existing well pad and infrastructure * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high These factors will apply to both exploratory and other types of development activities.

BLM will conduct site visits to confirm conclusions, as needed. Decisions to approve applications for permits to drill in sage-grouse habitat will be based on the following evaluation of criteria: - Where applications for permits to drill are in high quality/intact habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed, they will not be prioritized and opportunities will be evaluated to relocate permits. - Where applications for permits to drill are not in areas with high or moderate potential, they will not be prioritized. - Where applications for permits to drill are able to use existing well pads and infrastructure and otherwise avoid surface disturbance and noise impacts to leks, they are more suitable for processing and approval. - Applications for permits to drill outside priority habitat should be considered for approval prior to parcels in PHMA.

Recommended Approach to Prioritizing Oil & Gas Leasing and Development Outside Sage-grouse Habitat The 2015 plans are clear as to the need for prioritizing oil and gas leasing and drilling outside sage-grouse habitat and its meaning, as is the COT Report . From the Rocky Mountain Record of Decision (p. 1-25): . . . the ARMPs and ARMPAs prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs. This is to further limit future surface disturbance and encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and as such protect important habitat and reduce the time and cost associated with oil and gas leasing development by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation. The Rocky Mountain ROD also identifies prioritizing oil and gas leasing and development outside habitat as a "key component" and a "key management response" (pp. 1-18 - 1-19). The Buffalo Field Office ARMP/ROD (p. 50) and Wyoming 9-Plan ARMPA (p. 24) echo this directive, including the following objective: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of Greater Sage-Grouse habitat. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in priority habitat (core population areas and core population connectivity corridors) and general habitat, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater SageGrouse. (emphasis added). Prioritization cannot be based solely on whether BLM has sufficient resources to process leasing nominations or applications for permits to drill in sage-grouse habitat. Rather, there must be a thorough consideration of opportunities to protect habitat.

BLM Should Remove the Redundant Provision Prioritizing Leasing and Development Outside of PHMA. ConocoPhillips requests that BLM remove Management Objective 14 from the Proposed RMPA. See Draft RMPA/EIS at 2-14 - 2-15. This Management Objective first directs BLM to prioritize leasing and development outside of PHMA. See *id.* ("priority would be given to leasing and development of fluid mineral resources . . . outside of PHMA"). The Management Objective provides that when BLM leases and authorizes development of fluid minerals in PHMA, it will give priority to "development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse." *Id.* at 2-15. The Management Objective further anticipates that BLM will impose additional measures to avoid and

minimize impacts to the greater sage-grouse. See *id.* ("Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts '0. Finally, the Management Objective directs that it will develop additional avoidance and minimization measures to incentivize development outside of PHMA. See *id.* ("To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponents . . . to avoid and minimize impacts to Greater Sage-Grouse ConocoPhillips requests that BLM remove this Management Objective from the Proposed RMPA because it is difficult to administer, frustrates valid existing lease rights, risks a compensatory taking of private property, and is unnecessary. First, the directive that BLM prioritize leasing and development outside of greater sage-grouse habitat is difficult to administer because the directive to "prioritize" is inherently subjective. To implement this directive, BLM must make a series of judgment determinations as to when it has appropriately prioritized leasing and development outside of greater sage-grouse habitat and then in the "least suitable" habitat so that it may then authorize leasing and development within greater sagegrouse habitat. Already, BLM is facing a lawsuit that it did not correctly prioritize leasing and development under the 2015 ROD/ARMPA. See *Complaint, W. Watershed Project v. Zinke*, No. 01:18-cv-187 (D. Idaho April 30, 2018). BLM should avoid inviting litigation over its leasing and development decisions and remove this ambiguous directive.

Second, the directive that BLM prioritize development outside of PHMA is inconsistent valid existing lease rights and may lead to compensable takings of private property. Federal oil and gas leases convey the right to drill for, mine, extract, remove, and dispose of oil and natural gas during a 10-year primary term and so long thereafter as oil and gas is produced in paying quantities. The directive that BLM prioritize development outside of PI-IMA could allow BLM to indefinitely defer development of existing oil and gas leases. A prolonged or indefinite deferral is contrary to the express contractual rights granted by a federal lease. Furthermore, because a federal oil and gas lease conveys a property interest, an indefinite deferral of development may give rise to a compensable taking under the Fifth Amendment of the United States Constitution. See generally *Bass Enters. Prod. Co. v. United States*, 381 F.3d 1360 (Fed. Cir. 2004). Simply put, after BLM issues a lease, it must honor the lessee's ability to develop it. BLM should remove the requirement that it prioritize development outside of PI-IMA and, consistent with valid existing lease rights, instead work with lessees to develop measures that provide any necessary protections for the greater sage-grouse beyond those already provided by Wyoming Executive Order No. 2015-4. Finally, the directive that BLM prioritize and incentivize leasing and development outside of PI-IMA is unnecessary because such prioritization is inherent to Wyoming Executive Order No. 2015-4. The Executive Order encourages development outside of Core Areas by imposing the most stringent management measures, such as density and disturbance limitations, in Core Areas and more flexible measures outside of Core Areas. See Wyoming Executive Order No. 2015-4, Attachment B.

The DEIS fails to disclose the impacts of the BLM's radically different interpretation of the requirement in the 2015 greater sage-grouse conservation plans to prioritize oil and gas leasing and development outside core (PHMA) areas. Under the subheading, *Prioritization of Fluid Mineral Leasing*, the DEIS states that: [t]his action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other non-habitat areas. Impacts associated with prioritizing leasing outside PHMA would be beneficial to Greater Sage-Grouse conservation in Wyoming, with the potential for locally adverse impacts on habitat in GHMA. This would be a result of potentially

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Protection of Pre-2008 Permitted Activities The Wyoming Executive Order provides that activities, such as oil and gas units and drilling and spacing units, existing or permitted in core population areas prior to August 1, 2008-the date the initial Wyoming Executive Order was issued-will not be subject to core area stipulations. WCCA urges BLM to incorporate the same exception into the RMPA.

Incentivizing Development Outside PHMA WCCA supports the BLM's efforts to work with the State of Wyoming to develop direction to incentivize development outside PHMA. WCCA strongly urges the BLM to also include affected counties in these efforts.

Sweetwater County supports the prioritization of leasing as provided by the Management Alignment Alternative, which in part states: "To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside PHMA. Leasing is allowed in PHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA . . . priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation. . . ."

I am opposed to the the WY_GRSB Draft EMPA_EIS for the following reasons: it degrades efforts already put forth by the state of Wyoming for conservation of the greater sage-grouse, and it opens up habitats essential for survival of the species to fragmentation. The RMPA_EIS also tilts the management of greater sage-grouse habitat in favor of energy development industries. Prioritization of leasing-Management Objective 14- removes protections for GHMA"... priority would be given to leasing and development of fluid mineral resources... outside of PHMA." GHMAs are protected as they allow for a buffer zone around the PHMA and provide protections to habitat that is already fragmented. Removing protections from the GHMA would allow for further degradation of an already limited habitat.

Development on existing leases should be managed under current regulations, which limit surface occupancy and disturbance. Years of research leaves no doubt that sage-grouse do not do well in close proximity to energy development. More development in the most important habitat will not help conserve the species.

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One appendix in particular should be changed to align with the State's strategy for managing the Greater sage-grouse--Appendix B for fluid-mineral stipulations. Appendix B identifies several stipulations that align with the State's strategy for managing oil and gas development within Core and Non-Core habitats. It covers density and disturbance limitations, seasonal stipulations, no-surf ace-occupancy, and other requirements. However, the standards used by the BLM in Appendix B for addressing exceptions to the stipulations conflict with the State's strategy that is proven to work equally for the benefit of the species and responsible energy development.

Some in the BLM's State Office interpret the exception language in Appendix B to either allow for the exception without compensatory mitigation, or not to allow any exception. Some in the BLM's State Office believe the agency will never follow the State's strategy because of Appendix B. This

interpretation is inconsistent with the wording in Appendix B and with the State's work with industry under the State's strategy to avoid impacts to the species. The State's strategy adequately balances both resources by allowing development to occur only after detennining that avoidance, minimization and compensatory mitigation will address impacts to Greater sage-grouse and their habitats. Few exceptions are granted by the State and when exceptions are granted, sufficient measures are imposed to address the potential impacts to the species across its range.

Page 4-19: Prioritization of Fluid Minel'al Leasing, The first sentence reads: "This action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other non-habitat areas." The sentence should be changed to read: "This action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other areas outside the current range of Greater SageGrouse habitat." The proposed change better explains what is meant by non-habitat areas under the State's strategy.

The DEIS fails to disclose the impacts of the BLM's radically different interpretation of the requirement in the 2015 greater sage-grouse conservation plans to prioritize oil and gas leasing and development outside core (PHMA) areas. Under the subheading, Prioritization of Fluid Mineral Leasing, the DEIS states that: [t]his action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in GHMA and other non-habitat areas. Impacts associated with prioritizing leasing outside PHMA would be beneficial to Greater Sage-Grouse conservation in Wyoming, with the potential for locally adverse impacts on habitat in GHMA. This would be a result of potentially concentrating development in the GHMA or non-core areas; however, locally adverse impacts would not be likely to affect the conservation of Greater SageGrouse in Wyoming. DEIS at 4-19 This statement suggests that BLM actually intends to prioritize leasing and development outside core area, but the on-the-ground reality appears quite different. According to Mike Madrid, an oil and gas expert in the BLM Wyoming State Office, the Wyoming BLM is not prioritizing leasing outside core area. Rather, the Wyoming BLM is offering lease parcels nominated by industry, regardless of whether the parcels are inside or outside core area.

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meant when it committed to prioritizing leasing outside of core habitat, and analyze in this EIS the impacts of its revised understanding.

Leasing Prioritization FLPMA mandates that BLM manage public lands under the principles of multiple use and sustained yield, in accordance with applicable land use plans, to meet the needs of present and future generations. 43 U.S.C. §§ 1701(a)(7), (8) & (12); 43 U.S.C. §§ 1732 (a) & (b); 43 C.F.R. § 1610.5-3. FLPMA identifies "mineral exploration and production" as one of the "principle or major uses" of public lands. 43 U.S.C. § 1702(1). BLM executes its duty to manage public lands through resource management plans, which, amongst other things, designate which lands will remain open and closed to oil and gas leasing and development, and identify stipulations and mitigation measures implemented to protect other resources. Thus, pursuant to FLPMA's mandate, BLM leases public lands identified as open to oil and gas leasing with stipulations to protect GrSG and other resources on those leases. BLM issued IM 2018-026 to provide guidance on the GrSG Plans' requirement that BLM "[p]rioritize the leasing and development of fluid mineral resources outside GRSG habitat." See Rocky Mountain ROD at I-19 (Table I-4). IM 2018-026 reiterates that leasing is still allowed in GrSG habitat with appropriate stipulations-an outcome consistent with FLPMA's multiple use mandate. In IM 2018-026, BLM instructs field offices to prioritize evaluation of expressions of interest for leasing in non-habitat management areas, followed by lower priority habitat management areas and then higher priority habitat management areas. Importantly, BLM states that the burdensome operational restrictions, including no surface occupancy stipulations, discourage leasing in GrSG habitat. Potential compensatory mitigation requirements provide further disincentive to lease these lands. Greater Sage-Grouse Draft RMPAs for Wyoming August 2, 2018 Page 8 of 11 Any requirement to lease lands in GrSG habitat identified as open to oil and gas leasing only after non-GrSG habitat has been leased would be inconsistent with FLPMA's multiple use mandate and IM 2018-026. GrSG conservation stipulations, in conjunction with voluntary avoidance and minimization measures, are designed to minimize and compensate for potential impacts to GrSG and GrSG habitat. Moreover, GrSG conservation stipulations, especially timing and buffer stipulations, inherently prioritize development outside GrSG habitat during portions of the year to avoid impacts on GrSG. Additional prioritization requirements would be superfluous, contrary to FLPMA, and contrary to Section 353 of the Energy Policy Act of 2005. 42 U.S.C. § 15922(b)(3)(C) (requiring BLM to ensure that lease stipulations are applied consistently and "only as restrictive as necessary to protect the resource for which the stipulations are applied"). BLM should revise the Final EIS and Resource Management Plan Amendment to specify that lease prioritization will be done consistent with IM 2018-026. BLM should specifically state that the leasing prioritization requirement does not require BLM to lease and develop outside of GrSG habitat management areas before considering any leasing and development within GrSG habitat.

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FLUID MINERAL SAGE-GROUSE STIPULATION EXCEPTION LANGUAGE In accordance with the discussion above regarding Timing Stipulation Relief and the lack of consistent application of GRSG stipulation exceptions throughout BLM field offices, we strongly recommend the following language be revised in the appendices⁸ to the existing Wyoming RMPs regarding fluid mineral exceptions to GRSG stipulations as follows: "The authorized officer may grant an exception if an environmental record of review determines: 1. That the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success; or 2. That the action is designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat and may be exempted from this timing limitation; or 3. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the statewide population being protected in accordance with the State of Wyoming's EO." Without making these changes to the appendices to the Wyoming RMPs, adopting the state's Compensatory Mitigation Framework will not be fully realized and ongoing ambiguity will exist in BLM application of the exception process. None of the above revisions require additional NEPA analysis or fundamentally change the exception process as defined in the RMPs. These changes simply make clear the proper legal reading of existing exception provisions.

RECOMMENDATION 5: Revise exception language to provide clarification in existing Wyoming RMPs regarding fluid mineral exceptions, modifications and waivers⁹: "The authorized officer may grant an exception if an environmental record of review determines: 1. That the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success; or 2. That the action is designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat and may be exempted from this timing limitation; or 3. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the statewide population being protected in accordance with the State of Wyoming's EO." **PRIORITY HABITAT MANAGEMENT AREA BOUNDARIES** PAW strongly supports the provision in the Management Alignment Alternative providing for updates to be made to Priority Habitat Management Area boundaries in conjunction with revisions made by the State to its core area boundaries.¹⁰ As stated in our scoping comments dated November 30, 2017, industry experienced significant delays and confusion on both the project planning and APD level for approximately two (2) years as a result of different maps being used by the State and BLM. While PAW is pleased to see BLM has provided for updates to be made through maintenance

action, clarification needs to be added outlining in what instances that process would not suffice. The DRMPA/DEIS states, "If major changes to the core area boundaries are proposed, the BLM would be required to consider the changes under its requirements of NEPA."¹¹ As such, clarification needs to be added describing what would qualify as a major change to the core area boundaries requiring increased analysis under NEPA.

LEASING AND DEVELOPMENT PRIORITIZATION PAW strongly opposes any provisions regarding prioritization of leasing or development under the Management Alignment Alternative in the DRMPA/DEIS as no justification has been provided. With respect to leasing, in the Summary of Environmental Consequences section of the DRMPA/DEIS, BLM acknowledges, "A fluid mineral lease does not authorize surface-disturbing activities; therefore, impacts related to changes in the prioritization of leasing outside of PHMA would be likely to beneficially affect Greater Sage-Grouse Conservation in Wyoming."¹⁵ This statement does not make sense and certainly does not provide justification for prioritization of leasing. BLM also fails to outline in the DRMPA/DEIS how it can effectively prioritize leasing and development, and we question its ability to do so. The directive in the current Wyoming RMPs that BLM prioritize leasing and development outside of GRSG habitat has already prompted litigation over BLM's administration of this directive.¹⁶ Also, in light of the extensive rules in place for how and when development will proceed in GRSG habitat, project-specific NEPA and project approval will be more than sufficient to provide habitat protection. Finally, the provisions directing prioritization of leasing and development are redundant because the Wyoming Core Area Strategy inherently prioritizes leasing and development by imposing more stringent measures in higher quality habitat. USFWS recognized that the Core Area Strategy creates incentives to site development outside of GRSG habitat. The USFWS described the Core Area Strategy as "encourag[ing] projects to be re-located outside of Core Areas by reducing restrictions in non-Core Areas for development activities," providing "[i]ncentives to consolidate disturbance . . . by minimizing habitat loss and degradation within large landscapes," and "encourage[ing] development to move outside of Core Areas, while still providing some protections to birds in non-Core Areas."¹⁷ As such, these provisions are wholly unnecessary and need to be removed.

RECOMMENDATION 9: Remove any and all provisions from the Management Alignment Alternative regarding prioritization of leasing. PRE-2008 PERMITTED ACTIVITIES PAW is significantly concerned that the Management Alignment Alternative does not include a provision regarding pre-2008 permitted activities. The EO places importance on respecting valid existing rights and specifically exempts pre-2008 permitted activities from having to comply with core area stipulations. The EO states, "[a]ctivities existing or permitted in Core Population Areas prior to August 1, 2008, will not be required to be managed under Core Population Area stipulations."¹⁸ It further goes on to provide that, "[f]ederal and state permitted activities, within a defined project boundary (such as a recognized federal oil and gas unit, drilling and spacing unit, mine plan, subdivision plat, utility ROW, grazing allotment, etc.), shall be allowed to continue within the existing boundary even if the use exceeds recommended stipulations"¹⁹. No such provisions are provided in the Wyoming RMPs. While the DRMPA/DEIS states BLM will respect valid existing rights, it further provides that BLM will "work with lessees, operators or other project proponents to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources."²⁰ It needs to be taken into consideration that when operators planned or initiated projects in or prior to 2008, they did not anticipate inclusion of GRSG protections that have been put in place over the past ten years. Subjecting pre-2008 permitted activities to these stipulations is unreasonable and has the potential to render previously authorized projects

uneconomic and/or impossible to complete. As such, PAW recommends the RMPs be amended to specify pre-2008 permitted activities, such as oil and gas units and drilling and spacing units, are not subject to GRSG stipulations. The EO also provides that activities permitted outside of core prior to its effective revision date (July 29, 2015) that are now included in core as a result of changes made to the Core Area Map (Version 4) are not subject to core area stipulations. We strongly recommend the RMPs be amended to reflect this provision as well.

RECOMMENDATION 10: Include provisions in the RMP amendment specifying that pre-2008 permitted activities, such as oil and gas units and drilling and spacing units, are not subject to GRSG stipulations and that activities permitted outside of core prior to its effective revision date (July 29, 2015) that are now included in core as a result of changes made to the Core Area Map (Version 4) are not subject to core area stipulations.

The current process for GRSG exception requests as devised by the State is as follows: 1. An operator determines it would like to obtain a stipulation exception, such as a timing stipulation exception, and provides a request to the WGFD that includes documentation of the avoidance and minimization measures that are already part of the project design. PAW Supplemental Comments - GRSG DRMPA/DEIS August 2, 2018 Page 2 2. The WGFD reviews the proposal and makes a determination of whether or not to approve the exception request. 3. If the exception request is granted, the WGFD documents such approval of the exception in a letter that is part of the state-approved APD. The letter will include any conditions of approval associated with the exception request, such as travel plans, etc. Through this process, the operator voluntarily engages with the WGFD for an exception request. With this in mind, the operator would submit the WGFD exception approval letter to the BLM as part of its federal APD package. BLM can and should approve the exception as endorsed by the WGFD - adopting the environmental analysis of impacts associated with the exception and the balancing avoidance, minimization and compensatory mitigation measures inherent in the State's Compensatory Mitigation Framework - and include the exception in the APD decision record. It is important to note that it will be necessary for BLM to grant exceptions related to GRSG at the point of APD approval which needs to be provided for in the Final Wyoming GRSG RMP Amendment. PAW maintains the CM IM fully supports BLM's ability to grant stipulation exceptions in exchange for voluntary compensatory mitigation as outlined in the State of Wyoming's Compensatory Mitigation Framework.

RECOMMENDATION 12: A provision needs to be included in the Final Wyoming Greater Sage-Grouse RMP Amendment that BLM will grant exceptions approved by the WGFD, adopt the environmental analysis inherent in the State process, and incorporate the exception approvals in APD decision records.

Page 4-35, Wyoming reasonably foreseeable future actions, Oil and Gas. The list of past and "pending" (June 2018 is already past) lease sales does not provide a "reasonably foreseeable future" adequate to determine and analyze impacts and consequences.

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Page 1-9, Subsection 1.5.2 Clarification of Planning Decision in the 2015 Amendments and Revisions. The second bullet addresses incentivizing development outside of PI-IMA which is then discussed further on Page 2-14-15, Comparison of Alternatives. Topic: Leasing prioritization. While we support minimizing

development in PI-IMA and incentivizing it outside of PHMA, areas outside of PI-IMA are important for genetic connectivity and should not be considered sacrifice areas from a sage-grouse perspective. See page 3-3 under "Population Estimation and Genetics" for reference to the importance of maintaining connectivity between populations to ensure genetic diversity and distribution. Also, these areas often provide important habitat for other species that require protection or stipulations for development.

It seems to me that the biggest potential change is no longer prioritizing leasing outside GHMA, but only prioritizing outside PHMA. The report's conclusion that locally adverse impacts would not affect sage grouse conservation in Wyoming does not have a very convincing argument to back it up (or really any at all). Another of the proposed changes that seems most significant is the updating of the PI-IMA boundaries to the core area boundaries. However, assuming that the state's core area boundaries are accurate, it seems to me that the net effect should be minimal, and perhaps it makes sense to be consistent with the state's management. I don't understand the rationale behind the proposal to not include nesting and early-brood rearing habitat improvement in the livestock management - riparian area management section. There seems to be a lack of a justification for this change, and lack of justification behind the conclusion that it would not affect sage grouse conservation.

E.4.10 Mineral Withdrawal

The negative impacts of oil and gas development to sage-grouse are well-known and heavily studied. Geothermal development and in situ uranium leaching involve similar types of wellfield impacts and human activities, and there is no scientific evidence that the impacts of these types of development would be any different than the impacts of oil and gas development and production. Millions of acres of prime habitat nationwide were deferred from oil and gas leasing while the RMPs have been under revision or amendment, and opening Priority Habitats to leasing after years of de facto closure would reverse the only successful conservation measure that the BLM has put in place to protect sage-grouse. Coal mining has also been shown to cause significant sage-grouse population declines (see Braun 1986, Remington and Braun 1991).

Other Threats from Mineral Extraction. For similar reasons, the NTT Report also recommended: "[f]ind unsuitable all surface mining of coal under the criteria set forth in 43 CFR 3461.5 [and]...[g]rant no new mining leases unless all surface disturbances (appurtenant facilities) are placed outside of the priority sagegrouse habitat area..." Id. at 24. It suggested withdrawing priority sage-grouse habitats from locatable mineral entry, and recommended closing priority habitats to non-energy leasable mineral development and mineral material sales. Id. at 25.

