Appendices

Table of Contents

A. References A-1
B. Glossary B-1
C. Modeling Forms C-1
D. Cumulative Effects D-1
E. Response to Comments E-1
F. Unit Treatment Table F-1
G. List of Preparers G-1

A. References

Agee, J.K., Bahro, B., Finney, M.A., Omi, P.N., Sapsis, D.B., Skinner, C.N., van Wagtendonk, J.W. & Weatherspoon, C.P. 2000. The use of shaded fuelbreaks in landscape fire management. Forest Ecology and Management 127:55-66.

Barrett, S.W. 1984. Fire History of the River of No Return Wilderness: River Breaks Zone. Final Report. Systems for Environmental Management. Missoula, Montana, USA.

Barrett, S.W. 1987. Fire History of the Rapid River Drainage - New Meadows Ranger District - Payette National Forest. Unpublished report on file at the USDA Forest Service, Payette National Forest, New Meadows Ranger District, New Meadows, Idaho, USA.

Barrett, S.W. 1988. Fire History and Fuels Assessment – South Fork Salmon River – Krassel Ranger District – Payette National Forest. Unpublished report on file at the USDA Forest Service, Payette National Forest, Krassel Ranger District, McCall, Idaho, USA.

Barrett, S.W. 1994. Fire Regimes on the Payette National Forest – Bear Analysis Area. Consulting Research Forester, Final Report. McCall, Idaho, USA.

Barrett, S.W. 2000. Fire History and Fire Regimes – South Fork Salmon River Drainage – Central Idaho – Payette & Boise National Forests. Unpublished report on file at U.S. Forest Service, Payette National Forest, Krassel Ranger District, McCall, Idaho, USA.

Beche, L.S. Stevens, and V. Resh. 2005. Effects of prescribed fire on a Sierra Nevada (California, USA) stream and its riparian zone. Forest Ecology and Management 218:37-59.

Belt, G.H., J. O'Laughlin, and T. Merrill. 1992. Design of forest riparian buffer strips for the protection of water quality: Analysis of Scientific Literature. Report No. 8, Idaho Forest, Wildlife, and Range Policy Analysis Group.

Beschta, R.L., C.A. Frissell, R. Gresswell, R. Hauer, J. Karr, G.W. Minshall, D.A. Perry, and J. Rhodes. 1995. Wildfire and salvage logging, recommendations for ecologically sound post-fire salvage management and other post-fire treatments on federal lands in the West. Unpublished report. Oregon State University, Corvallis, Oregon, USA.

Beschta, R.L., J.J. Rhodes, J.B. Kauffman, R.E. Gresswell, G.W. Minshall, J.R. Karr, D.A. Perry, F.R. Hauer, and C.A. Frissell. 2004. Postfire management of forested public lands of the Western United States. Conservation Biology 18:957-967.

Bjornn, T.C., M.A. Brusven, M.P. Molnau, J.H. Milligan, R.A. Klamt, E. Chacho, and C. Schaye. 1977. Transport of granitic sediment in streams and its effects on insects and fish. Bulletin No. 17. College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, Idaho, USA.

Biswell, H.H., and A.M. Shultz. 1957. Surface runoff and erosion as related to prescribed burning. Journal of Forestry:372-374.

Bond, P. 2008. 2008 flammulated owl surveys on the Payette National Forest. Idaho Department of Fish and Game, McCall, Idaho, USA.

Boyer, D.E., and J.D. Bell. 1980. Fire effects on Pacific Northwest soils. USDA Forest Service, Pacific Northwest Region, Portland, Oregon, USA.

Brown, J.K., E. Reinhardt, and K. Kramer. 2003. Coarse woody debris: managing benefits and fire hazard in the recovering forest. General Technical Report RMRS-GTR-105. USDA Forest Service, Rocky Mountain Research Station, Ogden, Utah, USA.

Brown, J.K., R.D. Oberhue, and C.M. Johnston. 1982. Inventorying surface fuels and biomass in the Interior West. General Technical Report INT-129, U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah, USA.