Moreover, the locatable minerals discussion in the DEIS for the DRMPA tiers to the FEIS for the ARMPA. That EIS assumed that SFAs would be withdrawn from locatable mineral entry under the preferred alternative. BLM must identify with specificity the results of departing from the course it previously determined the best available science required-withdrawing high value sage-grouse habitats from locatable mineral development. For existing mining claims, to appropriately effectuate limits on development that would amount to adequate regulatory mechanisms in the context of hard-rock mining, BLM will need to define 'unnecessary or undue degradation' formally in sage-grouse plan amendments and revisions to include the following: * Open-pit surface mining, * Location of facilities within 4 miles of active sage-grouse leks, * Cumulative surface disturbance exceeding one industrial site or 3% surface disturbance per 640-acre section. With respect to locatable minerals, the NTT recommends the following: withdraw sagegrouse habitat from mineral entry; on existing claims, require validity

examinations or buy out where necessary; require buyout of other minerals and private lands within priority areas as a condition of operating plans. NTT p. 24. All of these measures are well within BLM's authority to protect public lands. BLM has broad powers to withdraw lands from "settlement, sale, location, or entry," under the general land laws, including the Mining Law of 1872. 43 U.S.C. §§ 1714, 1702(j). Such withdrawal must be "for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserve the area for a particular public purpose or program." *Id.* (emphasis added). Once a withdrawal is approved, new claims cannot be located within those lands. Before finalizing a proposed withdrawal of lands, BLM may segregate the proposed lands from new mining claims for up to two years. See *id.* § 1714(b). Once lands are withdrawn, BLM must determine the validity of existing unpatented mining claims on the withdrawn lands, before approving any submitted plan of operations. See 43 C.F.R. § 3809.100(a) ("BLM will not approve a plan of operations or allow notice-level operations to proceed until BLM has prepared a mineral examination report to determine whether the mining claim was valid before the withdrawal, and whether it remains valid.") This determination essentially considers whether the claims can be economically developed. In *re Pac. Coast Molbydenum Co.*, 75 IBLA 16, 32 (1983). With respect to segregated lands, BLM has discretion to determine the validity of existing unpatented mining claims before allowing mining operations to proceed. In either case, the cost of preparing the report must be charged to the operator. 43 C.F.R. § 3800.5(b). If BLM's validity examination proves the claim invalid, BLM must reject the mining permit. 43 C.F.R. § 3809.100(a). Withdrawal therefore provides an effective process for limiting all new claims, and, with respect to claims existing before withdrawal, ensuring that only valid, economic claims are developed.

Accordingly, BLM should: exercise its authority to withdraw important sage-grouse habitats from new mining claims; in the interim, segregate such lands from new claims until withdrawal is finalized; and perform a claim validity examination for existing claims within segregated or withdrawn lands, whenever an operator applies for a mining permit. Withdrawal and closure of important sage-grouse habitats from mineral entry would clearly maintain significant public values of conserving threatened sage-grouse and sagebrush landscapes. Even if claims already exist, withdrawal status would trigger the validity examination requirement and prevent operators from pursuing invalid or uneconomic claims at the risk of despoiling irreplaceable sage-grouse habitat. While withdrawal is necessary for ensuring that important sage-grouse habitats are protected from development of new mineral claims, if BLM fails to withdraw such lands, BLM may still determine the validity of an existing claim at any time before a patent is issued and should do so whenever a plan of operations is submitted for claims within important sage-grouse habitat. See *Cameron v. United States*, 252 U.S. 450, 460 (1920) ("so long as the legal title remains in the government it does have power, after proper notice and upon adequate hearing, to determine whether the claim is valid and, if it be found invalid, to declare it null and void"); see also Memorandum from Dept. of the Interior Office of the Solicitor to Secretary & BLM Director re: Legal Requirements for Determining Mining Claim Validity Before Approving a Mining Plan of Operations, M-37012 (Nov. 14 2005), p. 3 n.1 (noting BLM's "unconstrained discretion" to initiate claim validity examination). Ensuring that only valid claims are pursued within key habitats - whether within withdrawn lands or not - would be in keeping with BLM's mandate to prevent "unnecessary or undue degradation" from mining on public lands. See part 3 below. If BLM will not require examinations in all such cases, BLM Instruction Memorandum No. 2010-088 re Guidance on 43 CFR 3809.100 and its Application (March 17, 2010) provides guidance on how BLM could exercise its discretion to perform an examination, albeit with respect to claims on segregated lands. BLM could follow similar procedures for

all claims within sage-grouse habitat but instead weigh the potential risk that developing the claim presents to sage-grouse in assessing whether the public interest favors an examination.

The BLM's decision to abandon the recommended mineral withdrawal will have significant consequences on the BLM's ability to avoid and mitigate impacts from hard rock mining in core grouse habitat, yet the DEIS brushes off any negative effects of the BLM's decision to eliminate the Sagebrush Focal Area mineral withdrawal, claiming it offers only "minimal benefit" to greater sage-grouse. DEIS at 4-37. We disagree. Absent the mineral withdrawal, nearly a quarter-million acres of core area habitat that is vitally important for the greater sage-grouse would be open to mineral location and entry under the 1872 mining law: new mining claims could be located, and new mining operations that would otherwise not be possible could occur in core (PHMA) habitat. On the other hand, if these lands were withdrawn from mineral entry, new mining claims -and mining activities on those claims- would not be permitted. The DEIS fails to disclose the impacts of mining on those lands previously recommended for withdrawal, stating merely that "future impacts would be analyzed in future EISs, adhering to existing requirements of the RMPs and ARMPA." DEIS Table 4-3 at 4-35. The DEIS also fails to disclose whether mining within these sensitive habitats will be subject to the full range of conservation measures contained in the State's EO. The question BLM must answer - directly and without equivocation - is whether hard rock mining activities in core area authorized under 43 C.F.R. Part 3809 will be subject to the density and disturbance limits and other stipulations contained in the State's EO and incorporated into the BLM's preferred management alignment alternative? Or as opponents of regulation suggest, will "valid existing rights" under the General Mining Law override the ability of the state and federal land management agencies to implement the density and disturbance limits and enforcement of stipulations? The BLM has failed to answer this key question, a question that goes directly to the efficacy of the conservation measures proposed in the BLM's preferred alternative. The DEIS purports to address this issue by referencing 43 CFR Part 3809: These regulations ensure that operators comply with environmental standards in conducting exploration, mining, and reclamation. For example, the BLM must approve a plan of operations for locatable mining operations on public lands, which includes compliance with the National Environmental Policy Act, National Historic Preservation Act, and Endangered Species Act. Plans of operation must also include those measures to meet specific performance standards and to prevent unnecessary or undue degradation of the lands (43 CFR 3809.411). See DEIS 4-37, footnote 2. While all of this is true, it doesn't answer the key question: does either BLM or the State of Wyoming have the authority (along with the intention) to enforce the disturbance and density limits and other stipulations contained in the State's sage-grouse EO in the context of hard rock mining? The question is not merely academic: in previous legal filings regarding a challenge by a conservation organization of the Lost Creek In-situ Leach (ISL) uranium mine, the State of Wyoming argued, and the United States District Court for the District of Wyoming agreed, that Wyoming lacked legal authority to enforce the density and disturbance limits and other stipulations contained in the sage-grouse EO on federal lands, finding that compliance with the EO was "voluntary." See *Biodiversity Conservation Advocates v. Bureau of Land Management*, Case No. 2:12-CV-252-SWS, Order Denying Motion for Preliminary Injunction, March 1, 2013, at 19. ("Further, unlike oil and gas, uranium is a mineral locatable under the Mining Law of 1872 with different applicable requirements and making the operator's compliance with the suggested conservation measures voluntary.") The court explained that "Except with respect to preventing UUD and certain provisions unrelated to this action, 'no provision of this section or any other section of this Act shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to, rights of ingress and egress.'" 43 U.S.C. § 1732(b)." *Id.* at Footnote 5. In order to understand and disclose the potential environmental consequences of hard rock mining in

core area, it is critical to know whether this is still Wyoming's view. Also remaining unanswered is whether the BLM will commit to determining that exceedances of density and disturbance thresholds or violations of the surface protection/use stipulations (e.g., seasonal timing limitations and 0.6 mi NSO lek buffer) constitute unnecessary or undue degradation of the land which therefore, under 43 C.F.R. Part 3809, must be prevented? We would appreciate a clear and direct response to this question. The BLM claims that "decisions associated with locatable minerals ... were sufficiently analyzed on [sic] the existing plans..." yet then notes that "[b]etween 2015-2017, the BLM has approved 17 new mines and/or expansions within the planning area (including non-habitat)." DEIS Table 4-3 at 4-35. But it doesn't include any other relevant information about these mines, such as their location (e.g., within or outside sage-grouse habitat), likely impacts to sage-grouse, and mitigation measures that may have been required, and their effectiveness. Table 4-3 also indicates that the "BLM is currently reviewing 26 plans of operation for new mines, mine expansions and notice-level activities. This number also includes 10 pending mine patents, which are in the process of being patented into private ownership." *Id.* But again, the DEIS fails to include any information that would be required to understand the potential negative direct and cumulative impacts to sage-grouse from these activities.

Mineral Withdrawal The Wyoming DEIS seeks comment on what would occur as a result of not moving forward with the previously recommended withdrawals. See Wyoming DEIS at ES-3. If the BLM is to achieve a lawful outcome in this present administrative process, it must critically analyze and carefully balance its obligations under four key bedrock substantive Federal laws: 1) General Mining Act of 1872, Ch. 152, 17 Stat. 91 (codified as amended at 30 U.S.C. §§ 22-24, 26-30, 33-35, 37, 39-43, 47 ("1872 Mining Law"); 2) the Federal Land and Policy Management Act, 43 U.S.C. §§ 1701-1784 ("FLPMA"); 3) the Mining and Minerals Policy Act of 1970, 30 U.S.C. § 21a; and 4) the Endangered Species Act, 16 U.S.C. §§ 1531- 1544. In Wyoming, the Minerals Leasing Act of 1920, Pub. L. No. 66-146, 41 Stat. 437 (1920) (current version at 30 U.S.C. §§ 181-226) ("MLA"), plays an important role in the business models of Commenters' member companies. The MLA governs the legal relationship between the Federal government and mining entities represented by Commenters for the extraction of non-energy leasable minerals such as trona, phosphate, sodium, potassium, and sulphur.⁵ Any further attention by BLM to advancing the withdrawal of public lands from mining is primarily governed by the Mining Law and FLPMA, the organic Federal statutes that would normally provide the legal baseline for land use planning. The inner workings of each are further discussed below.

E.4.11 Noise Management Outside of PHMA

In the Wyoming DRMPA, BLM proposes to re-set noise limits at 10 dBA above baseline, to be enforced only between 6 and 8 a.m. between March 1 and May 15. See DEIS at 2-12. This is problematic for a number of reasons. First, it ignores the need to set an absolute limit of 25 dBA at L50 to prevent significant declines in nearby lek populations, based on Wyoming research (see above). Second, noise exceeding these levels outside the lekking house is likely to disturb and displace sage-grouse, including loafing males and females in proximity to the lek, and nesting females and their young. Third, restricting the noise limitations to end at May 15th means that sage-grouse nesting will be unprotected from noise disturbance and displacement during the critically sensitive nesting period, particularly for hens whose first nests fail and re-nest later in the season. The seasonal period for noise restrictions should be extended to June 30th in the Spring, and an additional noise restriction should be extended to designated wintering habitats, to be in force between November 15th and March 1, with an absolute limit of 25 dBA measured at L50 levels. Finally, Noise restrictions in sensitive seasonal habitats must

apply in GHMA as well, and round-the-clock to prevent disturbance or displacement of sage-grouse by noise 24 hours a day.

"During lekking (March 1 to May 15), restrict noise to 10dB above ambient (not to exceed 2024 dB) measured at the perimeter of an occupied lek to lekking birds from 6 pm to 9 am. (Patricelli et al. 2010, Blickley et al. 2012)" This RMPA rule is a significant improvement over the Wyoming Governor's Executive Order, discussed below, for two reasons. First, this rule extends the period of protection from 6pm to 9am, rather than ending at 8am. This extra hour of protection is important—we have found that an average of 17% of matings occur after 8am, ranging from 4% of matings in one lek-year to 41% in another lek-year (based on detailed observations of 12 lek-years from 5 leks near Hudson, WY, between 2006 and 2014; Patricelli and Krakauer, unpublished data). Further, the mean departure time of birds from these leks is approximately 9:00 am, with activity extending some days until 11 am. Studies of lek attendance in Colorado and Montana also found that lek activity commonly continues past 8 am (Jenni and Hartzler 1978; Walsh et al. 2004). Second, and more important, this RMPA rule improves upon the Wyoming Governor's Executive Order because it uses a fixed ambient value as a baseline. For the reasons discussed in detail below, this is critically important for effective protection of sage-grouse breeding activity. However, while the use of a fixed ambient value is a critical improvement over the use of measured baseline values, using 20-24 dB is inappropriate as a measure of ambient noise. Neither of the two papers cited in the rule, Patricelli et al. 2010 or Blickley et al. 2012, provide any justification for these ambient values. Neither of these papers report ambient values for representative areas during the lekking period. A more recent, peer-reviewed article suggests 16-20 dBA as appropriate ambient levels for sage-grouse habitat (Patricelli et al. 2013). Even these recommended values, however, were proposed as interim values, to be used until high-quality long-term measurements could be collected across sage-grouse habitat in multiple representative locations. Such an effort has now been completed and the results, described below, represent the best available science for setting baseline noise levels.

Based on the Ambrose 2013 and 2014a studies, the ambient noise levels in typical sage-grouse habitat in Wyoming (and likely rangewide) are 14-17 dBA or less. For the purposes of establishing noise stipulations relative to greater sage-grouse, we recommend using a fixed ambient of 16 dBA as a baseline; this is consistent with a peer-reviewed publication (Patricelli et al. 2013) and widely-used reports (e.g. EPA 1971). Allowing 10 dB of noise from new projects, this leads to an allowable level of 26 dBA.

Detailed recommendations for noise rules For the purposes of assessing acoustic impacts to greater sage-grouse, we recommend using 26 dBA as the threshold for noise exposure (ambient 16 dBA + 10 dBA). For compliance with this limit, we recommend that measurement be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions) during the lekking period. The sounds of lekking birds will have minimal impacts on these measures. Pater et al. (2009) recommend noise measurement at the height most relevant to assessing noise impacts on wildlife (see also Delaney et al. 1999, Patricelli et al 2013, and others), which is also consistent with ANSI standards (1994, Section 7.3.2.4), therefore we recommend that SLM microphone height should be 12" to approximate ear height of greater sage-grouse; this microphone placement will also reduce the impact of wind, which could artificially inflate measures and count against compliance. We recommend that the median of hourly L50 values during monitoring period should be used to assess compliance (see

Patricelli et al 2013 for explanation). Using this metric, one or more hours may exceed 26 dBA, but the median of all hours should be <26 dBA.

Situations When Existing Ambient Exceeds 26 dBA There may be situations where sound levels at leks exceed an L50 of 26 dBA before project initiation due to existing noise sources, though recent data suggest that this is unlikely outside of heavily developed areas (Ambrose et al. 2014a and 2014b). In these cases, the best available evidence suggests that additional noise will increase the impact on these leks, as sage-grouse do not adapt to the presence of noise over time (as discussed below; Patricelli et al. 2013). Therefore, to limit impacts on sage grouse, new projects should not contribute to an increase in sound levels at leks already exceeding the noise limits. This rule would not preclude further development at sites that already have sources exceeding 26 dBA due to the non-additive way that multiple sound sources combine to determine overall noise levels. For example, a new source with an L50 9 dB quieter than the L50 of an existing source at the measurement site would add only 0.5 dB to the total noise exposure. Therefore new projects could proceed by increasing the distance to the lek or through the use of noise-mitigation technology.

Hours Outside the Lekking Period Maintaining lek activity involves males and females foraging, roosting, nesting and brood-rearing before and after lekking times on a daily and seasonal basis, and noise impacts may also occur during these off-lek activities (e.g. Vehrencamp et al. 1989; Wallestad and Schladweiler 1974; Schoenberg 1982; Patricelli et al. 2013). Therefore, outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible.

RECOMMENDED LANGUAGE FOR THE BLM RMPA The most critical change to existing RMPA language is to replace to fixed ambient level of "2024 dB" with "16 dBA". However, additional changes to the language would provide guidance for consistent measurements to assess compliance: Noise: Noise levels should not exceed 26 dBA at the perimeter of the lek during lekking hours (6 pm to 9 am) during the breeding season (March 1 to May 15); 26 dBA represents a level 10 dBA above existing ambient noise levels in sage-grouse habitats in rural Wyoming. Outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible. In situations where existing noise levels at leks exceed 26 dBA before project initiation, new projects should not contribute to an increase in sound levels at leks; this can be accomplished through noise mitigation measures, such as pad siting and technology that limits the combined noise exposure. All compliance measurement should be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions), during lekking hours (6 pm to 9 am), during the breeding season (March 1 to May 15). Microphone height should be 12" to approximate ear height of greater sage-grouse. The median of hourly L50 values during monitoring period should be used to assess compliance; using this metric, one or more hours may exceed 26 dBA, but the median of all hours will be <26 dBA. Measurement methods should follow published standards of the American National Standards Institute (ANSI).

The BLM states a continued commitment to research and use of best available science in the RMPA: "Through implementation of this strategy, new management issues and questions are likely to arise that may warrant additional guidance or study by technical experts, scientists, and researchers. The BLM is committed to continue working with individuals and institutions with expertise in relevant fields in order to ensure that land and resource management affecting conservation of the GRSG and the sagebrush ecosystem continues to be guided by sound peer-reviewed research and the best available science." The

Wyoming Executive Order ends with the statement "Specific noise protocols for measurement and implementation will be developed as additional research and information emerges." We emphasize that the research and information needed to establish a scientifically defensible ambient standard and develop specific protocols for measuring 10 dBA above this standard are already available. The critical problem with the Wyoming EO rule could be addressed by providing a specific protocol for implementation which specifies a fixed background noise level. We recommend setting this baseline as 16 dBA for both the RMPA and the Wyoming EO, as discussed above, thus setting maximum allowable noise levels at 26 dBA. The BLM's RMPA ambient standard of 20-24 dBA is a critical improvement from no ambient standard in the Wyoming EO; however values above 16 dBA are too high based on the research cited above, and we recommend adjusting to 16 dBA as the fixed baseline.

Minimizing the Impacts of Noise Noise from almost any type of permitted activity can have a major negative impact on sage-grouse, causing disturbance and displacement of birds from preferred habitat and drowning out the mating calls of males during the lekking season. Blickley and Patricelli (2012) found that low-frequency noise from oil and gas development can interfere with the audibility of male sagegrouse vocalizations: We found that noise produced by natural gas infrastructure was dominated by low frequencies, with substantial overlap in frequency with Greater Sage-Grouse acoustic displays. Such overlap predicted substantial masking, reducing the active space of detection and discrimination of all vocalization components, and particularly affecting low-frequency and lowamplitude notes. Such masking could increase the difficulty of mate assessment for lekking Greater Sage-Grouse. These researchers went on to state that "[u]ltimately, increased difficulty in finding leks or assessing males on the leks may lead to lower female attendance on noisy leks compared with quieter locations. Males may also avoid leks with high levels of noise if they perceive that their vocalizations are masked." Noise also causes stress to sage-grouse. According to Blickley et al. (2012b:1),

We found strong support for an impact of noise playback on stress levels, with 16.7% higher mean FCM [fecal corticoids, an index of stress] levels in samples from noise leks compared with samples from paired control leks. Taken together with results from a previous study finding declines in male lek attendance in response to noise playbacks, these results suggest that chronic noise pollution can cause greater sage-grouse to avoid otherwise suitable habitat, and can cause elevated stress levels in the birds who remain in noisy areas. They went on to note, "Noise at energy development sites is less seasonal and more widespread and may thus affect birds at all life stages, with a potentially greater impact on stress levels." According to Blickley et al. (2010), "The cumulative impacts of noise on individuals can manifest at the population level in various ways that can potentially range from population declines up to regional extinction. If species already threatened or endangered due to habitat loss avoid noisy areas and abandon otherwise suitable habitat because of a particular sensitivity to noise, their status becomes even more critical."

A scientific study conducted within the Lander Field Office evaluates the impacts of development-related noise on sage-grouse (Patricelli et al. 2012). Patricelli et al. (2012: 2) also recommend that noise be limited to 10 A-weighted decibels above the ambient noise level, but points out that 39 decibels is not the appropriate ambient noise level for their Lander Field Office study site (and generally), but instead that 20 to 22 decibels is the actual background noise level measured at sage-grouse leks. "Therefore to avoid disruptive activity in areas crucial to mating, nesting and brood-rearing activities, we recommend that roads should be sited (or traffic should be seasonally limited) within 0.7-0.8 miles from the edge of these areas." *Id.* In western Wyoming it was found to be 15 dBA (Ambrose and Florian 2014, 2015;

Ambrose et al. 2015). In Utah, ambient sound levels were also found to be 15 dBA. Attachment 3. Attachment 3 provides a review of the relevant literature on noise including analysis that indicates sage-grouse lek population declines once noise levels exceed the 25 dBA level. With this in mind, ambient noise levels should be defined as 15 dBA and cumulative noise should be limited to 25 dBA in occupied breeding, nesting, brood-rearing, and wintering habitats, which equates to 10 dBA above the scientifically-derived ambient threshold.

There is nothing significant about 39 dBA other than being far above the threshold where noise has significant impacts on sage-grouse, as outlined above. Notably, as Patricelli et al. (2013) pointed out, the use of 39 dBA as a discredited ambient noise threshold derived from an outdated (1971) EPA study from Camarillo, California in farmland with the noise of mechanical tree trimmers factored into the ambient noise level. It has nothing at all to do with sage-grouse habitat, and BLM's reliance on this threshold is wholly inappropriate. Based on the best available science, the key threshold where significant impacts would be expected is 26 dBA measured using L50 standards at the highest. See Attachment 4 (Dec 8 mtg notes). During lekking hours (6:00 to 10:00 am), the noise threshold should be lowered to 23 dBA (id.). According to BLM meeting notes, "By the time you get up to 27 and 28 decibels, things are crashing." (id. At 6). As decibels are logarithmic, this is a major difference from 39 dBA. BLM should re-run its noise-related analyses based on a 26 dBA threshold, and the corresponding distance from roads and other noise sources, accordingly. The BLM needs to present analysis of how far one would have to go before the noise attenuates to 26 dBA, and then map this by alternative to have a legitimate comparison among alternatives.

The most critical change BLM needs to make is to add language as part of all the amendments that sets an ambient noise level of 16 dBA. Additional changes to the language would provide guidance for consistent measurements to assess compliance: Noise: Noise levels should not exceed 26 dBA at the perimeter of the lek during lekking hours (6 PM to 9 AM) during the breeding season (March 1 to May 15); 26 dBA represents a level 10 dBA above existing ambient noise levels in sage-grouse habitats. Outside of lekking hours, during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible. In situations where existing noise levels at leks exceed 26 dBA before project initiation, new projects should not contribute to an increase in sound levels at leks. This can be accomplished through noise mitigation measures, such as pad siting and technology that limits the combined noise exposure. All compliance measurements should be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions), during lekking hours (6 pm to 9 am), during the breeding season (March 1 to May 15). Microphone height should be 12" to approximate ear height of greater sage-grouse. The median of hourly L50 values during monitoring period should be used to assess compliance; using this metric, one or more hours may exceed 26 dBA, but the median of all hours will be <26 dBA. Measurement methods should follow published standards of the American National Standards Institute (ANSI).

Page 2-12 Comparison of Alternatives, Topic: Noise "Baseline noise" is not defined. It should be defined as the sound level in a given area absent the source of interest (or absent the sounds of the proposed project). If this is not possible due to ongoing operations, then the L50 metric of data collected in an area of similar habitat and terrain shall be used. Allowing the definition of baseline or ambient to include existing anthropogenic noise allows for incremental growth over time because the "baseline" increases by up to 10 dBA with each new disturbance in the area.

Page 4-18 Noise "The need for the application of a noise measurement and monitoring COA to a project would be identified at the time of site-specific environmental review." In some situations, the baseline level may be more appropriately set at the project level, followed by noise monitoring at the site specific level.

Table 2-1 Alternatives Comparison, page 2-12, Noise Requirements in PHMA Campbell County supports the noise provisions included in the Management Alignment Alternative specifying that noise stipulations will only apply in PHMA. The proposed changes will make the noise requirements consistent with those contained in the EO.

NTT Overstates the Impacts of Noise On GRSG Leks Noise limits remain in scientific controversy. Attach. 5, Ramey, et al. at 33-39; see Attach. 3b, WSI at 116. According to the 2015 Plan, "[n]oise levels at the perimeter of the lek should not exceed 10 A-weighted Decibels (dBA) above ambient noise." MA No. 136. This management action was based on the NTT Report. 2015 Plan at 2-197. The NTT Report, however, overstates and misrepresents the conclusion of the literature it cites. Jessica L. Blickley, et al. Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks, *Conservation Biology*, Volume 26, No. 3, 461-471 (2012). The Blickley study actually found that sage-grouse tolerated, and even showed no signs of behavior variation, when noise levels were increased by 30 dBA. The noise levels in the studies used to formulate MA No. 136 reached 70 dBA - the equivalent of standing next to an interstate highway or living next to an active airport. Utah Envtl. Cong., 479 F.3d at 1280 (Explanation for a decision "that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise" is arbitrary and capricious); Consolidated Appropriations Act of 2001, Pub. L. No. 106-554, § 515, 114 Stat. 2763, 2763A-153 - 2763A-154 (2000); See 67 Fed. Reg. 8452, 8457 (Feb. 22, 2002) ("OMB Guidelines") (quoting 42 U.S.C. § 300g-1(b)(3)(A)); Executive Order 13563, 76 Fed. Reg. 3821, 3821 (Jan. 21, 2011) (requiring agencies to use the "best available science" in carrying out their regulatory functions); U.S. Dep't of the Interior, Information Quality Guidelines Pursuant to Section 515 of the Treasury & General Gov't Appropriations Act for Fiscal Year 2001, Part II(4)(a), at 2 (undated); see also 36 C.F.R. § 219.3. The Blickley study assumed an ambient noise level of 35 dBA and the 2015 FEIS does not identify a specific background dBA. Ambient levels should not be measured before 7 a.m., because ambient noise levels represent a 24-hour average to reflect the highest and lowest sage-grouse tolerances. The 2015 FEIS also did not account for the location of GRSG leks, noise sources, geography, and wind direction. Sage-grouse will display a greater aversion to noise depending on the predominant wind direction. Mathew J. Holloran, Greater Sage-Grouse Population Response to Natural Gas Field Development in Western Wyoming, (2005). ("Sound waves propagating upwind of the source enter a shadow zone >100 m from the source, resulting in substantial reductions (typically >20 dB) in sound intensity; downwind on the other hand, sound waves are bent in the opposite direction resulting in the opposite effect.")

The average library operates at 30 dBA, a regular human conversation generally occurs at 60 dBA, rural areas are within 39-44 dBA, and the Environmental Protection Agency sets noise levels for pristine wilderness areas at 35 dBA. See Protective Noise Levels, Condensed Version of EPA Noise Levels Document, 8*, Figure 4 (Nov. 1978). No human activity, even whispering at the edge of a Lek, could meet these standards if the BLM continues to use the 10 dBA increase for anthropogenic noises. As reported above, none of the cited literature supports the 2015 Plan limit. It does however from the basis to close roads and prohibit cattle drives. The recommended noise levels were not based upon any

standardized, repeatable data collection, or accepted methods of sound measurement. The Wyoming Ex. Order adopted the 20 dBA standard in 2008, there was no stated basis for that number. Blickley apparently used a Wilderness Society noise model rather than the tested standards such as International Organization for Standardization, or sound propagation models. Thus, the BLM has ignored other available science, used reports with basic methodological flaws, and therefore violates NEPA and the DQA in prescribing MA No. 136 (and the USFS equivalent).

"During lekking (March 1 to May 15), restrict noise to 10dB above ambient (not to exceed 2024 dB) measured at the perimeter of an occupied lek to lekking birds from 6 pm to 9 am. (Patricelli et al. 2010, Blickley et al. 2012)" This RMPA rule is a significant improvement over the Wyoming Governor's Executive Order, discussed below, for two reasons. First, this rule extends the period of protection from 6pm to 9am, rather than ending at 8am. This extra hour of protection is important-we have found that an average of 17% of matings occur after 8am, ranging from 4% of matings in one lek-year to 41% in another lek-year (based on detailed observations of 12 lek-years from 5 leks near Hudson, WY, between 2006 and 2014; Patricelli and Krakauer, unpublished data). Further, the mean departure time of birds from these leks is approximately 9:00 am, with activity extending some days until 11 am. Studies of lek attendance in Colorado and Montana also found that lek activity commonly continues past 8 am (Jenni and Hartzler 1978; Walsh et al. 2004). Second, and more important, this RMPA rule improves upon the Wyoming Governor's Executive Order because it uses a fixed ambient value as a baseline. For the reasons discussed in detail below, this is critically important for effective protection of sage-grouse breeding activity. However, while the use of a fixed ambient value is a critical improvement over the use of measured baseline values, using 20-24 dB is inappropriate as a measure of ambient noise. Neither of the two papers cited in the rule, Patricelli et al. 2010 or Blickley et al. 2012, provide any justification for these ambient values. Neither of these papers report ambient values for representative areas during the lekking period. A more recent, peer-reviewed article suggests 16-20 dBA as appropriate ambient levels for sage-grouse habitat (Patricelli et al. 2013). Even these recommended values, however, were proposed as interim values, to be used until high-quality long-term measurements could be collected across sage-grouse habitat in multiple representative locations. Such an effort has now been completed and the results, described below, represent the best available science for setting baseline noise levels.

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Hours Outside the Lekking Period Maintaining lek activity involves males and females foraging, roosting, nesting and brood-rearing before and after lekking times on a daily and seasonal basis, and noise impacts may also occur during these off-lek activities (e.g. Vehrencamp et al. 1989; Wallestad and Schladweiler 1974; Schoenberg 1982; Patricelli et al. 2013). Therefore, outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible.

RECOMMENDED LANGUAGE FOR THE BLM RMPA The most critical change to existing RMPA language is to replace to fixed ambient level of "2024 dB" with "16 dBA". However, additional changes to the language would provide guidance for consistent measurements to assess compliance: Noise: Noise levels should not exceed 26 dBA at the perimeter of the lek during lekking hours (6 pm to 9 am) during the breeding season (March 1 to May 15); 26 dBA represents a level 10 dBA above existing ambient noise levels in sage-grouse habitats in rural Wyoming. Outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible. In situations where existing noise levels at leks exceed 26 dBA before project initiation, new projects should not contribute to an increase in sound levels at leks; this can be accomplished through noise mitigation measures, such as pad siting and technology that limits the combined noise exposure. All compliance measurement should be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions), during lekking hours (6 pm to 9 am), during the breeding season (March 1 to May 15). Microphone height should be 12" to approximate ear height of greater sage-grouse. The median of hourly L50 values during monitoring period should be used to assess compliance; using this metric, one or more hours may exceed 26 dBA, but the median of all hours will be <26 dBA. Measurement methods should follow published standards of the American National Standards Institute (ANSI).

The BLM states a continued commitment to research and use of best available science in the RMPA: "Through implementation of this strategy, new management issues and questions are likely to arise that may warrant additional guidance or study by technical experts, scientists, and researchers. The BLM is

committed to continue working with individuals and institutions with expertise in relevant fields in order to ensure that land and resource management affecting conservation of the GRS and the sagebrush ecosystem continues to be guided by sound peer-reviewed research and the best available science." The Wyoming Executive Order ends with the statement "Specific noise protocols for measurement and implementation will be developed as additional research and information emerges." We emphasize that the research and information needed to establish a scientifically defensible ambient standard and develop specific protocols for measuring 10 dBA above this standard are already available. The critical problem with the Wyoming EO rule could be addressed by providing a specific protocol for implementation which specifies a fixed background noise level. We recommend setting this baseline as 16 dBA for both the RMPA and the Wyoming EO, as discussed above, thus setting maximum allowable noise levels at 26 dBA. The BLM's RMPA ambient standard of 20-24 dBA is a critical improvement from no ambient standard in the Wyoming EO; however values above 16 dBA are too high based on the research cited above, and we recommend adjusting to 16 dBA as the fixed baseline.

The DEIS fails to properly address issues associated with noise impacts to greater sagegrouse. 1. The DEIS fails to analyze the impacts of limiting the application of noise controls to core population areas. The BLM proposes a significant change to an existing requirement in the 2015 greater sagegrouse plans that limits project-related noise levels to 10 decibels above baseline. The existing sage-grouse plans apply this restriction to development activities in all sage-grouse habitats, including both core and non-core areas. See DEIS Table 2-1 at 2-12. The BLM now proposes to "clarify" that this noise limit only applies "[w]ithin PHMA (Core) across all RMPs." Id. Far from being just a "clarification" the proposal to limit noise controls to core/PHMA is a radical departure from existing plan direction, yet the environmental effects of this "clarification" are not analyzed in the DEIS, including, especially: 1) the impacts of this change to wintering sagegrouse in Winter Concentration Areas which, under the State EO, must be "protected" and 2) situations where noise (now uncontrolled) from non-core area projects is audible at the perimeter of core area leks. The DEIS states that "[t]he need for the application of a noise measurement and monitoring COA to a project would be identified at the time of site-specific environmental review. It would likely impact only the proposed land use, such as fluid mineral development, and Greater Sage- Grouse." DEIS at 4-18. Given the pervasive impacts to grouse from project-related noise⁵, the BLM cannot properly defer analysis of the impacts -particularly the cumulative impacts- of this proposed "clarification" to the site-specific project level authorization. Yet that is exactly what the BLM intends to do: Under the Management Alignment Alternative, language would be added to clarify how implementation level decisions would be guided in regard to appropriate noise standards around leks in PHMA. Impacts on resource uses associated with the application of a noise COA would be reviewed in a sitespecific NEPA analysis (i.e., environmental assessment) and there is no additive, population-scale impact anticipated from this action. See DEIS Section 4.6 Cumulative Effects Analysis, at 4-38. The BLM's proposal to defer environmental analysis of this significant change in management direction to the site-specific stage all but assures that cumulative impacts will not be addressed properly. 6 It also fails to take into account that site-specific NEPA analysis of oil and gas drilling projects may not occur at all due to the BLM's increasing reliance on categorical exclusions under Section 390 of the Energy Policy Act. The BLM should correct this and other misleading statements in the DEIS that claim environmental impacts will be addressed in site-specific NEPA reviews. The BLM should require uniform, scientifically-sound protocols for measuring baseline noise levels. As discussed above, the BLM's proposed management alignment alternative proposes to change the management decision for noise. The proposed language provides that: Within PHMA (Core) across all RMPs: New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as

measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1-May 15). Specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges. DEIS Table 2-1 at 2-12 (emphasis in the original). We understand that the Pinedale Field Office in Wyoming has already developed "specific noise protocols for measurement..." of noise levels. Those protocols should be considered for statewide adoption. According to comments submitted by WGFD on the Normally Pressured Lance PDEIS, "Protocols for noise monitoring were established for the Pinedale Field Office, Pinedale Anticline Project Area which requires a microphone height of 0.3 m (1 foot) to address the influence of wind on sound measurement." See Normally Pressured Lance Natural Gas Development Project EIS - Comment Form, Preliminary Draft EIS (PDEIS) for Cooperating Agency Review, Submitted for Review: February 19, 2016, attached hereto. Among other things, the WGFD's comments were highly critical of a recent noise study in the Pinedale Field Office that: 1) placed microphones 8 feet above the ground (amplifying the sounds of wind), 2) failed to exclude data from three microphones that had tipped over during the study, and 3) failed to adhere to noise protocols developed for Wyoming, resulting in artificially high ambient background levels. Skip Ambrose also found problems with the study, including the use of wind speed data from the Big Piney and Pinedale airports located several miles from the study location instead of anemometers at each microphone location, and the use of sound level meters (SLMs) influenced by electrical self-noise leading to incorrect readings of low level noise levels. Ambrose's critique of that study is included as an attachment to this letter. The point that BLM must understand -and address in a supplemental DEIS- is that there are "right" and "wrong" ways to measure ambient noise levels. A proper and accurate determination of "baseline noise" is critical because the State's EO and the BLM's proposed management alignment alternative establish project-related noise limits of 10 dBA "above baseline noise" measured at the perimeter of the lek. Improper measurements of baseline noise based on faulty or improper equipment, or that include sounds from nearby oil and gas activities and/or the amplified sounds of wind (because microphones were placed 8 feet above the ground) will inevitably lead to a situation where escalating noise levels well above the tolerance limit for sage-grouse will be permitted. This situation must be avoided, and the DEIS must disclose the impacts and potential consequences of its reliance on improper/inadequate studies to measure ambient noise levels. To ensure scientific integrity in the process, the protocols developed by experts in this field for the measurement of baseline noise levels in Wyoming's rural wildlife habitats should be required by the BLM and State of Wyoming. The BLM should set ambient baseline levels. An effective remedy to counter the difficulties associated with accurately measuring baseline noise levels is to simply establish a baseline noise level for rural Wyoming. A baseline level of 16dBA is suggested, based on best available science. This is the approach recommended by Ambrose, et al.,⁷ and is our recommendation as well. Please see our "Recommended Approach - New Stipulations for Noise" attached to this letter. We ask that this approach be evaluated as an alternative in a supplemental DEIS. Ambrose, et al., presented his findings and recommendations at the WAFWA 31st Biennial Workshop proceedings, June 18-21, 2018, in Billings, Montana. A copy of his Powerpoint presentation, "Sound Levels in Sagebrush in Wyoming, and Acoustic Impacts to Greater Sagegrouse" is attached to this letter. Below is an abstract of his presentation which appears on Page 41 of the attached WAFWA workshop Program.

SOUND LEVELS IN SAGEBRUSH HABITATS IN WYOMING AND THE INFLUENCE OF ANTHROPOGENIC SOUNDS ON GREATER SAGE-GROUSE Skip Ambrose¹, Christine Florian¹, Holly Copeland², Gail Patricelli³, Therese Hartman⁴, John MacDonald⁵

¹ Western Bioacoustics, 393 Castle Creek Lane, Castle Valley, UT 84532 ² The Nature Conservancy, 258 Main Street, Lander, WY 82520 ³ Depart. Evolution and Ecology, University of California, Davis, CA ⁴ Montana Depart. Natural Resources, 1539 I 1th Avenue, Helena, MT 59620 ⁵ 3142 Ash Park Loop, Winter Park, FL 32792

Abstract. We measured

sound levels at 26 locations in WY from 2013-2017, six in rural, undeveloped areas and 20 in an active natural gas field. All sites were in sagebrush habitats. Our measurements in undeveloped areas revealed a very quiet acoustic environment. Mean sound levels at six rural sites were: L90 = 15 dBA (background sound level), L50 = 20 dBA (median sound level), and Leq = 26 dBA (energy average sound level). In the gas field, mean sound levels were L90 = 23 dBA, L50 = 26 dBA, and Leq = 30 dBA. Sound levels in the gas field were strongly correlated with distance to gas field activity. Significant relationships between elevated sound levels and declines in counts of male sage-grouse at leks were documented in the gas field. At leks where L50 >25 dBA, mean trend was -0.255 (92% were declining), and at leks where L50 <25 dBA, mean trend was +0.020 (90% were stable or increasing). Current management practices rely on a "not-to-exceed 10 dBA over background" approach, and our analysis suggests that this approach is appropriate. However, it is essential that accurate background levels be used, and establishing such is often difficult or impossible due to ongoing activities. Based on the work of Ambrose and others, more than sufficient "additional research and information" exists to support: 1) the adoption of standardized protocols for the measurement of wind in rural areas of Wyoming and, 2) the establishment of statewide baseline noise levels. These actions should be undertaken in this planning update.⁸

Managing Noise Standards Outside PHMA The Commenters support any additional flexibility through this review of the Wyoming LUP that enhances the State's flexibility to implement their Greater Sage-grouse conservation program. The preferred Management Alignment Alternative features an element addressing noise standards, and the Wyoming DEIS is seeking comment on managing noise standards outside of designated PHMA/Core Areas. See Wyoming DEIS at ES-3. The issue arises in the context of Wyoming Executive Order 2015-4, which directs that within PHMA/Core Areas, new project noise levels, either individually or cumulatively, should not exceed 10 dB above baseline noise at the perimeter of elect from 6 p.m. to 8 a.m. during the breeding season (March 1 to May 15). See State of Wyoming Executive Department, Executive Order 2015-1 at Attachment B, p. 8. Because priority habitat management areas ("PHMA") and core areas are the most efficient geographical confines by which the GRSG may be conserved, Commenters support that new project noise levels pursuant to the Wyoming Executive Order to remain in place in PHMA/Core Areas pursuant to the directive of EO-2015-4. If future science confirms that noise standards within PHMA/Core Areas is an effective conservation tool near leks during breeding season, then project flexibility outside of PHMA/Core Areas should be considered, but only if it remains consistent with the overarching goal of maintaining State-based flexibility in implementation of the Wyoming State Plan. Stated simply, Commenters support the continued integrity of GRSG conservation within PHMA/Core Areas and non-Core/general habitat management area ("GHMA") as a means to insure GRSG conservation efficiency while harmonizing appropriate land uses and future development under the Mining Law and FLPMA.

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GRSG may be conserved, Commenters support that new project noise levels pursuant to the Wyoming Executive Order to remain in place in PHMA/Core Areas pursuant to the directive of EO-2015-4. If future science confirms that noise standards within PHMA/Core Areas is an effective conservation tool near leks during breeding season, then project flexibility outside of PHMA/Core Areas should be considered, but only if it remains consistent with the overarching goal of maintaining State-based flexibility in implementation of the Wyoming State Plan. Stated simply, Commenters support the continued integrity of GRSG conservation within PHMA/Core Areas and non-Core/general habitat management area ("GHMA") as a means to insure GRSG conservation efficiency while harmonizing appropriate land uses and future development under the Mining Law and FLPMA.

Sound Established science has demonstrated the adverse impacts of sound on human well-being and animal populations. There is emerging consensus that the cumulative impacts of sound should also be considered in areas of intense development. We ask that the BLM implement requirements that will avoid sound impacts. Sage-grouse, in particular are known to be sensitive to sound (Blickley et al. 2012), and the Executive Order on sage-grouse specifically directs management actions to reduce noise levels during the breeding season for sage-grouse (March 1 - May 15). In the EIS, (Section 3.7.2) it states that "Ambient noise levels in rural rangeland area of Wyoming typically are near 24 dBA (Ambrose and MacDonald 2015)". This information is not consistent with what was reported in (Ambrose et al. 2014), which is the final report that was presented at the SGIT meeting. We are not aware of a document "Ambrose and MacDonald 2015" and no reference is listed in the references section. Ambrose et al. 2014 reported that the median L50 for all hours (for all four sites) was 18.0 dBA (not 24dBA as cited in the EIS). In addition, the median ambient sound level (L50) during lekking hours (1800-800) was reported at 15.4 dBA and the Wyoming Governor's Executive Order on sage-grouse directs that noise levels not exceed 10 decibels (as measured by L50) from "baseline noise at the perimeter of a lek from 6:00pm to 8:00am during the breeding season". Specifically, Ambrose et al. 2014 state: "Results of these measurements demonstrate that ambient sound levels in sage habitats in rural Wyoming during hours critical to lekking activity of greater sagegrouse are likely between 10-15 dBA, depending on terrain, vegetation, and meteorological conditions." Therefore, to be consistent with the executive order, ambient measurements should reflect the best estimate of ambient levels during lekking hours (6:00pm - 8:00am), which in this case was recommended in Ambrose et al. 2014 to be 10-15 dBA.

Wyoming Executive Order No. 2015-4, Attachment B, pg. 8. Therefore, ConocoPhillips agrees with BLM's proposal to limit project noise only in PHMA. ConocoPhillips, however, requests an additional change to the language of the proposed noise requirement in Alternative B. As drafted, it provides that "[s]pecific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges." Draft RMPA/EIS at 2-12. BLM should modify this language to require that BLM will work directly with the State of Wyoming's Sage-Grouse Implementation Team (SGIT) as new research and information emerges to identify additional or modified protocols and management measures, if any. This change would afford BLM the flexibility to defer to the State of Wyoming's noise protocols and management measures. Finally, the science surrounding the noise limitation is not well developed. See 9-Plan Proposed RMP/Final EIS at 4-265 ("it is unknown how most special status wildlife react to sustained noise within their local habitat"). Given the lack of science supporting the noise limitation, ConocoPhillips requests that BLM revise this requirement to allow it to be adjusted if new science demonstrates such stringent measures are not necessary.

ConocoPhillips agrees with BLM's adjustments to the noise requirements in various RMPs to conserve the greater sage-grouse. See Draft RMPA/EIS at 2-12 (modifying 9-Plan ARMPA, MD SSS 12; Buffalo Approved RMP, Record # SS WL-4025; Cody Approved RMP, Record #4111; Worland Approved RMP, Record #4110; and Lander Approved RMP, Record #4117). The 9-Plan ARMPA and Worland, Lander, Cody, and Buffalo Approved RMPs currently limit new project noise levels to stringent levels near leks outside of PI-IMA. Application of this limitation outside of PI-IMA is unnecessary, inflexible, and inconsistent with the Wyoming Executive Order, which only imposes noise restrictions near leks within Core Areas. See

Sweetwater County agrees with the Management Alignment Alternative noise protocol which states: "New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during breeding season (March 1- May 15). Specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges."

Noise The Alliance supports BLM's proposed change in Alternative B specifying that noise stipulations only apply in Priority Habitat Management Areas and will only be considered on a site-specific level. Draft RMPA at 2-12 (Table 2-1).

"During lekking (March 1 to May 15), restrict noise to 10dB above ambient (not to exceed 2024 dB) measured at the perimeter of an occupied lek to lekking birds from 6 pm to 9 am. (Patricelli et al. 2010, Blickley et al. 2012)" This RMPA rule is a significant improvement over the Wyoming Governor's Executive Order, discussed below, for two reasons. First, this rule extends the period of protection from 6pm to 9am, rather than ending at 8am. This extra hour of protection is important-we have found that an average of 17% of matings occur after 8am, ranging from 4% of matings in one lek-year to 41% in another lek-year (based on detailed observations of 12 lek-years from 5 leks near Hudson, WY, between 2006 and 2014; Patricelli and Krakauer, unpublished data). Further, the mean departure time of birds from these leks is approximately 9:00 am, with activity extending some days until 11 am. Studies of lek attendance in Colorado and Montana also found that lek activity commonly continues past 8 am (Jenni and Hartzler 1978; Walsh et al. 2004). Second, and more important, this RMPA rule improves upon the Wyoming Governor's Executive Order because it uses a fixed ambient value as a baseline. For the reasons discussed in detail below, this is critically important for effective protection of sage-grouse breeding activity. However, while the use of a fixed ambient value is a critical improvement over the use of measured baseline values, using 20-24 dB is inappropriate as a measure of ambient noise. Neither of the two papers cited in the rule, Patricelli et al. 2010 or Blickley et al. 2012, provide any justification for these ambient values. Neither of these papers report ambient values for representative areas during the lekking period. A more recent, peer-reviewed article suggests 16-20 dBA as appropriate ambient levels for sage-grouse habitat (Patricelli et al. 2013). Even these recommended values, however, were proposed as interim values, to be used until high-quality long-term measurements could be collected across sage-grouse habitat in multiple representative locations. Such an effort has now been completed and the results, described below, represent the best available science for setting baseline noise levels.

Based on the Ambrose 2013 and 2014a studies, the ambient noise levels in typical sage-grouse habitat in Wyoming (and likely rangewide) are 14-17 dBA or less. For the purposes of establishing noise stipulations relative to greater sage-grouse, we recommend using a fixed ambient of 16 dBA as a baseline; this is consistent with a peer-reviewed publication (Patricelli et al. 2013) and widely-used

reports (e.g. EPA 1971). Allowing 10 dB of noise from new projects, this leads to an allowable level of 26 dBA.