Bull, L.E., and B.C. Wales. 2001. Effects of disturbance on birds of conservation concern in Eastern Oregon and Washington. Northwest Science 75:166-173, Special Issue.

Bull, L.E., A.A. Clark, and J.F. Shepherd. 2005. Short-term effects of fuel reduction on pileated woodpeckers in Northeastern Oregon – a pilot study. Research Paper #PNW-RP-564. USDA Forest Service, Pacific Northwest Research Station, Portland, Oregon, USA.

Burns, D.C., M. Faurot, D. Hogen, M. McGee, R. Nelson, D. Olson, L. Wagoner, and C. Zurstadt. 2005. Bull trout populations on the Payette National Forest. USDA Forest Service, Payette National Forest, McCall, Idaho, USA. Pages 25-29.

Burroughs, Jr., E.R., and J.G. King. 1989. Reduction of soil erosion on forest roads. General Technical Report INT-264. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah, USA.

Cafferata, P.H.L. 1983. The effects of compaction on the hydrologic properties of forest soils in the Sierra Nevada. Earth Resources Monograph 7. USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA.

Carlton D. and Calvin M. 2005.Fuels Management Analyst Suite FMA+Plus 3. Users Guide. Fire Program Solutions/Acacia Services. Estacada, Oregon, USA.

Claar, J.J., T. Bertram, R. Naney, N. Warren, and W. Ruediger. 2003. Wildlife linkage areas: an integrated approach for Canada lynx. Road Ecology Center eScholarship Repository, John Muir Institute of the Environment, University of California, Davis, California, USA.

Clayton, J.L. 1990. Soil disturbance resulting from skidding logs on granitic soils in central Idaho. Research Paper INT-436. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah, USA.

DeBano, L.F., Neary D.G., Ffolliott, P.F. 1998. Fire's Effects on Ecosystems. John Wiley and Sons, Hoboken, New Jersey, USA.

DellaSala, D.A., G. Nagle, J.R. Karr, R. Fairbanks, D.C. Odion, J.E. Williams, C. Frissell, and T. Ingalsbee. 2006. The facts and myths of post-fire management: a case study of the Biscuit Fire, Southwest Oregon. Unpublished report. World Wildlife Fund, Klamath–Siskiyou Program.

Dixon, M. Landslide potential in the Crooked River Fuels Project Area. Unpublished report on file at the USDA Forest Service, Payette National Forest, Forest Supervisor's Office, McCall, Idaho, USA.

Duncan, S. 2002. Postfire logging: is it beneficial to a forest? Science Findings. USDA Forest Service, Pacific Northwest Research Station, Portland, Oregon, USA.

Duncan, S.H., R.E. Biby, J.W. Ward, and J.T. Heffner. 1987. Transport of road-surface sediment through ephemeral stream channels. Water Resources Bulletin 23:113-119.

Dunham, J.B., A.E. Rosenberger, C.H. Luce, and B.E. Rieman. 2007. Influences of wildfire and channel reorganization on spatial and temporal variation in stream temperature and the distribution of fish and amphibians. Ecosystems 10:335-346.

Egnew, A., C. Hescock, and L. Nutt. 2009. Wildlife source habitats for the Payette National Forest in the Central Idaho Mountains Ecological Reporting Unit of the Columbia Basin. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

Evans, D., and D. Martens. 1995. Snag and course woody debris guidelines for timber harvest practices. Broadscale Analysis Team. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

Evans Mack, D. 2005. Occurrence of the flammulated owl (*Otus flammeolus*) on the Payette National Forest. Challenge Cost-Share Project #05-CS-11041200-020 with the Payette National Forest. Idaho Department of Fish and Game, McCall, Idaho, USA.

Evans Mack, D., and P. Bond. 2007. Occurrence of the flammulated owl (*Otus flammeolus*) and great gray owl (*Strix nebulosa*) on the Payette National Forest. Final Report of 2007 surveys. Challenge Cost-Share Project #05-CS-11041200-020 with the Payette National Forest. Idaho Department of Fish and Game, McCall Idaho, USA.