Detailed recommendations for noise rules For the purposes of assessing acoustic impacts to greater sage-grouse, we recommend using 26 dBA as the threshold for noise exposure (ambient 16 dBA + 10 dBA). For compliance with this limit, we recommend that measurement be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions) during the lekking period. The sounds of lekking birds will have minimal impacts on these measures. Pater et al. (2009) recommend noise measurement at the height most relevant to assessing noise impacts on wildlife (see also Delaney et al. 1999, Patricelli et al 2013, and others), which is also consistent with ANSI standards (1994, Section 7.3.2.4), therefore we recommend that SLM microphone height should be 12" to approximate ear height of greater sage-grouse; this microphone placement will also reduce the impact of wind, which could artificially inflate measures and count against compliance. We recommend that the median of hourly L50 values during monitoring period should be used to assess compliance (see Patricelli et al 2013 for explanation). Using this metric, one or more hours may exceed 26 dBA, but the median of all hours should be <26 dBA.

Situations When Existing Ambient Exceeds 26 dBA There may be situations where sound levels at leks exceed an L50 of 26 dBA before project initiation due to existing noise sources, though recent data suggest that this is unlikely outside of heavily developed areas (Ambrose et al. 2014a and 2014b). In these cases, the best available evidence suggests that additional noise will increase the impact on these leks, as sage-grouse do not adapt to the presence of noise over time (as discussed below; Patricelli et al. 2013). Therefore, to limit impacts on sage grouse, new projects should not contribute to an increase in sound levels at leks already exceeding the noise limits. This rule would not preclude further development at sites that already have sources exceeding 26 dBA due to the non-additive way that multiple sound sources combine to determine overall noise levels. For example, a new source with an L50 9 dB quieter than the L50 of an existing source at the measurement site would add only 0.5 dB to the total noise exposure. Therefore new projects could proceed by increasing the distance to the lek or through the use of noise-mitigation technology. Hours Outside the Lekking Period Maintaining lek activity involves males and females foraging, roosting, nesting and brood-rearing before and after lekking times on a daily and seasonal basis, and noise impacts may also occur during these off-lek activities (e.g. Vehrencamp et al. 1989; Wallestad and Schladweiler 1974; Schoenberg 1982; Patricelli et al. 2013). Therefore, outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible.

RECOMMENDED LANGUAGE FOR THE BLM RMPA The most critical change to existing RMPA language is to replace to fixed ambient level of "2024 dB" with "16 dBA". However, additional changes to the language would provide guidance for consistent measurements to assess compliance: Noise: Noise levels should not exceed 26 dBA at the perimeter of the lek during lekking hours (6 pm to 9 am) during the breeding season (March 1 to May 15); 26 dBA represents a level 10 dBA above existing ambient noise levels in sage-grouse habitats in rural Wyoming. Outside of lekking hours during the breeding season, reasonable efforts should be made to keep noise as close to these limits as possible. In situations where existing noise levels at leks exceed 26 dBA before project initiation, new projects should not contribute to an increase in sound levels at leks; this can be accomplished through noise mitigation measures, such as pad siting and technology that limits the combined noise exposure. All compliance

measurement should be made at the perimeter of the lek, with a Type I Sound Level Meter (capable of measuring the acoustic environment of the study area), for a minimum of 7 days (to cover normal variability due to different meteorological conditions), during lekking hours (6 pm to 9 am), during the breeding season (March 1 to May 15). Microphone height should be 12" to approximate ear height of greater sage-grouse. The median of hourly L50 values during monitoring period should be used to assess compliance; using this metric, one or more hours may exceed 26 dBA, but the median of all hours will be <26 dBA. Measurement methods should follow published standards of the American National Standards Institute (ANSI).

The BLM states a continued commitment to research and use of best available science in the RMPA: "Through implementation of this strategy, new management issues and questions are likely to arise that may warrant additional guidance or study by technical experts, scientists, and researchers. The BLM is committed to continue working with individuals and institutions with expertise in relevant fields in order to ensure that land and resource management affecting conservation of the GRSG and the sagebrush ecosystem continues to be guided by sound peer-reviewed research and the best available science." The Wyoming Executive Order ends with the statement "Specific noise protocols for measurement and implementation will be developed as additional research and information emerges." We emphasize that the research and information needed to establish a scientifically defensible ambient standard and develop specific protocols for measuring 10 dBA above this standard are already available. The critical problem with the Wyoming EO rule could be addressed by providing a specific protocol for implementation which specifies a fixed background noise level. We recommend setting this baseline as 16 dBA for both the RMPA and the Wyoming EO, as discussed above, thus setting maximum allowable noise levels at 26 dBA. The BLM's RMPA ambient standard of 20-24 dBA is a critical improvement from no ambient standard in the Wyoming EO; however values above 16 dBA are too high based on the research cited above, and we recommend adjusting to 16 dBA as the fixed baseline.

NOISE PAW supports the noise provisions included in the Management Alignment Alternative specifying that noise measurement and monitoring conditions of approval (COAs) will only apply in PHMA and will only be considered on a site-specific level as appropriate. As stated in our scoping comments dated November 30, 2017, the noise restrictions imposed by the existing Wyoming RMPs are unreasonable and impractical, particularly as sufficient evidence does not exist showing at what level anthropogenic noise negatively affects GRSG behavior. The proposed changes will make the noise requirements consistent with those contained in the EO.

Page 2-12, Noise requirements in PI-IMA: Limits to noise above baseline noise at the perimeter of a lek should not be applied only to leks within PHMAs. This should apply to all leks if we are serious about dragging the species back to a status that is considerably better than the dismal one it is in currently. Low noise levels during breeding season are necessary, especially for yearling birds. To facilitate re-establishment of robust Sage-grouse populations in areas they have been diminished or eliminated, providing for successful breeding is necessary.

E.4.12 Lek Buffers

In general, the plans failed to require adequate lek buffers for activities that disturb sagegrouse habitat, incorporating instead, as recommendations set forth in an appendix, buffers from Manier et al. (2014) for purposes of NEPA analysis. The appendices claim "BLM will apply the lek buffer-distances specified as the lower end of the interpreted range in the report unless justifiable departures are determined to be

appropriate." These lower-range buffers are the following: * linear features (roads) within 3.1 miles of leks; * infrastructure related to energy development within 3.1 miles of leks; * tall structures (e.g., communication or transmission towers, transmission lines) within 2 miles of leks; * low structures (e.g., fences, rangeland structures) within 1.2 miles of leks; * surface disturbance (continuing human activities that alter or remove the natural vegetation) within 3.1 miles of leks; and * noise and related disruptive activities including those that do not result in habitat loss (e.g., motorized recreational events) at least 0.25 miles from leks. Generally the buffers are to be applied to "fully address" impacts to leks. However, BLM may depart from the buffer distances, even in PHMA, as long as it provides justification for its decision. Through the current plan amendment process, BLM now proposes to remove all lek buffers in GHMA and to apply lower, even less adequate lek buffers in GHMA. The question of whether even the "lower-range" buffers applied in PHMA is adequate remains relevant. And, it should be noted that buffers are a poor substitute for closing priority habitats to disruptive activities, which is what the best available science counseled.

Through the present amendment process, BLM must provide 4-mile No Surface Occupancy buffers at minimum for all active leks in PHMAs for existing oil and gas leases, with exceptions available for mineral leases located entirely within this buffer for a wellsite of minimal size and intrusion to be placed at a location most distal from an active lek or leks. BLM's plan to rely on 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations to govern oil and gas development outside Priority Habitats is radically insufficient to protect this BLM Sensitive Species and is a known recipe for sage-grouse extirpation. Holloran (2005) undertook an empirical test of the adequacy of 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations, and determined that sagegrouse in the Pinedale Anticline and Jonah Fields would be completely extirpated within 19 years of the study as a result of full-field development with this package of protections applied. BLM must also provide 4-mile No Surface Occupancy buffers at minimum for all active leks in Connectivity Areas and General Habitats for existing oil and gas leases, with exceptions available for mineral leases located entirely within this buffer for a wellsite of minimal size and intrusion to be placed at a location most distal from an active lek or leks. WO-IM-2017-030 requires BLM to use the best available science in decision-making, and DOI Manual 305 DM 3 requires the agency to ensure the scientific integrity of its decisions. The failure to do so in the proposed amendments is a violation of agency policy.

Industrial activities directly eliminate and fragment habitat. Equally, or perhaps even more importantly, the resulting facilities are hubs for human and vehicular activity that disturb and displace sage-grouse, resulting in lower rates of survival and/or reproduction and leading to population declines. As BLM itself concluded, "Human presence and vehicles may force special status species away from desired habitat to lower-quality, less desirable habitat." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-302. This, in turn, hinders the ability of sagegrouse to thrive: "Moving to lower-quality sagebrush could result in lower calorie consumption and reduced health and vigor, making birds more susceptible to disease and predation." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-298. As a result, facilities and activities deleterious to sage-grouse must be kept an adequate distance away from key habitats to prevent significant impacts to grouse.

Holloran (2005) found that several types of oil and gas infrastructure sited within 1.9 miles of the lek site had a negative impact on populations of breeding males on the lek; these infrastructure feature include both wellpads during the post-drilling, production phase and gravel trunk roads leading to five or more wellpads. It is important to note that a single wellpad or road can cause significant impacts, and these

impacts occur even in cases where roads are not visible from the lek site due to intervening terrain (Holloran 2005). Drilling activities can have significant impacts when wells are sited within 3 miles of leks (id.). Manier et al. (2014) reviewed all available science and found that appropriate lek buffers (the "interpreted range") ranged from 3.1 to 5 miles. Aldridge and Boyce (2007) suggested that even larger buffers (10 km) are warranted.

In addition to significant negative impacts on breeding populations at the lek site, industrial incursions can also have a significant negative impact on nesting females. The lek is the hub of nesting activity, with most females nesting within 4 to 6 miles of a lek site. Holloran et al. (2007) found that yearling sage-grouse avoided otherwise suitable nesting habitat within 930m (almost 0.6 mile) of oil and gas-related infrastructure. This means that individual well sites, and their access roads and other related facilities, will be surrounded by a 0.6-mile band of habitat that has substantially lost its habitat capability for use by nesting grouse. The National Technical Team (2011: 20) observed, "it should be noted that protecting even 75 to >80% of nesting hens would require a 4-mile radius buffer (Table 1). Even a 4-mile NSO buffer would not be large enough to offset all the impacts reviewed above." Importantly, a 0.6-mile lek buffer covers by area only 2% of the nesting habitat encompassed by a 4-mile lek buffer, which takes in approximately 80% of nesting grouse according to the best available science.

The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single well site should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Apa et al. 2008). According to Taylor et al (2012: 27), in a study commissioned by BLM, Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all. To the extent that BLM's existing ARMPAs and revised RMPs ignore the recommendations of its own experts, they are arbitrary and capricious and an abuse of discretion. BLM should rectify this legal deficiency if the ARMPAs are further amended.

Buffalo RMP Revision DEIS at 367. For Montana, BLM observes, "Impacts from energy development occur at distances between 3 and 4 miles. Impacts to leks caused by energy development would be most severe near the lek." HiLine RMP Revision DEIS at 4-135. Manier et al. (2014) undertook a comprehensive analysis of the available science on lek buffers, and concluded that the appropriate range for lek buffer protections was 3.1 to 5 miles, which encompasses and buttresses BLM's earlier NTT (2011) expert recommendations. State agencies and their wildlife experts have long pointed out the flaws in smaller lek buffers and the need for 4-mile No Surface Occupancy buffers around leks. According to the Nevada Division of Wildlife, "...the current NSO distance is 0.6 miles, which is not based on the best available science (see Coates et al. 2013 which suggests a buffer distance of 5.0 kilometers)." NDOW comments on Nevada - Northeastern California DEIS, January 14, 2014, analysis chart 1. Apa et al. (2008, emphasis added) reviews the best available science by a team of state sage-grouse biologists, and states,

It is important that noise thresholds and monitoring outlined in EO 2015-4 are applicable to all leks, not just those inside PHMA/core, else additional, usable sagebrush habitat will be continually impacted and lost over time. It is not enough to focus only on core areas. We must bring back sagebrush dependent species in larger areas to compensate for what we have lost over time.

Clarification Issues a. Lek Buffers In general, the imposition of uniform lek buffer distances without regard for site specific project impacts ignores the unique circumstances and habitat impacted by most project operations. Notwithstanding an enthusiasm exhibited in the 2015 range wide GRSG LUPA planning exercise for lek buffer uniformity, and even with accommodation to modify lek buffer requirements based on local data, best available science, landscape features, and other existing protections (e.g. land use allocation state regulations), there is little scientific basis for any default standard of lek buffers to be applied by the BLM in project specific context. Instead, lek buffers must be developed in conjunction with local knowledge of GRSG seasonal movements and population responses to management actions. For the Wyoming LUPA, lek buffers must be analyzed to provide greater flexibility and adaptability to make changes to buffers as new information and science becomes available and if the site will allow for a more flexible approach. But more importantly, Commenters pause to offer how the imposition of potentially inflexible lek buffer requirements potentially collide with the full range of applicable laws that authorize and encourage mining on public lands, including the General Mining Law of 1872, the Surface Use Act, the Mining and Materials Policy Act, FLPMA, and the implementing regulations of those statutes. Commenters are concerned by how the Wyoming DES refers to the rights under the mining laws and the disjointed methodology in which the Wyoming DEIS uses short hand descriptions to characterize the scope and sources of rights under the 1872 Mining Law. Consideration should be given to include LUP revisions that allow for reconciliation of potential conflicts and implementation of existing surface management regulations (43 CFR Subpart 3809) in order to appropriately complement baseline land use planning with appropriate analysis of project impacts at the project specific level.

E.4.13 Required Design Features

Candidate Conservation Agreements BLM must acknowledge conservation efforts as outlined in established Candidate Conservation Agreements (CCAA, CCA, CA) in the RMP. These conservation measures go above and beyond the requirements of the mining permits in Wyoming and often times the Federal Agencies are a party to these efforts. One example of such an effort is one of the largest and most inclusive Candidate Conservation Agreements ever developed under the Endangered Species Act, and in which TBCC is an active participant, known as the Thunder Basin Grasslands Prairie Ecosystem Association (TBGPEA). The BLM has acknowledged through Memoranda of Understanding for the TBGPEA CCAA that they are not likely to impose additional conservation measures or lease restrictions to operators or entities with lands covered by Conservation Agreements. The Draft RMP/EIS needs to clearly recognize these commitments by the agency and remove the requirements for additional compensatory mitigation. The above information solidifies the need for BLM and the USFS to exempt entities that are engaged with established conservation agreements or have other negotiated arrangements with the USFWS from requirements in RMP's. Conservation agreements are voluntary and above and beyond regulatory requirements, and meet the USFWS's conservation objectives that are more stringent than RMP requirements. Any "Required Design Features" should first be considered "Best Management Practices (BMPs)" and should not be automatically required. If BMPs are deemed necessary, these should be designed for site specific, local conditions to allow for flexibility and take into

consideration existing habitat considerations when needed. BMP's or RDF's should also be evaluated on feasibility - economic and technical before decisions are made on any project.

One Facility Per 640 Acre Density Limitation Lacks Scientific Support The 2015 Plan and the Wyoming EO adopted a cap on the density of energy and mining facilities at an average of one facility per 640 acres in PHMA in a project authorization area. 2015 Plan at MA No. 126, 127. This prescription is ambiguous and is not supported by reproducible science. See Attach. 5, Ramey et al. at 28-29, 42; Attach. 3b, WSI at 143-144. While the one well per 640 acres was part of the Wyoming plan, it reflected Holloran's work which has now been questioned. The NTT Report cites Holloran's 2005 study which provides "[m]aintaining well densities of #1 well per 283 ha (approximately 1 well per section) within 2 mi of a lek could reduce the negative consequences of gas field development." We assume Wyoming relied on the same study. Holloran, however, did not actually test this threshold against other well densities. According to Dr. Rob Roy Ramey's review of the NTT Report, Holloran instead "reported on leks affected by different numbers of impacts in each of four quadrants in the cardinal directions, and predictions based upon correlations at a scale of 3 km. Data, significance tests, and scatter plots of those correlative analyses were not reported by Holloran (2005), making the scientific rationale for his one-well-per-section not reproducible." Attach. 5, Ramey, et al. at 29. Perhaps more importantly, in 2010, Holloran found no population loss but only temporary movement of birds to other leks. Id. Thus, Holloran's report is not only methodologically flawed but it documents no adverse effect to sage-grouse. The cumulative effect of the five percent disturbance cap and the one disturbance "site" per 640 acres also defeats the stated purpose and need of the 2015 Plan. The Purpose and Need of the LUPA is to assess those risks to sage-grouse habitat and "incorporate measures that will help conserve, enhance, and/or restore Greater Sage-Grouse habitat by reducing, eliminating, or minimizing threats to that habitat." 2015 Plan at 1-5. Management Actions 126 and 127, however, facilitate dispersed development and additional habitat fragmentation due to the roads needed to reach the scattered well sites. Project proponents will prefer areas that have the least amount of disturbance. If an existing project uses the allotted disturbance acreage, other project proponents will necessarily need to look to lesser or completely undisturbed areas. Even if an extremely small portion of one examination area is disturbed, Management Actions 126 and 127 force operators to find undeveloped surfaces to gain the full benefit of the five percent threshold. Thus, the 2015 Plan contradicts the stated objectives.

Required Design Features Section ES.3.2 notes that the BLM will issue future guidance pertaining to "Required Design Features" (RDF). As these RDF's have not been developed yet, we're concerned that there is potential for over regulation without the ability to evaluate the necessity for the required design features. We request that the RDF guidance allow flexibility to ensure the requirements are not excessive when compared to the potential project impacts. Industry "Best Management Practices" (BMP's) should be reviewed and evaluated for applicability first. BMP's and any future RDF's should be commensurable with risk and, based on site specific conditions BMP's or RDF's, should also be evaluated on feasibility - economic and technical - before decisions are made on any project.

Clarification on the Use of Required Design Features (RDFs) The imposition of required design features ("RDFs") was an effort by the previous Administration to seek to seek illogical and misguided uniformity across most, if not all, of the 2015 GRSG land use plans in the West. As noted above in the discussion on the need to revisit uniform lek buffers, the preexisting regulations at 43 Code of Federal Regulations Subpart 3809 cannot be ignored as a regulatory framework to guide project management on Federal lands that play a role in GRSG conservation. In the Wyoming LUPA, BLM must acknowledge that in

proscribing RDFs, such design features are applicable to BLM decisions under 43 C.F.R. Subpart 3809 only to the extent practicable and may not be imposed to deny approval of a notice or plan of operations under those regulations.

2015 BLM Plans : Implement disturbance cap of 3% within individual priority areas and local project area in priority habitat. Implement a density cap of an average of 1 energy and mining facility per 640 acres. * 2018 BLM Proposed RMPA.EIS: Numerous additional waivers, exceptions and modifications for drilling in priority areas; restrictions on drilling limited; for Utah, if project design and site conditions indicate a project will improve habitat, exceedances of disturbance and density caps at either project level or individual priority area are allowed.; in Idaho disturbance cap only measured for individual population areas, not project area.

Nonrenewable energy developments, such as fluid mineral leasing, and their supporting infrastructure are a pervasive, and in some cases an increasing presence within the range of sage-grouse. There has, however, been a gradual decrease in recommended requirements for fluid mineral leasing within priority areas. * 2011 NTT Report : For unleased federal fluid mineral estate, close priority areas with very limited exceptions. For leased federal areas, do not allow new surface occupancy in priority habitat, with limited exception. Proposed surface disturbance cannot exceed 3% with limited exception. Disturbance measured within individual priority areas and local project area. * 2013 COT Report : Avoid development in priority areas; identify areas where leasing is not acceptable. If avoidance not possible, development should occur only in non-habitat areas or least suitable habitat. Reduce and maintain density of energy structures below which there are no impacts to sage-grouse habitats or do not result in declines to sage-grouse populations.

In addition to the NTT and COT reports, numerous research papers confirm the importance of density and disturbance caps: * 2017 Edmunds study: Modeled density-independent and -dependent population growth across multiple spatial scales relevant to management and conservation. Relatively close fine-scale populations of sagegrouse can trend differently, indicating that large-scale trends may not accurately depict what is occurring across the landscape (e.g., local effects of gas and oil fields may be masked by increasing larger populations). * 2017 Green study (importance of caps): Best models indicated that GRSG responded to energy development with a 1 to 4-year time lag, and well density within 6,400 m of leks best explained GRSG losses. Sagebrush cover and precipitation explained little variation in lek attendance over time. Across Wyoming, decreases in lek attendance were significant at a density of 4 wells per square kilometer, reaching 17 percent per year at 5.24 wells per square kilometer. Current regulations in Core Areas could limit GRSG losses from energy developments, but they may not promote GRSG recovery. * 2015 Holloran Study (importance of caps): Use of suitable winter habitat by sage-grouse decreased with increasing density of gas wells within 2.8 km of data loggers. Habitat use also increased with distance to wells and plowed main haul roads, but well density was a better predictor. Effects of anthropogenic

activity were evident at lower well densities. Effects of gas development on sage-grouse can be reduced by minimizing well densities and adopting methods that reduce anthropogenic activities * 2015 Fedy study (importance of caps): Birds avoided areas of high well density and nests were not found in areas with greater than 4 wells per km² and majority of nests (63%) were in areas with = 1 well per km². * 2015 Kirol study (importance of caps): Energy infrastructure had negative effects on habitat use and brood survival, with brood survival decreasing once surface disturbance exceeded 4 percent. Results

suggest that reduction of habitat quality was primarily driven by avoidance of energy infrastructure, resulting in primary and secondary source habitat becoming low-occurrence habitat. * 2017 Spence Study (importance of caps): Probability of lek collapse inside core areas was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary. * 2018 Holloran Letter (importance of 2015 protections): Recommending management approaches and objectives established in 2015 BLM sage-grouse land use plans be used as minimum standards in sagebrush habitat. In our neighboring state of Utah, the BLM acknowledges the changes "could result in a site-specific loss of Greater Sage-Grouse habitat and displacement from the area of development by local populations." It also admits that, "Projects that would likely be precluded under the No Action Alternative could proceed under the "2018 proposed amendments." We believe this is true in Wyoming as well and indeed throughout the range of the bird.

In another neighboring state, Idaho, the DEIS states: Removal of the 3 percent project level disturbance cap would allow BLM to intentionally cluster developments within areas already degraded by discrete anthropogenic activities in Greater Sage-Grouse habitat as long as the overall disturbance within the BSU remains below 3 percent. The 3 percent project scale disturbance cap has the potential to spread development into undeveloped areas of Greater SageGrouse habitat just to avoid reaching the 3 percent project scale disturbance cap in already fragmented areas. All 8 BSUs in Idaho are well under the 3 percent BSU scale Disturbance Cap (most are less than 1 percent) and are expected to remain low because of the no-net-loss mitigation standard and the other restrictions to development in PHMA and IHMA. Some areas, especially those with existing development, may be further developed even though compensatory mitigation would offset those impacts for the statewide Greater Sage-Grouse habitat. Essentially, this language allows a standard that for the foreseeable future will never disallow a project because the priority area densities are so low, even though the density of an individual project area may be high. This flies in face of studies showing impacts to sage-grouse because of individual project density, and Edmunds study that there can be differences between densities at large and small-scale levels that are significant. As a result, we oppose these amendments to the land use plan, both because they will reduce important protections for sage-grouse, and because they make it more likely that the bird will need to be listed under ESA.

Required Design Features WCCA supports the BLM's proposal to develop guidance and clarification on the use of required design features (RDFs) and the BLM's statement that "RDFs are to be used as appropriate at the site-specific level and should not be assumed to apply to all projects." WCCA urges BLM to revise its definition of RDF in the existing glossary of the RMPs to be consistent with this statement. As defined now, RDF is broad, misleading and imposes a one-size-fits-all management approach. RDFs should be tailored to each individual project and should only be implemented where applicable.

The Draft EIS does not address how the proposed changes in the document will impact the appendices to the 20 IS Amendments. Many of the changes outlined in the Draft EIS will require adjustments to the appendices beyond simply removing terms such as "net conservation gain." The BLM should make those changes and adjustments available to the public in the Final EIS for comment and the comments received should be considered by the BLM before the Record of Decision is signed. At a minimum, the Final EIS and Record of Decision should explain that any inconsistency between the 2015 Amendment appendices and the changes and adjustments made as part of this process will be resolved to apply the 2018 changes. The changes made to the RMPs as part of this current process should take precedence.

Another example is Appendix C on Required Design Features. In my scoping comment, I raised a concern that the BLM was applying these best management practices as mandatory conditions of approval, including in locations where a design feature did not match the local need. The Draft EIS does not address this concern. Appendix C should be changed to remove the mandate that the Required Design Features be applied as a condition of approval in favor of only applying them as best management practices after consulting with the State on which feature is advisable for the particular area.

Required Design Features BLM stated in the Draft RMPA that it "will develop guidance and clarification on the use of required design features (RDFs) when they are applied at the implementation level. RDFs are to be used as appropriate at the site-specific level and should not be assumed to apply to all projects." Draft RMPA at I-9. Greater Sage-Grouse Draft RMPAs for Wyoming August 2, 2018 Page 9 of 11 The Alliance supports the development of guidance to avoid inconsistent application of RDFs and to provide regulatory certainty. The Alliance further supports BLM's statement that applicability of RDFs will be evaluated at the site-specific level. BLM's RDF guidance should specify that RDFs must be consistent with the Wyoming Plan, as conservation measures inconsistent with the Wyoming Plan are unsupported, unjustified and create regulatory uncertainty. Finally, BLM's RDF guidance should state that RDFs will only apply to priority habitat management areas. Imposing stricter conservation measures in priority habitat will encourage prioritization of leasing and development outside priority habitat.

REQUIRED DESIGN FEATURES PAW is supportive of the development of guidance and clarification with regard to the use of required design features (RDFs) with an increased emphasis that they be applied on a site-specific basis as appropriate as outlined in the DRMPA/DEIS. However, we maintain that while some of the RDFs may prove effective, only those that are reasonable should be incorporated and only as recommended measures, not required actions. We further recommend that any RDFs or other restrictions that go beyond those contained in the EO are unjustified and should be eliminated. PAW is strongly concerned that it is not clarified that RDFs will only be applied in PHMA. The DRMPA/DEIS states BLM's desire to develop ways to incentivize development in GHMAs and one such solution is to only apply RDFs in PHMA as appropriate.

RECOMMENDATION 7: Incorporate reasonable RDFs into projects as recommended measures, not required actions; eliminate RDFs or other restrictions that go beyond those contained in the EO; and apply appropriate RDFs only in PHMAs.

E.4.14 Fire and Invasive Species

Finally, rather than following the clear guidance set forth in the NTT Report concerning vegetation treatments, many of the plans allow using prescribed fire in priority/winter habitats, and in less than 12-inch precipitation zones. They also permit vegetation treatments in sagegrouse habitat to increase forage for livestock. Not all the plans require closing treated areas to livestock grazing for two full seasons following vegetation treatments. Only one plan even included grazing permit retirement as an option in sage-grouse habitats.

Prescribed fire in sage-grouse habitat Fire is a threat to sage-grouse populations, and the USFWS has identified prescribed fire as a threat to sage-grouse in this region. Large fires of high frequency can extirpate sage-grouse populations (Pedersen et al. 2003). A landscape mosaic of burns may not meet the nesting habitat needs of sage-grouse (Nelle et al. 2000), and may also fail to meet grouse habitat requirements during other seasons (Wamboldt et al 2002). Fire was an uncommon occurrence in

sagebrush habitats in pre-settlement times, with natural fire return intervals in Wyoming big sagebrush average 100-240 years (Baker 2007). Wyoming big sagebrush recovers slowly after fires, which typically result in 100% sagebrush mortality; recovery to pre-fire canopy cover takes over 100 years (Cooper et al. 2007). Baker (2007) examined the same issue and projected that Wyoming big sagebrush recovery following fire ranges from 50 - 120 years; for mountain big sagebrush, the recovery period was estimated at 35 - 100 years. But vegetation manipulations to create fuel breaks also can fragment and degrade sagegrouse habitat, as discussed elsewhere in this protest. The appropriate management approach will be to minimize the probability of large-scale fire in sage-grouse habitat, without resorting to techniques that themselves destroy or degrade sage-grouse habitats.

Prescribed fire also has no place in sage-grouse habitats. Prescribed fire can result in a loss of sagebrush dominance for 25-45 years, and may also result in increased erosion (Sedgwick 2004). Cooper et al. (2007) projected the full recovery of Wyoming big sagebrush canopy cover would take 625 years based on their observed recovery rates following prescribed fire (a biologically improbable outcome), and no recovery at all was recorded following prescribed fire on 17 of 24 sites. Close proximity to seed sources and moister conditions did not accelerate recovery in this study. These researchers concluded, "Wyoming big sagebrush recovery takes so long that managers considering prescriptive burns need to have a long-term view of the landscape before eliminating a sagebrush habitat that will not return for at least a century" (Cooper et al. 2007:12). Rhodes et al. (2010) found that fires resulted in loss of sagebrush cover and increases in perennial grasses and invasive forbs, while native forbs did not increase in yield or nutritional quality, and ants (a significant part of the diet of sage-grouse chicks) also decreased. Beck et al. (2011) stated, "In particular, prescribed burning leads to pronounced negative response in sagebrush cover that lasts for at least a few decades," and recommended against burning in Wyoming big sagebrush. BLM should take a renewed look the primacy of cheatgrass invasion in determining patterns of rangeland fire. According to BLM's own NEPA analysis, "The positive feedback loop between fire and invasive plant species may be the greatest impact on fire management and GRSG (Abatzoglou and Kolden 2011)." Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 701. BLM further elucidates, in Oregon 19th and early 20th century grazing practices, along with introduction and spread of invasive plant species and the practice of fire suppression in the 20th century, have all contributed to fire suppression and to increasingly destructive wildfires. Oregon Greater Sage-grouse RMP Amendment DEIS at 4-10. BLM's current plan amendments fail to provide adequate controls on prescribed fire. Currently, there is an almost total absence of reliable protections. According to the best available science, prescribed fire should not be permitted in sage-grouse habitats with less than 12" annual precipitation or in sage-grouse winter habitats.

Grazing across many western states has led to the invasion of cheatgrass, a highly flammable noxious weed that accelerates the fire cycle to less than five years destroying the sagebrush upon which sage-grouse rely for food and cover. One recent estimate found that approximately 36 percent of the Greater sage-grouse range is invaded by cheatgrass (Lebbin et al 2010); that percentage has surely increased with recent fires. Because sagebrush requires at least 15 years (and up to 50) to reoccupy burned sites, restoring invaded areas is a difficult and slow process. Preventing further spread into intact sagebrush should be prioritized, something the Plans fail to consider or manage for. Biological invasions, especially invasion by exotic annual grasses such as cheatgrass, are consistently cited as among the most important challenges to maintenance of healthy sagebrush communities (Miller et al. 2011, Wisdom et al. 2005). Estimates of the rapid spread of weeds in the West include 2,300 acres per day on BLM lands and 4,600 acres per day on all western public lands (See 65 FR 54544). Clearly, the BLM needs to consider

the cause of these infestations and the contribution of domestic livestock grazing to them. A study published in the *Journal of Applied Ecology* concludes that livestock grazing contributes to the domination of some western landscapes by cheatgrass, an invasive grass that both destroys sage-grouse habitat and increases the frequency of wildfire (Reisner et al. 2013). To mitigate the spread of cheatgrass, the study suggests maintaining and restoring bunchgrasses and soil crusts, two ecological features that are quickly degraded under the hooves of livestock. Such mitigation would require the decrease or elimination of livestock grazing in the affected areas. Climate variability will likely favor the invasion by nonnative annual grasses, and coupled with other impacts like reduced soil moisture, will likely further diminish the resilience of sagebrush habitats following disturbance (Chambers et al 2017.).

On page 3-9, there are a few referenced to changing habitat conditions - e.g., "Since the 2015 ARMPA Final EIS and Buffalo, Bighorn, and Lander RMP Revisions, more habitat has been lost to wildfire than has been gained through treatment." There is no reference to how much has been lost, linking back to prior comments about inadequate analyses of the management situation for this DEIS.

E.4.15 Land Health Analysis

Regarding habitat standards and evaluations, we would remind BLM - as we did during the 2015 process - that Rangeland Health Standards and Land Health Evaluations were not established with sage-grouse habitat in mind, and should be tailored to do so. Also, site-level evaluations must be scaled up to assess landscape level conditions and analyses of impacts or improvement over time.

VWSGA fully supports the recognition that, if current livestock grazing meets Land Health Standards while providing sage grouse habitat, there is no need to analyze alternatives in renewal of a grazing permit.

New Alternative

BLM SHOULD CONSIDER A THIRD ALTERNATIVE In addition to the proposed agency action, every EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives" to that action. 40 C.F.R. § 1502.14(a). "The existence of reasonable but unexamined alternatives renders an EIS inadequate." *Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir.1998). The "heart of the environmental impact statement" are the alternatives proposed. 40 C.F.R. § 1502.14; Or. *Natural Desert Ass'n v. Bureau of Land Mgmt.*, 531 F.3d 1114, 1121 (9th Cir.2008). Currently the DEIS has only two alternatives, a "No Action" alternative and the "Management Alignment Alternative." BLM should put forward a third alternative to respond to public scoping and DEIS comments. The Tenth Circuit has considered a situation identical to the path currently adopted by BLM in *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 709 (10th Cir. 2009). In that case, the BLM only considered two alternatives because a third more protective alternative did not meet the objective of the project. The Tenth Circuit held that the range of alternatives was unreasonable and set aside the BLM decision. To avoid the entire amendments being set aside, BLM needs to craft a reasonable third alternative, and allow the public to comment on the FEIS with the third alternative before signing the Record of Decision. The Coalition's scoping comments, incorporated by reference here, identify several possible changes to the Management Alignment Alternative that would fit the purpose and need of the 2018 Amendment and would also improve the analysis. For example, any prescription or limitation that is sourced in the NTT Report or the COT Report should be reconsidered due to the extensive scientific controversy regarding conclusions made in those reports and the methodological flaws within. Noise

limitations and universal lek buffers are other examples where the standards adopted overshoot the data and published research.

E.4.16 Preferred Alternative

Support For Adoption of Management Alignment Alternative The Association encourages the BLM to adopt the Management Alignment Alternative (Preferred Alternative) with the addition of several minor modifications. The Association believes that the Preferred Alternative best balances the protection of physical, biological, and heritage resources, while providing for sustainable development. Special status species would continue to receive protection while allowing development of federal energy resources to continue.

ConocoPhillips supports the Management Alignment Alternative (Alternative B). ConocoPhillips particularly agrees with: o BLM's proposal to eliminate the compensatory mitigation standard of "net conservation gain"; o BLM's proposal to adopt the State of Wyoming's Compensatory Mitigation Framework; and o BLM's proposal to apply noise limitations only in Priority Habitat Management Areas (PI-IMA). BLM should specify the mechanism it will use to update PI-IMA boundaries to reflect changes to the State of Wyoming's Core Areas. BLM should remove the redundant requirement to prioritize leasing and development outside of BLM Should Adopt the Management Alignment Alternative in the Proposed RMPA. ConocoPhillips supports BLM's proposed changes to and clarifications of the 2015 Record of Decision and Approved Resource Management Plan Amendment (ROD/ARMPA) in the Management Alignment Alternative (Alternative B). ConocoPhillips encourages BLM to adopt the Management Alignment Alternative as the Proposed RMPA, see 43 C.F.R. § 1610.4-8, with the additional adjustments described in these comments.

We support the selection of the Preferred Alternative; the Management Alignment Alternative. While great strides were made to conform to Wyoming's Greater Sage-Grouse Core Area Strategy (Executive Order 2015-4) and to incorporate Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework; we feel there is still room for further alignment and clarification. We appreciate the opportunity to address these in our comments below.

The Alliance supports Alternative B, the Management Alignment Alternative. Specifically, the Alliance appreciates that under this Alternative, the proposed revisions to the operative resource management plan amendments in Wyoming (Wyoming RMPAs) bring GrSG conservation measures in closer alignment with the Wyoming Greater Sage-Grouse Core Area Protection Plan: Executive Order 2015-4 (Wyoming Plan). Coordination with the Wyoming Plan is consistent with Interior Secretarial Order 3353: Greater Sage-Grouse Conservation and Cooperation with Western States, and it acknowledges the breadth of the State of Wyoming and collaborative stakeholder's efforts to study and work to protect GrSG.

The SER CD supports the Management Alignment Alternative (Preferred Alternative) in the RMPA & DEIS. We encourage BLM to select it as the agency's decision for the Record of Decision. We believe it more consistently aligns with the State's Plan that is supported in the SER CD Long Range Plan: Policy Wildlife #1: The District recognizes and supports the Wyoming Governor's Executive Order (2015-4) on Greater Sage-Grouse Core Area Protection in conserving greater sage-grouse and their habitats. We strongly support the Draft RMPA, DEIS, and any associated policy, training, or plan maintenance align with the 2015 EO and supplemental Executive Order 2017-2. Consistent standards across jurisdictional

boundaries in Wyoming strengthen GRSG conservation efforts and minimize confusion for land managers.

PAW supports Alternative B, the Management Alignment Alternative and BLM's preferred alternative, in that we support revisions to the Wyoming land use plans regarding Greater Sage-Grouse (GRSG) conservation in order for the federal resource management plans (RMPs) to be more consistent with Wyoming Executive Order 2015-4, Greater Sage-Grouse Core Area Protection (EO). We are pleased that BLM recognizes the importance of uniform GRSG habitat management throughout the state and is taking steps to achieve consistency with the policies provided in the EO. Alternative B, the Management Alignment Alternative, remedies most of the main inconsistencies and aligns the current Wyoming RMPs more closely to the EO. In order to sustain BLM's continued consistency with the policies contained in the EO, PAW believes a sentence needs to be added to the GRSG RMP amendment stating that, "the RMP Amendment, which was developed with public notice and comment, cannot be overridden by federal policies which do not require such public participation."

E.4.17 Range of Alternatives

Range of Alternatives is Too Limited The WY Draft RMPA only analyzes two Alternatives: a No Action Alternative and a Management Alignment Alternative (the Preferred Alternative). DRMPA/DEIS at ES-6. Thus the BLM seeks only to revise the plan towards increasing extractive uses of public lands that have been recommended by states. This is insufficient under NEPA and belies the Department's entire agenda in changing the ARMPA.

In Table 2-1, Alternatives comparison, it is not clear who the arbiter of "significant casual facts" would be. Established criteria and consistent designation of who decides on these actions should be clearly articulated.

the Wyoming DEIS fails to analyze an adequate range of alternatives. Only one alternative - the management alignment alternative - addresses the BLM's narrowly stated purpose and need "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." DEIS at ES2. The no action alternative would retain the 2015 sage-grouse plans. The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions. 40 C.F.R. §§ 1502.14(a) and 1508.25(c). NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decision-making and provides evidence that the mandated decision-making process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied, 489 U.S. 1066 (1989) (citations and emphasis omitted). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action." *Northwest Env'tl Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997). An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14). This evaluation extends to considering more environmentally protective alternatives and mitigation measures. See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein). By only meaningfully considering one alternative and not considering alternatives that would be

more protective of greater sage-grouse, BLM has failed to consider a reasonable range of alternatives. I. Alternatives are measured against purpose and need; BLM has not considered a reasonable range of alternatives in the Draft EIS based on the restated purpose and need. When developing an EIS, the "range of reasonable alternatives is measured against the 'Purpose and Need' section...." *Cal. ex rel. Lockyer v. U.S. Dep't. of Agriculture*, 459 F. Supp. 2d 874, 905 (N.D. Calif., 2006), *aff'd*, 2009 U.S. App. LEXIS 19219 (9th Cir. 2009). The statement of "purpose and need" is the basis upon "which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. §1502.13 and *City of Carmel-by-the-Sea v. U.S. Dep't. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997). Therefore, if the purpose and need of the 2018 Draft EIS for the Greater Sage-Grouse changes from the purpose and need for the 2015 EIS, then the range of alternatives must necessarily change as well. Even the 2018 Draft EIS recognizes that the "BLM's purpose and need for this planning action helps define the scope of proposed alternative actions..." DEIS at ES-2. In *Lockyer*, the Forest Service argued that it could base its EIS for the new 2005 version of the "Roadless Rule" upon the EIS (and its alternatives) for 2001 Roadless Rule that it replaced. The court found: This argument fundamentally misconstrues the role of the consideration of reasonable alternatives, which lies at the heart of any NEPA analysis. Failure to consider reasonable alternatives thwarts the goals of informed decisionmaking and meaningful public comment before the environmental die is cast. *Lockyer* at 905 (citations omitted). The Forest Service proposed the 2005 Roadless Rule as a means to give states more authority over designating roadless areas on federal land. In fact, the Forest Service called the 2005 rule the "State Petitions" rule. While the Forest Service argued the 2005 rule and the 2001 rule "share the same purpose and need," the Court concluded that their purposes were "plainly quite different" because the 2005 rule granted state-specific exemptions. *Lockyer* at 906. The Wyoming BLM's 2018 Draft EIS is clear that its purpose and need is different from the 2015 EIS. Under the heading "Purpose of and Need for Action," the Draft EIS state that "The purpose of this land use plan amendment is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and with DOI and BLM policy." DEIS at I-2. Because the 2018 Draft EIS states a different purpose and need compared to the 2015 EIS, the BLM, pursuant to *Lockyer*, must necessarily consider a new range of alternatives to meet that new purpose and need. Under *Lockyer*, BLM in 2018 cannot tier to alternatives considered for the different purpose and need of the 2015 EIS.

Because the "range of reasonable alternatives is measured against the 'Purpose and Need' section," *Lockyer* at 905, the range of alternatives in the 2018 DEIS fails to account for the dramatic change in purpose and need compared to the 2015 EIS, which is a violation of NEPA. 40 CFR § 1502.13.

The No-Action Alternative in the DEIS is the baseline, not a real alternative. The 2018 DEIS for the Greater Sage-Grouse purports to compare two alternatives - the "No Action Alternative" versus the "Management Alignment Alternative." DEIS at 2-3. But under *Lockyer*, the "no action alternative generally does not satisfy the proposed action's purpose and need; its inclusion in the Environmental Impact Statement is required by NEPA as a basis for comparison." *Lockyer* at 905, quoting Ronald E. Bass, Albert I. Herson & Kenneth M. Bogdan, *The NEPA Book: A Step-by-Step Guide on How to Comply with the National Environmental Policy Act*, 95 (2d. ed. 2001). Because the No Action Alternative fails to satisfy the purpose and need of the 2018 DEIS, the DEIS effectively proposes only one alternative: the Management Alignment Alternative. When there is only one alternative, it is not, by definition, an alternative at all. "[T]he agency must consider a range of alternatives that covers the full spectrum of possibilities." *Sierra Club v. Watkins*, 808 F. Supp. 852, 872 (D.D.C. 1991). By proposing the

"Management Alignment Alternative" as the only option to the status quo, BLM has failed to "consider a range of alternatives that covers the full spectrum of possibilities." *Id.* at 872.

BLM must evaluate additional management alternatives. By failing to thoroughly evaluate more than one alternative, BLM is not complying with NEPA. See *TWS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it "considered only a no action alternative along with two virtually identical alternatives"). BLM must consider additional alternatives, including alternatives that offer more protection for greater sage-grouse than the Management Alignment Alternative. The purpose and need of the 2015 Sage-grouse Plans is to "conserve, enhance, and restore GRS habitat by eliminating or minimizing threats to their habitat" (Rocky Mountain Record of Decision, p. 1-21), while the 2018 amendments are based on a purpose to "enhance cooperation with the states." To comply with NEPA, BLM must consider an alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat.

failing to analyze alternatives in this DEIS is not providing the public with a sufficient opportunity to review and evaluate the proposed course of action.

BLM has attempted to rely on authority to incorporate documents by reference without clarification and without actually meeting the applicable standards. BLM cannot simply look to the 2015 plans to avoid completing necessary NEPA analysis. The agency must analyze a reasonable range of alternatives in this NEPA process that addresses the new purpose and need.

Table 2-1 Alternatives Comparison, page 2-6, Habitat Objectives WACD supports proposed language submitted by the State of Wyoming. In addition, BLM's proposed changes to the language surrounding the Tables on Seasonal Habitat Objectives for GRS Wyoming Basin Ecoregion and NE Wyoming (Tables 2-2 and 2-3 [ARMPA], Table 2-6 [Buffalo] and Table 2-7 [Cody and Worland]) in the existing RMPs are an improvement. Many of the objectives provided in this table, including those for stubble height, are too restrictive and unachievable in most of Wyoming, and not based on local, site-specific data. While the existing RMPs provide that the objectives contained in these Tables are "dependent upon site capability and local variation," this and other similar caveats are inappropriately contained in a footnote to the tables. The BLM is correct to elaborate on this, clarifying that "not all areas . . . would be capable of achieving the indicator values" and stating that the "values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values."i Moreover, WACD appreciates the BLM's proposal to include this new language as a preamble to the Tables, rather than a footnote.

the Wyoming DEIS fails to analyze an adequate range of alternatives. Only one alternative - the management alignment alternative - addresses the BLM's narrowly stated purpose and need "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." DEIS at ES2. The no action alternative would retain the 2015 sage-grouse plans. The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions. 40 C.F.R. §§ 1502.14(a) and 1508.25(c). NEPA's requirement that alternatives be studied, developed, and

described both guides the substance of environmental decision-making and provides evidence that the mandated decision-making process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied, 489 U.S. 1066 (1989) (citations and emphasis omitted). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action." *Northwest Env'tl Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997). An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14). This evaluation extends to considering more environmentally protective alternatives and mitigation measures. See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein). By only meaningfully considering one alternative and not considering alternatives that would be more protective of greater sage-grouse, BLM has failed to consider a reasonable range of alternatives. 1. Alternatives are measured against purpose and need; BLM has not considered a reasonable range of alternatives in the Draft EIS based on the restated purpose and need. When developing an EIS, the "range of reasonable alternatives is measured against the 'Purpose and Need' section...." *Cal. ex rel. Lockyer v. U.S. Dep't. of Agriculture*, 459 F. Supp. 2d 874, 905 (N.D. Calif., 2006), aff'd, 2009 U.S. App. LEXIS 19219 (9th Cir. 2009). The statement of "purpose and need" is the basis upon "which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. § 1502.13 and *City of Carmel-by-the-Sea v. U.S. Dep't. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997). Therefore, if the purpose and need of the 2018 Draft EIS for the Greater Sage-Grouse changes from the purpose and need for the 2015 EIS, then the range of alternatives must necessarily change as well. Even the 2018 Draft EIS recognizes that the "BLM's purpose and need for this planning action helps define the scope of proposed alternative actions..." DEIS at ES-2. In *Lockyer*, the Forest Service argued that it could base its EIS for the new 2005 version of the "Roadless Rule" upon the EIS (and its alternatives) for 2001 Roadless Rule that it replaced. The court found: This argument fundamentally misconstrues the role of the consideration of reasonable alternatives, which lies at the heart of any NEPA analysis. Failure to consider reasonable alternatives thwarts the goals of informed decisionmaking and meaningful public comment before the environmental die is cast. *Lockyer* at 905 (citations omitted). The Forest Service proposed the 2005 Roadless Rule as a means to give states more authority over designating roadless areas on federal land. In fact, the Forest Service called the 2005 rule the "State Petitions" rule. While the Forest Service argued the 2005 rule and the 2001 rule "share the same purpose and need," the Court concluded that their purposes were "plainly quite different" because the 2005 rule granted state-specific exemptions. *Lockyer* at 906. The Wyoming BLM's 2018 Draft EIS is clear that its purpose and need is different from the 2015 EIS. Under the heading "Purpose of and Need for Action," the Draft EIS state that "The purpose of this land use plan amendment is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and with DOI and BLM policy." DEIS at I-2. Because the 2018 Draft EIS states a different purpose and need compared to the 2015 EIS, the BLM, pursuant to *Lockyer*, must necessarily consider a new range of alternatives to meet that new purpose and need. Under *Lockyer*, BLM in 2018 cannot tier to alternatives considered for the different purpose and need of the 2015 EIS.