Evans Mack, D., and P. Bond. 2008. Northern Idaho ground squirrel population monitoring progress report for the 2008 field season. Threatened and Endangered Species Projectr E-28-7, Cooperative Agreement #14420-6-J036. Idaho Department of Fish and Game, Boise, Idaho, USA.

Foltz, R.B. 2007. Wood strands, wood shreds, and straw on obliterated roads. Interim Report. USDA Forest Service, Rocky Mountain Research Station, Moscow Forestry Sciences Laboratory, Moscow, Idaho, USA.

Foltz, R.B., and E. Maillard. 2003. Infiltration rates on abandoned road-stream crossings. In Paper No. 35009, Proceedings of the ASAE, Annual International Meeting, July 27-30, Las Vegas, Nevada, USA.

Frederick, G.P. 1991. Effects of forest roads on grizzly bears, elk, and gray wolves: a literature review. Publication #RI-91-73. USDA Forest Service, Kootenai National Forest, Libby, Montanta, USA.

Franklin, J., and J.K. Agee. 2003. Forging a science-based National Forest Fire Policy. Issues in Science and Technology, Fall 2003.

Froehlich, H.A., D.E. Aulerich, and R. Curtis. 1981. Designing skid trail systems to reduce soil impacts from tractive logging machines. Research Paper 44. Forest Research Laboratory, School of Forestry, Oregon State University, Corvallis, Oregon, USA.

Froehlich, H.A., R.W. Robbins, D.W.R. Miles, and J.K. Lyons. 1983. Monitoring recovery of compacted skidtrails in Central Idaho. Forest Engineering Department, Oregon State University, Corvallis, Oregon, USA.

Furniss, M.J., T.D. Roelofs, and C.S. Yee. 1991. Road construction and maintenance. Pages 297-301 in W.R. Meehan, editor. 1991. Influences of Forest and Rangeland Management on Salmonid Fisheries and their Habitat. Special Publication 19. American Fisheries Society.

Garland, J.J. 1983. Designated skid trails to minimize soil compaction. Extension Circular 1110. Oregon State University Extension Service, Corvallis, Oregon, USA.

Graham, R.T., A.E. Harvey, M.F. Jurgensen, D.S. Page-Dumroese, J.R. Tonn, T.B. Jain, and K. Geier-Hayes. 1991. Sustaining soil productivity on forest soils in the Inland Northwest. USDA Forest Service, Ogden, Utah, USA.

Graham, R.T., A.E. Harvey, M.F. Jurgensen, T.F. Jain, J.R. Tonn, and D.S. Page-Dumroese. 1994. Managing coarse woody debris in forests of the Rocky Mountains. Research Paper INT-RP-477. USDA Forest Service, Intermountain Research Station, Ogden, Utah, USA.

Graham, R.T., Technical Editor. 2003. Hayman Fire case study. General Technical Report RMRS-GTR-114. USDA Forest Service, Rocky Mountain Research Station, Ogden, Utah, USA.

Gray, R.W. 2003. Report on the use of thinning and prescribed fire to control fuels and wildfire threat in young Douglas-fir/ponderosa pine plantations. R.W. Gray Consulting Ltd. Chilliwack, British Columbia, Canada.

Greenway, J. 2009. A summary of biological surveys on the West Zone of the Payette National Forest, 2008. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

Greenway, J. 2007. A summary of biological surveys on the West Zone of the Payette National Forest, 2007. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

Greenway, J., and C. Zurstadt. 2007. Fisheries monitoring results, 2006-2007. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

Gregory, S.V., F.J. Swanson, W.A. McKee, and K.W. Cummins. 1991. An ecosystem perspective of riparian zones. BioScience 41:540-551.

Hann, W. 2008. Interagency Fire Regime Condition Class (FRCC) Guidebook. Version 1.3.0. Homepage of the Interagency and The Nature Conservancy fire regime condition class website, USDA Forest Service, US Department of the Interior, The Nature Conservancy, and Systems for Environmental Management. [Online]. Available: http://frames.nbii.gov.

Haufler, J.B. 1994. An ecological framework for planning for forest health. Journal of Sustainable Forestry2(3-4):307-316.

Hillis, J.M., M.J. Thompson, J.E. Canfield, L.J. Lyon, C.L. Marcum, P.M. Dolan, and D.W. McCleery. 1991. Defining elk security: the Hillis Paradigm. Pages 38-43 in A.G. Christensen, L.J. Lyon, and T.N. Lonner, eds. 1991. Proceedings of elk vulnerability – a symposium. April 10-12, 1991, Montana State University, Bozeman, Montana, USA.

Huffman, E.L., L.H. McDonald, and J.D. Stednick. 2001. Strength and persistence of fire-induced soil hydrophobicity under ponderosa pine and lodgepole pine, Colorado Front Range. Hydrological Process 15:287-2892.

Ice, G.C., D.G. Neary, and P.W. Adams. 2004. Effects of wildfire on soils and watershed processes. Journal of Forestry 102:16-20.

Idaho Department of Lands. 2006. Idaho Forest Practices Act. Idaho State Legislature, Boise, Idaho, USA.

Idaho Department of Environmental Quality. 2007. Wildhorse River Subbasin Assessment and Total Maximum Daily Load. Idaho Department of Environmental Quality, Boise Regional Office, Boise, Idaho, USA.

Johnson, S.R. 1995. Factors supporting road removal and/or obliteration. USDA Forest Service, Kootenai National Forest, Libby, Montana, USA.

Karr, J.R., J. Rhodes, W.G. Minshall, F.R. Hauer, R.L. Beschta, C. Frissell, and D.A. Perry. 2004. The effects of postfire salvage logging on aquatic ecosystems in the American West. Bioscience 54:1029-1033.

Ketcheson, G.L., and W.F. Megahan. 1996. Sediment production and downslope sediment transport from forest roads in granitic watersheds. Research Paper INT-RP-486. USDA Forest Service, Intermountain Research Station, Ogden, Utah, USA.

Keifer, M., Caprio, A., Lineback, P., Folger, K. 2000. Incorporating a GIS model of ecological need into fire management planning. Neuenschwander, Leon F. and Ryan, Kevin C. The Joint Fire Science Conference and Workshop. 122-130. University of Idaho, Moscow, Idaho, USA.

King, J. 1994. Streamflow and sediment yield responses to forest practices in Idaho. 1994. Proceedings of the Symposium on Interior Cedar-Hemlock-White pine Forests: Ecology and Management, Spokane, Washington, 1994.

Larson, K., D. Paulson, R.A. Thompson, and P.H. Skabelund. 1973. Soil –hydrologic reconnaissance. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

Li, R.M., T.J. Ward, D.B. Simons. 1978. Modeling erosion and sedimentation from roadways. Publication unknown. Pages 61-69.

Luce, C.H. 1997. Effectiveness of road ripping in restoring infiltration capacity of forest roads. Restoration Ecology 5:265-270.

Luce, C.H., B.E. Rieman, J.B. Dunham, J.L. Clayton, J.G. King, and T.A. Black. 2001. Incorporating aquatic ecology into decisions on prioritization of road decommissioning. Water Resources IMPACT 3:8-14.

Luce, C.H. and B.C. Wemple. 2001. Introduction to special issue on hydrologic and geomorphic effects of forest roads. Earth Surface Processes and Landforms 26:111-113.

Lyons, A.L., W.L. Gaines, J.F. Lehmkuhl, and R.J. Harrod. 2008. Short-term effects of fire and fire surrogate treatments on foraging tree selection by cavity-nesting birds in dry forests of central Washington. Forest Ecology and Management 255:3208-3211.

MacDonald, L.H., and E.L. Huffman. 2004. Post-fire soil water repellency; persistence and soil moisture thresholds. Soil Science Society of America Journal 68:1729-1734.