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BLM must evaluate additional management alternatives. By failing to thoroughly evaluate more than one alternative, BLM is not complying with NEPA. See *TWVS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it "considered only a no action alternative along with two virtually identical alternatives"). BLM must consider additional alternatives, including alternatives that offer more protection for greater sage-grouse than the Management Alignment Alternative. The purpose and need of the 2015 Sage-grouse Plans is to "conserve, enhance, and restore GRS habitat by eliminating or minimizing threats to their habitat" (Rocky Mountain Record of Decision, p. 1-21), while the 2018 amendments are based on a purpose to "enhance cooperation with the states." To comply with NEPA, BLM must consider an alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat.

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This can be accomplished through incorporating the standards in the conservation checklist which has been attached for your convenience into each of the draft resource management plans. We request that the Bureau withdraw and then revise the draft RMPA/EIS for Wyoming to include this conservation alternative.

American Bird Conservancy believes the Bureau's Wyoming plan would weaken existing protection and fail to address foreseeable impacts of mineral extraction. The plan leaves Greater Sage-Grouse at greater risk of becoming endangered, and the Bureau's inclusion of a conservation alternative would put the plan on the right path. We urge the Bureau to withdraw the draft RMPA/EIS to include a conservation alternative to reduce habitat loss and population declines of the Greater Sage-Grouse in Wyoming.

The Alliance supports BLM's adoption of the Management Alignment Alternative for the Final RMPA/EIS because it makes significant efforts to align the operative resource management plan amendments in Wyoming with the Wyoming Plan. The Alliance also encourages BLM revise the Final EIS and Resource Management Plan as discussed above to ensure that BLM's GrSG conservation efforts are brought further into line with the Wyoming Plan.

Page 2-5, Comparison of Alternatives. Topic: Modifying habitat area designations. This is good although it should be noted that the current Wyoming strategy is based on an executive order that is subject to change with the inauguration of the next governor. Tying federal policy to state policy again lessens the level of certainty relative to the PECE.

Page 2-12, Comparison of Alternatives. Topic: Noise. "Baseline noise" is not defined. It should be defined as the sound level in a given area absent the source of interest (or absent the sounds of the proposed project). If this is not possible due to ongoing operations, then the L50 metric of data

collected in an area of similar habitat and terrain shall be used. Allowing the definition of baseline or ambient to include existing anthropogenic noise allows for incremental growth over time because the "baseline" increases by up to 10 dBA with each new disturbance in the area.

Page 2-13, Comparison of Alternatives. Topic: Adaptive management triggers. "Returning to previous management once objectives of interim management strategy have been met" is a prescription for returning to what caused the initial problem. Repeating a failed causative action is not a successful strategy for resolving a problem.

Page 2-13-14, Comparison of Alternatives. Topic: Net conservation gain. Also applies to page 4-19 discussion of compensatory mitigation. The concept of "net conservation gain" is already largely aspirational with little evidence of occurrence to date. Conversely, there is ample and well-understood evidence of net conservation loss as it relates to greater sage-grouse, hence the need for the unprecedented efforts taken to date. Taking the opportunity away to have even aspirational net conservation gain striped from policy is counterproductive to those efforts.

Page 2-14-15, Comparison of Alternatives. Topic: Leasing prioritization. We support leasing outside of PHMA. While leasing within PI-IMA is not inconsistent with Wyoming's strategy, such leases will de facto carry with them valid and existing rights to develop that will ultimately impact local sage-grouse populations, even with mitigation. As stated on page 3-2, "new science suggests that strategies to limit surface disturbance may be successful at limiting rangewide declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations (Hanser et al. 2018, p.2)". While the WY policy was designed to include some cushion in the population above the level stated by the USFWS as a threshold for listing, additional development in PHMA will fragment habitats and eat into the population cushion over time bringing closer to the need to list greater sage-grouse as a federally designated Threatened species.

E.4.18 Assumptions and Methodology

Fragmentation of the Planning Process. By fragmenting the 2015 planning process into 15 EISs and 4 RODs-and failing to create a Programmatic Environmental Impact Statement to guide the process-the agencies avoided undertaking any comprehensive or rangewide analysis of sage-grouse habitats, populations, threats, or conservation needs. Without this rangewide analysis, the agencies were also unable to properly weigh the effects of climate change, which is expected to drastically reduce the extent of sagebrush habitat on the landscape and facilitate the spread of cheatgrass. The RODs adopted revised or amended land use plans having differing and often inadequate conservation measures, which fail to assure the conservation of sage-grouse in accordance with the best available science. Here, the BLM perpetuates that fragmentation and, rather than resolve these flaws with a rangewide hard look, instead cuts up the existing plans into six new amendments: Oregon, Colorado, Idaho, Utah, Nevada/Northern California, and Wyoming. This tactic is overtly political rather than based on the species' actual needs, and the proposed changes are largely done to accommodate the state and industry interests in habitat exploitation.

The agency is also unduly relying on Smith et al. (2017) to claim that grass height parameters are overemphasized. But the paper really just shows that SGI projects and non-SGI projects are equally bad for sage-grouse. It specifically did not compare grazed areas with idled areas in terms of nesting success. Moreover, the leading cause of nest failure was predation (51.3 percent) and thus the question becomes

whether predation is more or less common on grazed lands as a direct or indirect effect of livestock grazing becomes important. Additionally, the idled lands were only idled for 4-12 years; teasing apart differences in these samples would be interesting and looking at longer-term differences in sage-grouse habitat in light of cyclical populations would also be necessary before changing the land use plans in light of these preliminary findings.

It is important to note that many of the most populous sage-grouse leks in northeast Wyoming, the south-central part of the state lie outside Core Areas. See WY FEIS #126. The State of Wyoming has developed current lek population density mapping based on 2014 data, updated versions of which are readily available to BLM. BLM should have included such a population density buffer map with its DEIS as part of its NEPA baseline information fulfillment; failure to do so violates NEPA. Later, areas with high population densities were removed from Core Area status to accommodate industrial projects that are incompatible with maintaining sage-grouse on the landscape. See WY FEIS #127. At the outset of the State's consensus-based Core Area mapping process, the original boundaries of Core Areas were drawn to exclude sage-grouse habitats that land users were interested in developing, particularly in the Powder River Basin, Atlantic Rim area, and upper Green River Valley. As a result, thousands of acres of undeveloped habitat were denied protection despite their vibrant sage-grouse populations and relatively undeveloped condition. Under the RMP Amendment process, the BLM should correct politically-driven changes to Core Area boundaries (such as those granted for the DKRW coal-to-liquids project, Atlantic Rim coalbed methane project, Whirlwind LLC White Mountain wind farm, and Chokecherry-Sierra Madre wind farm) that exclude lands within 5.3 miles of leks that represent the smallest area 75% of the Wyoming sage-grouse population. BLM incorporated these errors and unscientific delineation of Core Area boundaries into the PHMAs in its approved plan amendments in Wyoming, resulting in a failure to protect key habitats that have been wrongfully excluded from Core Areas. In its initial designation of Core Areas, the State of Wyoming made some major errors in the Buffalo Field Office that have been implicated in subsequent population declines and threats to long-term viability for sage-grouse populations (see Taylor et al. 2012). These failures are adopted by the BLM in its Buffalo RMP revised plan, crippling the ability of the new plan to maintain viable populations of sage-grouse in this area. It is important to note that many of the most populous sage-grouse leks in the Buffalo Field Office lie outside Core Area boundaries. The State of Wyoming has developed current lek population density mapping based on 2014 data, which is readily available to BLM. BLM should have included such a population density buffer map with its Buffalo FEIS as part of its NEPA baseline information fulfillment; failure to do so violates NEPA. The majority of identified nesting habitat in the Buffalo Field Office lies outside designated Core and Connectivity Areas. Buffalo RMP revision FEIS at Map 37.

A glaring oversight throughout this and all state DEIS's is that the BLM attempts to justify several aspects of the planning analyses through inclusion by reference from the 2015 analyses of sage-grouse plan amendments. However, the BLM used 2012-13 data in their analyses for the 2015 land use plan amendments, and it cannot be denied that an extensive amount of new information, project development, and other factors have been developed or occurred since 2013 - as evidenced in Table 4-3. This seemingly violates BLM Planning Handbook and NEPA procedures. We also would point out that research conducted since the 2015 decision and summarized by the USGS (Hanser et al. 2018; <https://pubs.er.usgs.gov/publication/ofr20181017>) further corroborates negative relationships identified for habitat loss and degradation from energy development and other perturbations, strengthening the need to retain protective measures for sage-grouse in this amendment process. Indeed, scientists have warned the Department of Interior and BLM against changes not supported by scientific evidence and

project-level changes that could have broader landscape-level cumulative effects that do not appear to be appropriately analyzed in this DEIS (<https://www.eenews.net/eenewspm/stories/1060086735>; <https://drive.google.com/file/d/171ViRC4WzIqkpUZ7tqFxiVNI6VbFkEKI/view>).

In our review of the Wyoming DEIS, we found numerous contradictory and sometimes erroneous statements about the effects of the preferred alternative in reference to range wide impacts to grouse and the benefits of the proposed changes to various actions. These statements were made without incorporating new information or analysis of the management situation, nor are there further explanations as to the derivation and assumptions of these conclusions. We suggest providing necessary new information and the required analysis of the management situation that support such claims throughout the document. As an example, on ES-7 - Greater Sage-Grouse: Under the Management Alternative, the summary states that "Although adverse effects on local populations may occur as a result of the management actions, no impacts on Greater Sage-Grouse conservation in Wyoming have been identified, and consistent management will be achieved across the state." We find it difficult to accept that adverse impacts to local populations yields no identified impacts to GSG conservation in Wyoming, bringing into question the entire analysis, or lack thereof. This is an example where a required analysis of the management situation is absent, which not only represents a violation of the planning process, but also hits at the center of the argument scientists presented in their letter to DOI.

On 4-20, it is again proclaimed that "The Management Alignment Alternative may result in local adverse impacts on Greater Sage-Grouse but would not affect the overall goal of Greater Sage-Grouse conservation across Wyoming." We disagree and simply have not seen evidence or analyses in this DEIS to support such a conclusion. Impacts on local populations can only result in overall impacts to the WY habitat base and population. While we agree that better alignment with the State of Wyoming's Greater Sage-Grouse Core Area Strategy can be useful, the statement of "In general, management of Greater Sage-Grouse habitat would be improved through better coordination and alignment..." is only true if protection, restoration, and other conservation measures yield uplift over baseline and population increases. Again, we have not seen a thorough analysis to support the biology of the matter and purpose and need of this DEIS.

Page 4-1 Section 4.2 Analytical Assumptions Based on past history and emerging federal policy, we question the validity of the first assumption, that sufficient funding and personnel would be available for implementing the final decision. This is especially true as it relates to monitoring and adaptive management.

The NTT Report also used Walker, et al. (2007) but Walker did not actually test disturbance caps but instead used a model to predict sage-grouse lek attendance based on distance from potential sources of disturbances. Attach. 5, Ramey et al. at 28, 30. The Monograph relied on Aldridge and Boyce (2007) to support the claim of sage grouse mortalities and avoidance/abandonment of habitat near oil and gas fields. Attach. 3b, WSI at 115. However, it ignored the other facts that habitat protection around leks may not ensure the viability of sage grouse populations and that 60 percent of the study area was low occurrence/noncritical habitat. Id. The Monograph also misrepresents Lyon and Anderson (2003) to support the statement that sage grouse abandon leks due to noise and human activity associated with oil and gas development. Id. at 116. Studies by Naugle, and Doherty also do not recommend a five percent disturbance cap. Id. at 115-117, 123-129; Attach. 5, Ramey et al. at 41-42. Furthermore, conservation measures based upon "professional judgment" and flawed studies do not constitute the best available

science, and BLM should not have relied upon these studies or the NTT Report in the 2015 Plan. See NTT Report at 7, n. iii.

NTT, COT and Monograph Flaws Start With Bias and Poor Statistical Analysis After the USFWS determined that the sage-grouse was warranted but precluded from being listed under the ESA, the BLM chartered the Sage-Grouse National Technical Team (NTT) in order to "develop new or revised regulatory mechanisms, through Resource Management Plans (RMPs), to conserve and restore the GRSG and its habitat on BLM administered lands on a rangewide basis over the long term." NTT Report at 4. The BLM preferred alternative in the 2015 Wyoming Plan was based largely on the NTT Report, other than the changes for net conservation gain, mandatory vegetation objectives, and the sagebrush focal areas (SFAs), which were added after the close of the public comment period. As explained in the 2014 Comments on the DEIS, the 2015 Protests, and the 2015 DQA Petitions, BLM's unquestioning adoption of the NTT, COT, and the Monograph failed to address the significant data quality and technical errors, omissions, actual and potential conflicts of interest, and most importantly, incorrect conclusions regarding sage-grouse status and habitat management.

Conflicts of Interest Compromise Conclusions in the NTT, COT, and Monograph As documented in the Wildlife Science International review, many of the authors pursued an agenda that biased the analysis and the research. See Attach. 3b, WSI at 8, 14-15, 35, 37-41, 40, 54, 66. As identified in the respective petitions and reviews, the authors cite each others work. See e.g. Attach. 3, Western Energy Alliance Data Quality Act Petition on Monograph at 14, 42-44. Many authors have collaborated with each other, thus expanding the pool of like-minded authors. NTT and COT authors cite their own work more than any other source in the report. The failure to include other research and frequent reliance on their own and their friends work creates an unmistakable appearance of impropriety. The Department of the Interior Scientific Integrity Policy Manual (DOI Manual) precludes these conflicts of interest. This closed system of expertise also explains how Interior got the sage grouse issue so wrong. The DOI Manual defines a conflict of interest as, . . . any personal, professional, financial, or other interests that conflict with the actions or judgments of those covered by this policy when conducting scientific and scholarly activities or using scientific and scholarly data and information because those interests may: (1) significantly impair objectivity; (2) create an unfair competitive advantage for any person or organization; or (3) create the appearance of either. Dept. of the Interior, Department Manual, Part 305 DM 3, Chapter 3, p.3 (<http://www.fws.gov/science/pdf/DOIScientificIntegrityPolicyManual.pdf>). Three of the NTT authors are also the three most cited sources throughout the NTT Report. Attach. 4, Maxwell at 4; see also Attach. 3, Western Energy Alliance Data Quality Act Petition on Monograph at 14, 42-44. Without question, the NTT authors pushed their own perspective to the forefront and compromised the integrity and accuracy of the NTT Report itself. As a result, the integrity and utility of the report was clearly compromised by the bias of its authors.

BLM also notes a requirement to avoid development within priority habitat, but this development would expressly occur within priority areas. Note also new opportunities for waivers, exceptions, modifications for siting projects in priority habitat.

The BLM falters, however, when it reasons that requiring that impacts improve habitat will offset those concerns. Problems with this argument: * This will presumably be accomplished through compensatory mitigation (it's hard to envision how a project itself would improve habitat). Mitigation rules must provide a preference for offset benefits to accrue within the landscape affected by the project; prioritize

projects that provide the greatest benefits, and reduce the greatest threats to sage-grouse habitat; mitigation should be required for all impacts and must guarantee against temporal losses; a habitat quantification tool is necessary to measure comparability between impacts and offsets.

The Analytical Assumptions in the DEIS is neither Reasonable nor Supportable At the beginning of Chapter 4, the DEIS lays out a series of analytical assumptions. The purpose of these assumptions is to set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. As shown below, however, many of these assumptions are neither reasonable nor supportable when looked at objectively and considering the most recent science.

Assumption One: Sufficient funding and personnel would be available for implementing the final decision. Ø Table ES-I in the Executive Summary of the DEIS shows a significant decline in all planned habitat restoration and protection activities for FY 18, including conifer removal and invasive species removal. However, invasive species removal is already falling far behind the pace needed to adequately restore sagebrush habitat, as shown in a recent WAFWA report (WAFWA Gap Analysis) finding that most invasive weed management programs are addressing less than 10% of the average infested acres, while the annual rate of spread of invasive plants, can range from 15-35%. That document states, "[This] [l]ack of effort is due almost entirely to lack of capacity, not expertise."⁸⁵ Ø In FY 19, The Administration budget request for funding sage-grouse would impose further cuts by consolidating the sage-grouse program with other programs and reducing the total amount sought.⁸⁶ Ø Interior Secretary Zinke has told lawmakers that he wants to reduce the Department workforce by 4,000 full-time jobs.⁸⁷ (Greenwire 8/15/17)

Assumption Two: Implementation-level actions necessary to execute the LUP-level decisions in this RMPA/EIS would be subject to further environmental review, including that under NEPA. Ø Instruction Memorandum (IM) 2018-034, recent guidance issued by BLM governing oil and gas leasing, emphasizes using Determinations of NEPA Adequacy instead of NEPA analysis. Ø Permanent IM 2018-014 directs BLM field staff to streamline National Environmental Policy Act (NEPA) reviews of applications for permits to drill federally owned minerals from non-federal surfaces.

IM 2018-061 instructs BLM staff members to ensure they are using several tools to make the NEPA process more efficient, including categorical exclusions for certain types of oil and gas development. Ø Pending legislation, H.R. 6106, introduced by Representative Pearce (R NM), would require use of categorical exclusions from NEPA for many oil and gas drilling activities. Ø Pending legislation, H.R. 6088, introduced by Representative Curtis (R UT), would allow oil and gas companies to obtain authorization to drill in some circumstances without NEPA analysis. Ø Pending legislation, S.1417, introduced by Sen. Hatch (R UT) and Sen Heinrich (D NM), would create categorical exclusions for a wide variety of sage-grouse management activities, such as the use of herbicides and pesticides, mechanical piling and burning, chaining, and broadcast burning. Ø There has been a large increase in the use of categorical exclusions from NEPA analysis for oil and gas development in Wyoming, particularly in the Continental Divide-Creston Project Area, where categorical exclusions allowed by section 390 of the Energy Policy Act of 2005 (42 U.S.C. § 15942) are being employed.

Assumption Three: Direct and indirect impacts of implementing the RMPA/EIS would primarily occur on public lands administered by the BLM in the planning area. Ø The DEIS loosens restrictions on oil and gas development on BLM lands in a variety of ways, such as decreasing buffers, removing or modifying disturbance and density caps, opening new areas to development, and eliminating general habitat in Utah.

While BLM assumes that impacts would primarily occur on public land, recent scientific research indicates the likelihood of impacts to adjoining private or public lands owned by agencies other than BLM. This study, by Spence et al., found that the probability of lek collapse was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary. Ø These proposed changes would impact future collaborative processes, as expressed by Gov. Matt Mead (R WY): "If we go down a different road now with the sage grouse, what it says is, when you try to address other endangered species problems in this country, don't have a collaborative process,

Assumption Four: The BLM would carry out appropriate maintenance for the functional capability of all developments. Ø As noted in Assumption One, BLM is already not carrying out appropriate maintenance, and potential budget cuts foretell even greater deficiencies in the future. Moreover, the mere fact that treatment has occurred does not necessarily indicate that the habitat has successfully been restored, rendering Table ES-I essentially meaningless. As the 2018 USGS Synthesis of recent scientific research states, "Restoring sagebrush communities can be difficult, costly and slow." Ø In *Desert Survivors v. U.S. Dept. of the Interior*, Case No. 16-cv-01165-JCS (N.D. CA 5/15/18)91, in ruling that the FWS erred in failing to list the bi-state GRSG population under ESA, the court held, "the service must offer some rational basis for its conclusions that future conservation efforts will be effective enough to improve the status of the bi-state (grouse) and therefore warrant withdrawal of the proposed listing." *Id.* at 64. Assumptions must have a basis in fact.

Assumption Five: The discussion of impacts is based on best available data. Ø In Chapter 4, the DEIS acknowledges that much important data is not available, including comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition and GIS data used for disturbance calculation on private lands. Indeed, the DEIS acknowledges that some impacts of the proposed changes could not be quantified. Ø CEQ regulations further require, where data is unavailable a summary of existing scientific evidence relevant to evaluating reasonably foreseeable significant adverse impacts and the agency's evaluation of such impacts.⁹³ The DEISs fail to provide either of these types of information.

In addition to failing to include the results of the WAFWA Gap Analysis, the DEISs also do not consider a study published in PLoS ONE by Kitzberger et al. (PLoS ONE study) finding that many parts of the West can expect to see more than five times the area burned during the next 20 years than fires covered in the past 20, as well as new research on the impact of climate change on sagebrush habitat.⁹⁵ Ø There can be a 1- to 4-year time lag between development and lek decline. The DEIS states that their assumptions apply to the analysis of both alternatives presented by BLM. It is not appropriate, however, to rely on assumptions, as BLM has done here, that are not based either in fact or sound science.

On page 2-7, we support the second paragraph language under "Management Alignment Alternative" that says specific values need to be developed at the local level. We comment that this task should be performed in CCC with local permittees, local Conservation Districts and others with Range Science credentials. The WSGB would offer to be a part of that process at every Wyoming BLM Field office level.

The EPA supports coordination among federal, state, local, and tribal authorities for consistent and effective conservation of imperiled species. We are concerned that the Draft EIS does not provide sufficient information to fully assess the impacts of the proposed action. For this reason, the EPA has

rated the Draft EIS/RMPA as Environmental Concerns - Insufficient Information - (EC-2). The description of the EPA's rating system is available at: <https://www.epa.gov/nepa/environmental-impact-statement-rating-system-criteria>. The enclosed detailed comments include recommendations for improving the assessment and disclosure of the Proposed Action's expected impacts to greater sagegrouse and habitat; however, we defer to the expertise of the U.S. Fish and Wildlife Service and appropriate state wildlife management agencies regarding the extent to which those impacts would be beneficial or detrimental to the species. Specifically, we offer recommendations associated with fluid mineral resource development, assessing cumulative and cross boundary effects, clarifying the mitigation strategy, and improving the effects analysis.

Page 4-1, Section 4.2 Analytical Assumptions. Based on past history and emerging federal policy we question the validity of the first assumption, that sufficient funding and personnel would be available for implementing the final decision. This is especially true as it relates to monitoring and adaptive management.

Fundamentally, the current plan is based on the flawed assumption that it and the state management plans are adequate to ensure the long-term conservation of Sage-grouse. Further, the assumption that this amendment, which weakens measures already of questionable adequacy, is sufficient to conserve the species, including raising its numbers and the amount of habitat of sufficient quality to reasonable levels, is similarly flawed. The contents of the amendment are being referred to as "minor tweaks". I don't necessarily agree, even for Wyoming; and certainly on a rangewide basis, some of the changes are significant. Overall, the premise for the amendment is purported to be in order to make the current BLM Sage-grouse plan consistent with those of the various state plans. Currently, the BLM plan appears to have some higher or more favorable standards and criteria than the state plans; and this revision would essentially align the BLM plan with those lower common denominators. The proposed changes are being rationalized by the BLM asserting that it is responsible for habitat management, and the states are responsible for wildlife management and for making recommendations about habitat. And, the BLM is deferring to the states on determining how much and of what quality habitat should be provided on BLM lands for the species rather than applying its own expertise based on the best available science and taking a more proactive approach.

The BLM is probably content to not have to take all the recommendations from the various interests and formulate the best habitat management for the Sage-grouse per its public involvement processes. Rather, those recommendations (such as they are) come pre-packaged from the multi-interest stakeholder group(s) making them, some members of which are not that concerned about Sage-grouse conservation (compared to their own self-interests). That means the recommendations are based to some degree on science, but certainly are not the best application of science. Having helped craft the wildlife recommendations, those other parties composing the stakeholder group(s) get to make recommendations for managing their interests undiluted by the same multi-disciplinary processes. Therefore, the BLM's Sage-grouse management is inherently biased from the start. (This is becoming a common flaw in efforts to conserve Species of Greatest Conservation Need and their habitats. Another recent example of this very same flawed process is how BLM will use recommendations to protect big game migration corridors in Wyoming. Recommendations to conserve those corridors will be made by the state to the BLM through a stakeholder process with representatives of the interests posing the threats deeply involved. Not very effective from the standpoint of the species in question.) This is another case of a species whose numbers and distribution are a fraction of historic levels and is being

incrementally nicked and dined into greater and greater jeopardy by relentless pressure from anthropogenic influences. And, in stereotypical fashion, even diluted attempts to establish a conservation effort through the current plan are then being subsequently eroded by political influence and maneuvering. In this case it is through, among other things, the proposed amendment.

Habitat conservation in the BLM land use plans has the potential to form a basis for increasing Sage-grouse populations across its range. In fact, if the best, most pragmatic information was the basis for conservation, strengthening them is the only alternative for long-term persistence of the species at self-sustaining levels. Habitat objectives in the land use plan(s) are the basis for addressing the fundamental issues (habitat loss and degradation) for Sage-grouse. Because the general habitat requirement of Sage-grouse include those of many other species, a number of which are themselves in some form of jeopardy for similar reasons, responsible stewardship practiced for it benefits a community. It is essential that the BLM focus on improving the amount and quality of sagebrush habitats within the species' range.

I am concerned that amendments to BLM Plans in Wyoming and other states are likely to weaken Sage-grouse conservation efforts before we have had the opportunity to apply and test what was agreed upon in the original plans. It is inappropriate to undo the efforts of so many at this time, especially given the plans are compromised conservation proposed by diverse interests and do not have the emphasis on the best science that they should have. This maneuvering, which attempts to undermine and further weaken conservation measures developed through extensive and prolonged negotiations by stakeholder working groups, is a threat to the credibility of the collaborative process. The amendment reveals the lack of seriousness about conservation by proposing such things as only prioritizing oil and gas drilling in priority habitat (PHMA) despite science determining that it is essential general habitat (GHMA) also be protected. Another example is the proposal to eliminate any mention of the concept of "net conservation gain" from the land use plans when regaining habitat quantity and quality is the keystone to adequately recovering the species to the point that it can once again be self-sustaining over the long term. In general, the plan amendments weaken landscape-scale management, which the science community believes is essential, by redirection toward project- and state-level approaches and with less on the rangewide perspective that is necessary. The BLM needs to cooperate with the Sage-Grouse Task Force to ensure its management benefits the species in federal lands across its range and interstate issues are addressed.

The BLM has not included nor applied decision support and monitoring methods recommended by USGS in its synthesis of Sage-grouse science, which would benefit adaptive management efforts to attain long-term conservation of the species across its range. I question why the BLM has not taken the opportunity with this amendment to commit to adopting these tools. This means the BLM will continue make management decisions absent complete information, as well as without an analytical framework for monitoring management activities. This, combined with the compromised recommendations from the states, will promote a general inability to manage sagebrush habitats well enough to ensure Sage-grouse populations can be sustained without intensive care. Overall, the amendment will result in the potential of fewer acres of PI-IMA and GHMA when everyone should be striving to increase Sage-grouse habitat so the species can be self-sustaining. By which we can extract it and us from an intensely custodial relationship that typically is expensive, manpower intensive, and perpetually contentious as we all 'hang on the numbers' each year wondering whether the population(s) are up or down. This is no way to manage wildlife.

E.4.19 Sage-Grouse

Direct impacts to sage-grouse Cattle or sheep grazing in sage-grouse nesting and brood-rearing habitat can negatively affect habitat quality; nutrition for gravid hens; clutch size; nesting success; and/or chick survival (Connelly and Braun 1997, Beck and Mitchell 2000, Barnett and Crawford 1994, Coggins 1998, Aldridge and Brigham 2003). Livestock may directly compete with sage-grouse for grasses, forbs and shrub species; trample vegetation and sage-grouse nests; disturb individual birds and cause nest abandonment (Vallentine 1990, Pederson et al. 2003, Call and Maser 1985, Holloran and Anderson 2005, Coates 2007). The FWS Finding also explained why the physical presence of livestock poses a risk and threat to sage-grouse during nesting season: Other consequences of grazing include several related to livestock trampling of grouse and habitat. Although the effect of trampling at a population level is unknown, outright nest destruction has been documented and the presence of livestock can cause sagegrouse to abandon their nests (Rasmussen and Griner 1938, p. 863; Patterson 1952, p. 111; Call and Maser 1985, p. 17; Holloran and Anderson 2003, p. 309; Coates 2007, p.28). Coates (2007, p. 28) documented nest abandonment following partial nest depredation by a cow. In general all recorded encounters between livestock and grouse nests resulted in hens flushing from nests, which could expose the eggs to predation; there is strong evidence that visual predators like ravens use hen movements to locate sage-grouse nests (Coates 2007, p.33).

Manier et al. (2013) provides a fairly comprehensive review of potential impacts of livestock grazing on sage-grouse. Manier et al. (2013) point out that a reduction in livestock stocking rates can directly increase residual vegetation substantially, potentially assisting in meeting this target level for grasses. The paper, "A Blueprint for Sage-grouse Conservation and Recovery (Braun 2006) states "if livestock grazing is permitted on public rangelands, is to not exceed 25-30% utilization of herbaceous forage each year. Grazing should not be allowed until after 20 June and all livestock should be removed by 1 August with a goal of leaving at least 70% of the herbaceous production each year to form residual cover to benefit sage-grouse nesting the following spring." Sagegrouse experts recommended a minimum 7-inch residual stubble height standard, a level at which vegetation would afford the best chance of nest success (Connelly et al. 2000, Doherty et al. 2011). The same paper recommended disallowing livestock grazing in sagebrush steppe habitats that produce less than 200 lbs/ac of herbaceous vegetation per year "if successful sagegrouse nesting and brood rearing is an objective." Heath et al (1997) found that near Farson, Wyoming, nests with taller grass heights were more successful than those with shorter heights. The exception to this 7-inch rule is found in the mixed-grass prairies of the Dakotas, where sparser cover from sagebrush and greater potential for tall grass have led to a recognition that a 26-cm stubble height standard is warranted (Kaczor 2008, Kaczor et al. 2011). Foster et al. (2014) found that livestock grazing could be compatible with maintaining sage-grouse populations, but notably stubble heights they observed averaged more than 18 cm during all three years of their study, and averaged more than 10.2 inches in two of the three years of the study. This finding is consistent with our conclusion based on the science that maintaining at least 7 inches of residual stubble is necessary to maintain or recover sage-grouse populations. Doherty et al. (2014) found a similar relationship between grass height and nest success in northeast Wyoming and south-central Montana but did prescribe a recommended grass height.

Stiver et al. (2015) recommended a minimum 18 cm grass height for all breeding and nesting habitats, and explicitly stated that this and other established measures should not be altered unless scientific evidence definitively indicates that the 7-inch threshold is inappropriate. Thus, all available science to date is consistent with standards that maintain at least 7 inches of stubble height rangewide, and more

than 10.2 inches in the Dakotas. The FWS Finding also articulated the need to ensure sufficient grass cover: Sage-grouse need significant grass and shrub cover for protection from predators, particularly during nesting season, and females will preferentially choose nesting sites based on these qualities (Hagen et al. 2007, p. 46). The reduction of grass heights due to livestock grazing in sage-grouse nesting and brood-rearing areas has been shown to negatively affect nesting success when cover is reduced below the 18 cm (7 in.) needed for predator avoidance (Gregg et al. 1994, p. 165).

Drilling-related Ponds Must be Prohibited in Priority Habitats, and Existing Ponds should be Drained Wastewater ponds associated with coalbed methane development form breeding habitat for the *Culex tarsalis* mosquitoes that transmit West Nile virus, and have been directly linked to increases in these mosquito populations (Zou et al. 2006, Doherty 2007). The National Technical Team (2011: 19) observed that "ponds created by coal bed natural gas development may increase the risk of West Nile virus mortality in late summer (Walker et al. 2004, Zou et al. 2006, Walker et al. 2007b)." In addition, Kirol et al. (2015b) found that coalbed methane wastewater ponds subsidize sage-grouse nest predators, and that pond shoreline length was the single greatest correlate with sage-grouse nest failure. Greater sage-grouse have essentially no ability to develop immunity to West Nile virus (Naugle et al. 2004), and outbreaks of West Nile have led to catastrophic population losses of sage-grouse in habitats developed for coalbed methane in the past (Walker et al. 2004). Sinai et al. (2017) found that sage-grouse did not produce antibodies against West Nile, and in addition were susceptible to avian leukosis virus. Taylor et al. (2012) found that the synergy of oil, gas and coalbed methane impacts and West Nile would result in the functional extinction of the Powder River Basin sage-grouse population in Wyoming as a result of the next major West Nile virus outbreak. To mitigate the severe threat posed by West Nile virus, the sage-grouse plan amendments and revisions must include a prohibition on the construction of retention or infiltration ponds associated with coalbed methane development in Priority Habitats, and require that all coalbed methane wastewater be injected underground into aquifers of equal or lower quality (to prevent contamination of groundwater supplies by coalbed methane byproducts and salty wastewater).

Climate Change Palmquist et al. (2016) predict a shrinkage in sagebrush habitat in drier basins, and the potential for expansion of sagebrush in middle and higher elevations, due to climactic changes. Homer et al. (2015) predicted a net loss of 11.6% of current sage-grouse nesting habitat, and 4% of current sage-grouse summer habitats. Balzotti et al. (2016) found that changing climate could result in significant decreases in sagebrush habitat across much of Nevada and Utah, and that in particular, the more xeric sagebrush habitats were at elevated risk for degradation by 2050, according to their model. The new NEPA analysis must comprehensively analyze how the projected rangewide contraction of sage-grouse habitat will affect species abundance and distribution on a rangewide basis. The new plan amendments should account for the effects of climate change by elevating protections of habitats that may serve as climate refugia.

SAGE-GROUSE POPULATIONS ARE IN SERIOUS DECLINE While some have hailed the Sage-grouse RMP Amendments as a great success, the reality is that sage-grouse populations are continuing to decline. This is occurring even though major oil and gas projects have not occurred in sage-grouse habitats for the past 10 years due to a bust in both oil and gas commodity prices, and major transmission lines, wind farms, and other significant industrial projects have yet to be built under the new plan amendments. Of course, livestock grazing has continued relatively unchanged by the plan amendments across the range of the greater sage-grouse, and thus its impacts are having an ongoing effect on sage-grouse populations.

Current Trends A population persistence study by Garton et al. (2015) incorporates the current population data at the time to calculate the probability that various populations will drop below minimum viable population thresholds at the Management Zone and subpopulation levels. See Attachment 5. According to this study, the prospects for sage-grouse populations were even bleaker in 2015 than in 2010, when the species was found to be 'warranted, but precluded' for Endangered Species Act listing. This study characterizes the likelihood of the Northern Great Basin Management Zone falling below an effective population of 50 breeding birds as "very likely" at 72.2% in 100 years. According to this study, "The Western Great Basin population [shared between northeast California, northwestern Nevada, and southeastern Oregon] has declined by 69% over the last 6 years and appears to be experiencing an extinction vortex." For the Northwest-Interior Nevada population, "Parametric bootstraps imply that the minimum count of males has a 100% (SE 0%) chance of declining below 20 males in 30 years." The Southern Great Basin management zone has a more optimistic outlook but still faces a substantial likelihood of functional extinction (25.3%) at the 100-year timeframe. In allowing a designated Sensitive Species to continue to decline toward extirpation, BLM has been failing to uphold its FLPMA obligation to prevent unnecessary or undue degradation to sage-grouse habitats, and failing to uphold Sensitive Species requirements, for many years; this plan revision offers BLM the opportunity to reverse this legal failing and the agency is obligated by law to do this. As described in detail above, the current fragmented planning effort and the political compromises across the plans according to state and region already undermine the effort to conserve Greater sage-grouse. Handing the authority to protect the species back to the states is likely to result in more of the same declines that led the species towards federal protection in the first place. Setting state or local population targets for sage-grouse, and waiving habitat protection standards when these are met, is not an acceptable or scientifically valid approach for a number of reasons.

First, sage-grouse populations naturally fluctuate in about a 10-year cycle, rising upward to a peak, and then descending to a low point. Thus, using population targets to remove habitat protections when targets are attained at the peak of the cycle risks habitat destruction that will exacerbate cyclical lows and depress future population peak that can be met at the peak of the cycle to remove habitat protections will. If habitat protections don't apply at the peak of the cycle, because some arbitrary population target has been met, then habitat destruction will be allowed at levels known to cause population crashes. Once the habitat is lost, the ability of a population to fully rebound is lost too, and future generations of grouse will suffer from the longterm habitat impacts allowed when population were higher. And those habitat losses will be there to depress every population peak, and every population trough, that follows.

Next, sage-grouse population declines from habitat losses take two to ten years to show up following habitat losses (Harju et al. 2010) in the form of population declines. This is because adult sage-grouse have incredibly strong ties to the habitats where they live so they continue to occupy degraded habitats even as the juveniles disperse and move on, even after that habitat becomes so decimated that it no longer supports sage-grouse. So, like the population of a dying factory town after the mill closes, the young birds leave while the older birds stay and die out, until the population disappears. goes extinct. This phenomenon means that populations can stay above pre-set targets for years before showing signs of distress, while habitat destruction allowed by waiving restrictions obliterates the habitat base that supports the population. Failing to take corrective action in real time as habitats are being destroyed or degraded makes the resulting population losses worse, even if the measurable effects aren't observable until a few years later.

The state of Wyoming has the largest remaining sage-grouse populations remaining on the planet, including major sage-grouse strongholds along the Atlantic Rim, in the northern Red Desert, and in the Upper Green River valley. At the same time, it has populations that are key linkages to Montana, namely in the Bighorn and Powder River Basins (see Cross et al. 2018), which are tenuous in terms of their population trends and/or habitat conditions. Estimates of population trend vary; Fedy et al. (2017) identify northeastern and northwestern Wyoming populations at greatest demographic risk, while Edmunds et al. (2018) break the state up into PHMAs and identify varying population trends, with a few PHMAs even showing some population growth while the majority are in slow decline. Thus, the Wyoming populations are central to the survival of the species as a whole, as well as to the connectivity of populations in order to maintain long-term viability across significant portions of the species' range. Despite this, the Wyoming RMPA (as well as other Wyoming plan revisions including Buffalo, Lander, and the Bighorn Basin) have the weakest habitat protection measures of any of the RMPAs.

These are serious extinction risks. State male lek counts indicate that Wyoming has experienced the steepest decline between 2007 and 2013 of any state with large sage-grouse populations. With the largest remaining sage-grouse populations rangewide, the most extreme threats from energy development of any sage-grouse state, and the steepest recent declines of any major grouse state, Wyoming is the last place that the federal agencies should flub sage-grouse protections. Yet with this RMP revision, this is exactly what the BLM proposes to do. Federal agencies must instead work that much harder to ensure that federal plan amendments and revisions give sage-grouse and their habitats the full measure of protection demanded by the science. Scientists submitted a letter in March of 2015 highlighting some of the most compelling needs to improve protections; no federal sage-grouse plan amendment or revision in the greater sage-grouse range (including Buffalo) meets these recommendations.

10 Page 4-20 Line 4.5 Impacts on Greater Sage-Grouse Rather than "the alignment with the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework..." It should be "replaced with". This better represents the action.

2015 Plan and 2018 DEIS Fail to Address Impacts of Predation and Hunting The 2015 Plan includes one management action regarding predation in general and zero analysis with regards to ravens except with regard to a related human activity (i.e. transmission lines, vertical structures, roads, fences). MA No. 135; LUPA at 4-253, 274, 335, 340, 420. The BLM's treatment of ravens and other generalist predators is a material deficiency. The NTT Report ignored a substantial body of literature about raven predation including, but not limited to, 25 different studies mentioned by Ramey in his review of the NTT Report. Attach. 5, Ramey, et al. at 2, 18-19; Attach. 3b, WSI at 29-30. Much like the NTT Report, the LUPA avoids "mention of management of predators on sage-grouse in areas of greatest risk of predation, and chose instead to treat this threat as a byproduct of human activities that can be regulated (i.e. land health assessments and emphasizing vegetation cover as a means to measure and mitigate livestock use; or increasing landscape level habitat connectivity)." Attach. 5, Ramey, et al. at 18. The BLM cannot rely on a narrow set of data to manage sage-grouse populations with regards to predation.

The language in Section 4.3 on Page 4-2 of the RMPA, under the heading "Direct and indirect impacts," should make specific reference to the fact that the state of Wyoming analyzes impact on the immediate population and habitat of the Greater sage-grouse as well as the impact on the statewide population and statewide habitat availability over time. Statewide population and habitat viability are measured as a

function of core/PHMA habitat integrity as defined by Wyoming Executive Order 2015-4 (EO 20154). The state requires avoidance and minimization focused on the immediate area of any proposed impact. Residual impacts, if any, may be addressed on-site or off-site provided the offset affirmatively contributes to the long-term viability of statewide population and habitat objectives. Any residual impacts are calculated, and offsets are permitted, pursuant to EO 2015-4 and the Framework.

The BLM has been an integral partner in development of the State's strategy since its inception in 2007. The BLM has signed Memoranda of Understanding with the State for management of these issues, and it has been regularly included in all discussions of changes and adjustments to the State's strategy. The Greater sage-grouse is a state-managed species, and as such, should be subject to the proper protections afforded by the State. I am discouraged to hear that the BLM State Office is interpreting Appendix B in a way that deviates from how the BLM and the State have agreed to manage for Greater sage-grouse. As mentioned above, the BLM should amend the fluid-minerals management appendices in all of its RMPs in Wyoming to reflect a process that allows the State to analyze impacts to the state managed bird and offer avoidance, minimization, and if necessary, compensatory mitigation measures when an exception to a stipulation is sought.³ The BLM can analyze the adequacy of the State's measures in its environmental record of review before granting the exception. Under the dual-permitting system in Wyoming, the State already performs this analysis for every exception request on private, state and federal land. Further aligning the BLM's process for exceptions in the RMPs with the State's process will bring the BLM plans in compliance with the State's strategy and reduce inconsistencies across agencies for the benefit of the species and industry.

Page 4-20: Impacts on Greater Sage-Grouse. The paragraphs discussing the impacts from the Management Alignment Alternative to Greater sage-grouse lacks the details contained on page 4-37 of the Draft EIS. Please include the more robust description of impacts from page 4-37 on page 4-20 after making the changes described in the table below.

Improving the Effects Analysis The Proposed Action includes management action components (labeled in the 2018 Draft EIS as "Issues") drawn from alternatives analyzed in 2015. The Draft EIS does not include a stand-alone effects 3 <https://www.federalregister.gov/documents/2015/10/02/2015-24292/endangered-and-threatened-wildlife-and-plants-12-month-finding-on-a-petition-to-list-greater> 2 analysis for the Proposed Action's combined components and instead relies primarily on the effects analysis in the 2015 EIS. Importantly, the 2015 EIS assessed the impacts of the overall management strategy (i.e. the combination of components) for each Action Alternative and did not independently assess the environmental effects of each component of the alternatives. For the Final EIS, we recommend that BLM consider the combined components in the Proposed Action, in the context of changes since the 2015 FEIS/ARMPA (e.g. withdrawal of Sagebrush Focal Areas and recent modifications to compensatory mitigation policy⁴) to assess overall impacts to greater sage-grouse populations and trends. 4 <https://www.blm.gov/policy/im-2018-093>

Page ES-7 (Greater Sage-Grouse): The BLM states, "Although adverse effects on local populations may occur as a result of the management actions proposed in the amendment, no impacts on Greater Sage-Grouse conservation in Wyoming have been identified, and consistent management will be achieved across the state." This doesn't make sense to me. Again, this is a species that occupies a fraction of its historic range and continues, despite its status, to face unabated assaults. If the management actions proposed in the amendment resulted in inconsequential effects, that would be another matter. But every

effort should be made, by all parties, to minimize any further loss of habitat quality or quantity and any detrimental effects to local populations. Ultimately, unless an underlying goal of some interests is to continue to undermine the ESA, the successful recovery of Sage-grouse to self-sustaining levels for the longterm benefits even those who are contributing to the species' jeopardy.

Page 4-20, Impacts on Greater Sage-Grouse: I agree that management of Greater Sage-Grouse habitat would be improved through better coordination and alignment with the State's core area strategy. However, I do not agree with sacrificing attempts to regain useable habitat for Sagegrouse within its historic range (strive for net habitat gain) in order to get "more consistent application of compensatory mitigation". The two should be compatible, not mutually exclusive.

E.4.20 Non-Sage-Grouse

Indirect Benefits and Impacts to Other Sage-dependent Species The decline of the greater sage-grouse is just one symptom of a much larger problem - the decline of the sagebrush ecosystem. Sage-grouse is just one of many species that use the sagebrush habitat and it has been used an indicator species of sagebrush ecosystem health. See, e.g. Steven E. Hanser and Steven T. Knick, Greater Sage-Grouse as an Umbrella Species for Shrubland Passerine Birds: a Multiscale Assessment, *ECOLOGY AND CONSERVATION OF GREATER SAGE-GROUSE: A LANDSCAPE SPECIES AND ITS HABITATS*, USGS, Nov. 2009, at 18: ("Management to benefit Greater Sage-Grouse may benefit the broader community of birds that use sagebrush steppe habitats"). Sagebrush ecosystem conservation may also benefit sage-dependent large game like pronghorn and mule deer. 2 An example of such a project is the Converse County Oil and Gas Project. Our organization has requested BLM to consider a phased development alternative for that project. BLM should disclose the indirect benefits (or impacts) of its proposed action and alternatives on other species and the sagebrush ecosystem itself. Remarkably, BLM's DEIS does not mention, let alone impacts to, other sage dependent species.

WSGA notes with concern that the Draft EIS fails to consider socio-economic impacts. We consider this to be a critical component of any NEPA analysis and would urge that it be given appropriate attention in the final document.

E.4.21 Fluid Minerals

Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schlodweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2-3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males. On average, lek attendance was stable when no oil and gas development was present within 6,400m. However, attendance declined as development increased. For nesting habitat Zabihi et al. (2017) likewise found that avoidance of wellpads and access roads were the two most important factors predicting nest site selection. Importantly, Green et al. confirmed that declines in sage-grouse populations may continue even within Wyoming's "core

areas," where density of wells is limited to approximately one pad per square mile. In addition, Kirol et al. (2015b) found that increases on coalbed methane wastewater ponds were correlated with decreased nest success in the Powder River Basin of Wyoming.

Oil and Gas Leasing Creates Impacts We are concerned BLM is downplaying the impacts of its proposal by stating "A fluid mineral lease does not authorize surface-disturbing activities,"³ which implies that leasing does not create any direct effects to sage-grouse habitat or populations. However, leasing does in fact authorize oil and gas development on a particular parcel, and oil and gas development is well known to have adverse consequences for sage-grouse. Merely because BLM will require an APD before development can begin does not negate the need to consider the consequences - direct, indirect, and reasonably foreseeable - of the consequences of changing BLM's leasing policies for sage-grouse habitat. We are also concerned about BLM's proposal for additional waivers, exceptions and modifications to stipulations on oil and gas leases can undermine their effectiveness and the certainty that these needed protections will be applied. Please limit the use of waivers, exceptions and modifications and provide transparency about their application and approval.

Impacts of Energy Development Dr. Rob Roy Ramey, Wildlife Science International, and Lex Ivey, Terracognito GIS Services, compiled and analyzed 100 years of data on oil and gas development in the Pinedale Anticline Project Area (PAPA). Rob Roy Ramey, Spatial and Temporal Analysis of Oil and Gas Development, Mitigation, and Greater Sage-Grouse Lek Attendance in the Pinedale Planning Area, Wyoming 1990-2012 (2014) (On file with author). The study also considered data on recent mitigation efforts for GRSG, spatial and temporal changes in oil and gas development, reclamation and restoration, along with GRSG responses (based on 22 years of male GRSG lek attendance data). The research results refute the NTT report and several studies cited in the NTT report (i.e. Holloran, 2005). Ramey suggests a paradigm shift in the relationship between oil and gas development and GRSG habitat selection and population viability. Ramey concludes that data from 1990 to 2012 do not indicate GRSG population decline nor widespread lek abandonment throughout the PAPA. In fact, lek attendance in the PAPA population was consistently above statewide averages and lek attendance did not decline in areas with 3% disturbance within 4 miles of the lek. Ramey concludes that studies currently being used for regulatory decisions with regards to GRSG are outdated and no longer relevant. Dr. Ramey also directly addresses Holloran's 2005 study and found no evidence of a population decline or population extirpation in the PAPA as predicted by Holloran in 2005. See also Attach 3a, CESAR at 38-39; Attach 3b, WSI at 51-52, 115-120. The DQA petitions also question the premise that energy development harmed sage-grouse or its habitat. Holloran's assumed absence of grouse from a lek meant extirpation when the grouse more likely moved. Id.; Attach. 5, Ramey et al. at 29. This avoidance is not extirpation. More recent research suggests that GrSG return to leks when development intensity drops.

Development on existing leases should be managed under current regulations, which limit surface occupancy and disturbance. Years of research leaves no doubt that sage-grouse do not do well in close proximity to energy development. More development in the most important habitat will not help conserve the species.

Fluid Mineral Impacts Information The proposed management changes in the Draft EIS allow for an additional level of oil and gas development on surface designated as Habitat Management Areas (HMAs), and prioritizes that development outside of Primary Habitat Management Areas (PHMA). The Draft EIS provides estimates of the current and forecasted HMA acreage expected to be impacted by oil and gas

development. We recommend that the Final EIS identify the specific types and amount of each habitat type that would likely be impacted by oil and gas development. In making these estimates, it may be possible to use current and projected lease information, along with oil and gas development scenarios based on oil and gas development rates in nearby areas. This more refined information would be useful to help understand specifically where HMAs may be impacted by oil and gas development. We note that the Draft EIS also states that prioritizing oil and gas development outside of the PHMA may benefit greater sage-grouse habitat conservation overall by limiting impacts through use of potential no surface occupancy stipulations and other controls. We recommend that the Final EIS identify instances where oil and gas development with similar controls has resulted in habitat conservation improvement, and by how much, for the greater sage-grouse in Wyoming or other states. We note that most of the 2015 greater sage-grouse analysis was focused on lek habitat. However, BLM has also identified winter concentration, nesting, brood rearing and linkage habitats as having the highest conservation value to maintain sustainable greater sage-grouse populations. We recommend the Final EIS include any new information on winter and brood rearing habitat in Wyoming and consider whether additional mitigation measures are available to protect these seasonal habitats from impacts from oil and gas development. We also recommend the Final EIS include information on whether increased drilling and oil and gas production in greater sage-grouse habitat compared to the 2015 plan would specifically impact any general- or linkage-habitat areas for greater sage-grouse.

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E.4.22 Lands and Realty

Private Property Rights -- Campbell County remains concerned that the consequences of federal stipulations, mitigation and policy directives continue to impact private property rights specifically where split estate lands exist. In the Wyoming EO on page 4, item 4, it outlines that "...activities on private

lands are not subject to state or federal agency review or approval. Only those activities which state agencies are required by state or federal law to review or approve are subject to review for consistency... The additional habitat included within the Core Population Area boundaries is adequate to accommodate continuation of existing land uses and landowner activities. Existing land uses and landowner activities deemed to have negligible or no impacts to Greater Sage-grouse are exempt from review for consistency under this Executive Order..." BLM should include similar language that they will respect and support the protection of private properw rights to the maximum extent allowed by law, regulations, policies, etc. Required Design Features (RDF) - RDF, as defined in the RMPs, is misleading and imposes a onsize-fits-all management approach. RDFs assume that all mitigation measures identified in that section are mandated for every project, which leads to confusion and inconsistent interpretation by BLM staff in the field offices. RDFs should be tailored to each individual project and, where applicable, should be implemented. Campbell County supports clarification of this terminology to reflect the same.

Private Property Rights -- WACD remains concerned that the consequences of federal stipulations, mitigation and policy directives continue to impact private property rights specifically where split estate lands exist.

In the Wyoming EO on page 4, item 4, it outlines that "...activities on private lands are not subject to state or federal agency review or approval. Only those activities which state agencies are required by state or federal law to review or approve are subject to review for consistency...The additional habitat included within the Core Population Area boundaries is adequate to accommodate continuation of existing land uses and landowner activities. Existing land uses and landowner activities deemed to have negligible or no impacts to Greater Sagegrouse are exempt from review for consistency under this Executive Order..." BLM needs to include similar language that they will respect and support the protection of private property rights to the maximum extent allowed by law, regulations, policies, etc.

The recently established Sage Grouse Sagebrush Focal Areas not only protect Sage Grouse, but in some locations, the areas also protect National Scenic and Historic Trail cultural landscapes. This is especially true where the BLM has failed to provide for National Trail protections in a Resource Management Plan (e.g., Rock Springs RMP). A cultural landscape is defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."

The 2015 BLM Wyoming EIS states that, "[n]ew policy addressing the management of NHTs was issued by the BLM in 2012. The BLM will manage National Scenic and Historic Trail resources, qualities, values, and associated settings, and the primary use or uses in accordance with the direction provided in BLM Manual 6280. This policy will be adhered to during any site-specific project NEPA analyses that are conducted in the planning area" (FEIS at 4-241). In addition to site-specific planning, MS-6280 direction requires that RMPs establish programmatic direction to protect National Trail Management Corridors- BLM MS-6280, Chapter 4, Congressionally Designated Trails - Land Use Planning. I have attached a PDF map of a section of the Rock Springs Field Office. The depicted Rock Springs National Trail Management Corridor extent is based on the scene area along National Trail travel routes and is compatible with the designated National Trail Management Corridor that is identified in the revised Lander RMP. The Rock Springs office RMP initiated revision many years ago and has failed to recognize National Trail Management Corridor planning needs in the revision effort. Maintaining the Sagebrush Focal Area designations within this Field Office unit may be the best avenue at this time to protect National Trail

cultural landscapes. The California, Pony Express, Oregon, and Mormon Pioneer National Historic Trail Comprehensive Plan describes that, "The emigrants' trail experience focused neither on a set of ruts nor on many isolated places along the way, but instead on the physical nature of the regions they traversed. Today, we define such areas as landscapes. A cultural landscape is defined as a geographic area, including both natural and cultural resources, and the wildlife and domestic animals associated with an historic event, activity, or person or exhibiting other cultural or aesthetic values. The term landscape has tremendous variations in status, meaning, and usage. Ecologists often use the term ecoregion or ecosystem when they refer to landscapes. Among cultural geographers its definition has changed dramatically during the last half century and it continues to evolve. The cultural aspects of a landscape are as important as the natural features in defining management alternatives for different trail resources. Although landscapes have not been considered essential trail resources, they should be a high priority for managers because they define the nature of the trail, both at the time of the original use and at the present. Landscapes are a very important trail resource, and they need as much attention and protection as ruts and swales. Legally they merit the same treatment and protection as other cultural resources." (Comprehensive Plan at 99).

Furthermore, the Federal Land Policy and Management Act of 1976, as amended (P.L. 94-579), section 102, states, "regulations and plans for the protection of public land areas of critical environmental concern be promptly developed." In addition, Section 103 describes, "(a) The term 'areas of critical environmental concern' means areas 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." "In the development and revision of land use plans, the Secretary shall- (3) give priority to the designation and protection of areas of critical environmental concern; ...and (9) to the extent consistent with the laws governing the administration of the public lands, 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..." (FLPMA Section 202) "The Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." (FLPMA Section 302) Sagebrush Focal Areas and National Trail Management Corridors are clearly areas where "special management attention is required" as specified in the FLPMA definition of an ACEC. The recognition of GRSG components and National Trail corridors as ACECs as defined in FLPMA provides an appropriate mechanism for the identification of these areas and the protection of their values through the development, amending, and implementation of Resource Management Plans.

Summarizing, (1) the Draft RMP amendment fails to conserve important Sage Grouse habitat and protect the cultural landscapes along National Scenic and Historic Trails and (2) the DEIS fails to address National Trails in the affected environment and environmental consequences of the document. I recommend that the No Action alternative be selected and believe that No Action must be selected for Sagebrush Focal Areas that are found within potential National Trail Management Corridors.

E.4.23 Recreation

These management strategies are more than smart conservation – they also support our local economies. A healthy sagebrush ecosystem is an important economic driver for Western economies. There are hundreds of other species that rely on intact sagebrush habitat including the golden eagle, elk, pronghorn and mule deer. Research has shown that across the American West, the sagebrush ecosystem powers the outdoor recreation industry to the tune of more than \$1 billion—\$108 million in Wyoming alone.

In closing, we thank the BLM for its commitment to stewardship and the multiple and sustained use of public lands and resources. We ask that the BLM hold in high regard that a recent poll revealed that 80% of the people in Wyoming see themselves as conservationists and 87% think of themselves as outdoor recreation enthusiasts. In addition, 66% of those polled consider loss of habitat for fish and wildlife to be a serious problem in Wyoming. The people of our state value wildlife and open spaces. Their appreciation for keeping Wyoming wild and working is a vital part of how the BLM should manage the proposed development.

Healthy, huntable sage grouse populations are very important to the sport of falconry. Sage grouse are a challenging quarry for falcons, and though few are taken by trained falcons, they provide many, many recreational days for falconers. They are also the only upland game bird available to falconers in much of Wyoming. The Wyoming Falconers' Association request that existing safe guards, like avoiding development activity in high use (core) sage grouse areas be prevented.

The 2018 proposed Greater Sage Grouse RMPA would reduce protections for National Trail corridors, which would likely lead to actions that substantially interfere with protecting National Trail values. As such, the No Action alternative should be selected for those Sagebrush Focal Areas that are found within potential National Trail Management Corridors.

E.4.24 Cumulative Impacts

Failure to Consider Cumulative Impacts The failure to take a rangewide perspective also meant the agencies did not consider cumulative impacts from the activities potentially allowed under the plans. The plans adopt a smorgasbord of different "conservation measures" to respond to threats, but their lack of uniformity and complex regulatory web create uncertainty about how they will be applied. There is no analysis of how the exceptions and inconsistencies will affect sage-grouse. For example, BLM is now aggressively leasing federal minerals underlying sage-grouse habitat for oil and gas development. Once the lands are leased, BLM cannot prevent them from being developed. BLM has never taken a hard look at the effects of leasing and developing millions of acres of sagebrush habitat, including essential habitat in Wyoming, on rangewide sage-grouse populations. Recent mapping reveals that these sales are concentrated in sagegrouse habitat in Wyoming that is essential to the bird's persistence and recovery. BLM must consider how this pattern will affect sage-grouse abundance, distribution, and ultimately, persistence on the landscape, at the rangewide level.

The DEIS Does Not Adequately Consider Cumulative Impacts In previous comments, we have asked BLM to fully disclose a comprehensive reasonably foreseeable development scenario that will allow the agency to analyze cumulative impacts. As the Western Watersheds Court astutely observed, "It is the cumulative impacts of the disturbances, rather than any single source, [that] may be the most significant influence on the trajectory of sagebrush ecosystems." *Western Watersheds v. Fish & Wildlife Service*,

535 F.Supp 2d, 1173, (D. Idaho 2007). The DEIS fails to properly account for the cumulative and long-term consequences of BLM's proposal because the agency claims the cumulative effects analysis from the 2015 sagegrouse land use plan amendments meets the cumulative effects analysis requirement that is needed now. That is not the case. BLM's proposal requires a full cumulative impacts analysis.

The BLM is required by NEPA to consider cumulative impacts on sage-grouse in this DEIS, but the DEIS purports that the cumulative impacts analysis from the 2015 sage-grouse plan amendments suffice to meet the requirement for the current proposed plan amendment. This is a fatally flawed assumption given that no new information on habitat loss from human or natural perturbations are reported or analyzed. For example, we are aware of at least 18,000 newly proposed oil and gas wells from five different projects, and associated infrastructure, within or near general and priority habitat that were not analyzed in the 2015 plan. Additionally, hundreds of thousands of acres of oil and gas leases have been sold or are proposed for sale - a violation of the current 2015 plans - have not been considered as part of a current cumulative effects analysis. As such, it is inappropriate for BLM to proclaim incorporation by reference of the cumulative effects analysis from the 2015 plans. Again, this issue links back to strongly expressed concerns of scientists in the previously referenced letter regarding not only weakening of plan conservation measures, but also their impacts cumulatively and beyond the project level at the broader landscape scale.

On 4-21, Cumulative Effects - again, we feel this is a flawed analysis that has not included new information, project impacts and other factors, relying solely on old information from 2013.

The BLM's Cumulative Impacts Analysis is Inadequate NEPA requires the BLM to consider the cumulative environmental impacts to sage-grouse and sage-grouse habitat in the DEIS. Cumulative environmental impacts are defined as: The impact on the environment which 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 actions. 40 C.F.R. § 1508.7. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id.* Cumulative impacts must be considered in the scope of an EIS. *Id.* § 1508.25(c). The BLM's cumulative impacts analysis is insufficient and invalid. Despite the requirement to consider cumulative environmental impacts in the sage-grouse land use plan amendment DEIS, the BLM has failed to do this adequately. For one, the BLM claims that the cumulative effects analysis from the 2015 sage-grouse land use plan amendments meets the cumulative effects analysis requirement for the proposed plan amendment. That assertion is incorrect. As noted in the attached Overarching Comment letter, tiering is only appropriate when a subsequent narrower environmental analysis relies on an earlier broader environmental analysis. See 40 C.F.R. § 1508.28 (a) (stating that tiering is appropriate when a program, plan, or policy environmental impact statement is used to support a new analysis of "lessor scope" or which is site-specific). But we do not have that here; the scope of the current analysis is as broad as the 2015 analysis. There is no "step down" present here, therefore the cumulative impacts analysis from the 2015 plans cannot "incorporate[] by reference the analysis in the 2014 and 2015 Final EISs and the 2016 Draft Sagebrush Focal Area Withdrawal EIS." DEIS at 4- 20. In addition, BLM cannot simply incorporate the previous analysis by reference without justifying how it is appropriate and summarizing how it applies, neither of which has been done in the Draft EIS. See, 43 C.F.R. § 46.135(a). BLM also must ensure any incorporation by reference does not impede review by the public, which it surely does here. See 40 C.F.R. § 1502.21. Moreover, the purpose and need for the 2018 EIS differs from that of the 2015 EIS, which underscores why neither tiering nor incorporation by reference is

appropriate. Second, although the DEIS identifies a number of projects in Table 4-3 Range Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions that may cause cumulative effects to greater sage-grouse, this list of projects omits many large ongoing and proposed oil and gas development projects that should be considered in the cumulative effects analysis. The cumulative impacts from the following projects have not been considered in the DEIS: * Continental Divide-Creston Oil and Gas Project (8,950 new wells proposed) * Normally Pressured Lance Oil and Gas Project (3,500 new wells proposed) * Converse County Oil and Gas Project (5,000 new wells proposed) * Moneta Divide Natural Gas and Oil Development Project (4,250 new wells proposed) * Greater Crossbow Oil and Gas Project (1,500 new wells proposed). These massive projects - which together will involve drilling over 23,000 new oil and gas wells and constructing thousands of miles of new roads and pipelines, will have significant impacts on sage-grouse and sage-grouse habitats. See, e.g., Converse County Oil and Gas Project Draft EIS at 3.18-57, estimating that 54 leks will be abandoned due to project activities ("Despite the recent upward trend in peak male attendance, all greater sage-grouse leks in the analysis area are at risk of being abandoned as development continues to increase.") Yet, none of these projects were considered in the DEIS. And even if the cumulative effects from these projects had been considered in some other NEPA document(s), the analyses would have under-reported the impacts because it would have assumed based on then-existing policy that the projects would have achieved a net conservation gain for greater sage-grouse, an outcome that is no longer required or assured due to DOI/BLM's repeal of the agency's net conservation gain and compensatory mitigation policies. Other projects having the potential to cause cumulative effects to greater sage-grouse are missing from Table 4-3. Although past and upcoming oil and gas lease sales are mentioned, the list is incomplete. Although the June lease sale (198,588 acres) is mentioned (at 4-35) neither the upcoming September (366,151 acres) or December (698,589 acres) lease sales are discussed. The DEIS should include accurate and up to date information on leasing activity in general and priority habitat management areas, and provide an analysis of the cumulative impacts associated with those leasing proposals. The BLM should review the list of projects shown in Tables 4-3 causing cumulative impacts and ensure they are as comprehensive as is required to include "the incremental impact[s] . . . when added to other past, present, and reasonably foreseeable future actions." We note again the projects we have mentioned were not considered in the 2015 sage-grouse plan amendment EISs. These are "collectively significant actions taking place over a period of time" that must be considered in the cumulative impacts analysis, but which have not been. In addition, BLM should evaluate the cumulative effects of these projects across the planning areas of the 2015 Sage-grouse Plans. Under Council on Environmental Quality (CEQ) guidance, BLM must consider the current aggregate effects of past actions in a cumulative impacts analysis. CEQ, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, available at https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/Guidance_on_CE.pdf. This means the BLM must consider what the impacts of implementing the 2015 plans has been on cumulative impacts. BLM cannot just incorporate the 2015 plans by reference as its cumulative effects analysis, rather it must consider the "identifiable present effects of past actions," which the 2015 plans clearly are. Under the 2015 plans BLM has taken hundreds of actions, and in total those actions have had cumulative environmental impacts. An analysis of those cumulative impacts is missing from the current EISs, which is not permissible. "A cumulative impact analysis "must be more than perfunctory; it must provide 'a useful analysis of the cumulative impacts of past, present, and future projects.'" N. Plains Res. Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1076 (9th Cir. 2011) (quoting Kern v. U.S. Bureau of Land Mgmt., 284 F.3d 1062, 1075 (9th Cir. 2002) (additional citation omitted). "To be useful to decision makers and the public, the cumulative impact analysis must include "some quantified or detailed information; . . . general statements about possible

effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." 668 F.3d at 1076 (quoting *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 868 (9th Cir. 2004) (additional citation omitted). In its DEIS, the Wyoming BLM has offered nothing more than a perfunctory cumulative impacts analysis. There is no useful analysis of past projects, including hundreds of projects that have been implemented since the approval of the 2015 sage-grouse plans. There is no quantifiable or detailed information about those projects, and there are not even any general statements about the cumulative impacts of those projects, many of which have undergone a NEPA analysis. Based on the above, it is evident the cumulative impacts analyses in the 2018 DEIS is invalid and must be expanded to fully address the cumulative impacts from the amendments. In addition, the BLM has failed to fully and accurately analyze cumulative impacts to greater sage-grouse that will result from the proposed amendments that lack key conservation measures including in the 2015 plan amendments. The DEIS claims that "the Management Alignment Alternative's effects, including its cumulative effects, are entirely within the range of effects analyzed by the 2014 and 2015 Final EISs." DEIS at 4-21. This statement is not correct. The environmental effects of reasonably foreseeable future actions analyzed in 2014 and 2015 were premised on the implementation of the conservation measures contained in the plan amendments, including, importantly, prioritizing oil and gas leasing and development outside of priority habitat management areas, implementing net conservation gain, requiring compensatory mitigation, effective noise controls in general as well as in priority habitat, mineral withdrawals in special focal areas, compliance with required design features, etc. The proposed plan lacks these critical measures. For the analysis of impacts to be accurate, it must examine the direct, indirect and cumulative effects of habitat-disturbing actions in sage-grouse habitat without the implementation of those conservation measures. This was not done here. Table 4-3 (at p. 4-34) states that "BLM Wyoming issued approximately 3,000 ROWs in the planning area between 2015 and 2017" and claims that "for ROWs occurring in sage grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA." We have encountered numerous instances of BLM's failure to implement the conservation measures in the 2015 ARMPA and therefore, rather than accepting BLM's unverified assertion, request that specific evidence be included in a Supplemental DEIS to support the claim that impacts have been offset. The DEIS (at p. 4-36) claims that "[i]ncreased flexibility for other uses within Greater SageGrouse habitat do [sic] not necessarily increase potential impacts on other wildlife or plant species. Site-specific NEPA analyses, including an evaluation of impacts on special status species, is required for on-the-ground projects within the planning area." This statement is not accurate. The BLM routinely approves oil and gas drilling under categorical exclusions to NEPA authorized pursuant to section 390 of the Energy Policy Act. For these wells, numbering in the hundreds, if not thousands, the BLM does not prepare "site-specific NEPA analyses." The BLM should clarify that site-specific NEPA analyses is routinely not prepared for APDs approved under Section 390 of the Energy Policy Act. The absence of site-specific analysis in this DEIS coupled with the probable lack of any future site-specific analysis (due to increasing number of CEs issued under the Energy Policy Act, and new BLM policy calling for NEPA "streamlining") results in the complete absence of site-specific analysis required by NEPA. In this regard, we encourage the BLM to heed the advice of the sage-grouse scientists: Many of the changes proposed in the 2018 DEISs to amend the 2015 LUPs promote management at project-level spatial scales and cumulatively could result in the ineffective management of landscapes required to conserve sagegrouse populations. Failure to take into account large-scale dynamics when managing sage-grouse will likely lead to an overall loss of habitat quantity and quality resulting in population declines. See Letter from Dr. Matt Holloran, et al., to DOI Secretary Ryan Zinke, dated June 8, 2018 (attached). The absence of an adequate cumulative effects analysis, coupled with a management approach that

seemingly refuses to recognize landscape scale dynamics, does not bode well for the future of greater sage-grouse.

Cumulative, Cross-Boundary Cumulative Impacts The Draft EIS focuses on the management of greater sage-grouse within state borders, though substantial portions of identified habitat are on, and presumably cross, those borders. More than half the distance of the Wyoming border with Montana includes designated PHMA and General Habitat Management Areas (GHMA). Almost half of the southwestern border of Wyoming, north of Utah and Colorado is identified as either PHMA or GHMA. A smaller acreage of Wyoming PHMA and GHMA designated habitat lies along the southeastern boarder of Idaho. Comparatively, the smallest amount of Wyoming GHMA touches the border of South Dakota². Given greater sage-grouse populations cross state boundaries and because there are seven BLM state offices revising their plans, we recommend that the Final EIS include a cumulative, cross-boundary effects analysis to assess the combined effects to greater sage-grouse populations and habitats associated with the revisions. Specifically, we recommend

The cumulative effects consider current greater sage-grouse population conditions and trends compared against the expected effects of current management practices.

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