Malmsheimer, R. W., P. Heffernan, S. Brink, D. Crandall, F. Deneke, C. Galik, E. Gee, J.A. Helms, N. McClure, M. Mortimer, S. Ruddell, M. Smith, and J. Stewart. 2008. Forest Management Solutions for Mitigating Climate Change in the United States. Journal of Forestry. April/May: 115-173.

McDade, M.H., F.J. Swanson, W.A. McKee, and others. 1990. Source distances for coarse woody debris entering small streams in western Oregon and Washington. Canadian Journal of Forest Research 20:326-330.

Megahn, W.F. 1977. Reducing erosional impacts of roads: guidelines for watershed management. Food and Agriculture Conservation Guide. Food and Agriculture Organization of the United Nations, Rome, Italy. Pages 237-261.

Megahan, W.F. 1987. Increased sedimentation following helicopter logging and prescribed burning on granitic soil. Pages 259-260 in R.L. Beschta, T. Blinn, G.E. Grant, and others, editors. 1987. Erosion and sedimentation in the Pacific Rim: symposium proceedings. Symposium held August 3-7, Corvallis, Oregon, USA, and Wallingford, Oxfordshire, United Kingdom. International Association for Hydrological Sciences Press 165:259-260.

Megahan, W.F., and D.C. Molitor. 1975. Erosional effects of wildfire and logging in Idaho. Pages 423-444 in Proceedings of the Symposium on Watershed Management. American Society of Engineers.

Mehl, C. A., R. Steele, S. Warren, B. Holt, J.B. Haufler, and G. J. Roloff. 1998. The Ecosystem Diversity Matrix for the Idaho Southern Batholith Landscape. Boise Cascade Corporation, Boise, Idaho, USA.

Minshall, G.W., A. Rugenski, and C. Relyea. 2006. Monitoring of streams in the Payette National Forest 1988-2005: Big Creek and South Fork Salmon tributaries pre-and post-fire. Stream Ecology Center, Department of Biological Sciences, Idaho State University, Pocatello, Idaho, USA.

Morgan, P. and R. Parsons. 2001. Historical range of variability of forests of the Idaho Southern Batholith Ecosystem. Final Report. Department of Forest Resources, University of Idaho, Moscow, Idaho, and Fire Sciences Laboratory, Rocky Mountain Research Station, Missoula, Montana, USA.

Moulton, C. 2008. Idaho bald eagle nest monitoring; 2007 annual report. Idaho Department of Fish and Game, Boise, Idaho, USA.

Nadeau, S. 2009. Idaho wolf management bi-weekly progress report; March 1-15, 2009. Idaho Department of Fish and Game, Boise, Idaho, USA.

Neary, D.G., K.C. Ryan, and L.F. DeBano. 2005. Wildland fire in ecosystems; effects of fire on soils and water. General Technical Report RMRS-GTR-42-vol.4. USDA, Forest Service, Rocky Mountain Research Station, Ogden, Utah, USA.

Nelson, R.L., M.N. Mcgee, C.F. Zurstadt, and D.C. Burns. 2004a. Evaluation of surface fines as an index of salmonid habitat conditions on the Payette National Forest. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

Nelson, R.L, D.C. Burns, and K.L. Ketchu. 2004b. Relationships between estimated equivalent clearcut area and fish habitat attributes in selected streams on the Payette National Forest, with application to use of watershed condition indicators in forest planning and consultation under the Endangered Species Act. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

Nutt, L.M. and C. Hescock. 2007. Species account of the Southwest Idaho Ecogroup: flammulated owl. Project Record for the 2003 Southwest Idaho Ecogroup Forest Plan Revision. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

Page-Dumroese, D., M. Jorgensen, A. Abbott, T. Rice, J. Tirocke, S. Farley, and S. DeHart. 2006. Monitoring changes in soil quality from post-fire logging in the Inland Northwest. Proceedings of the Rocky Mountain Research Station, RMRS-P-41. USDA Forest Service, Rocky Mountain Research Station. Pages 605-614.

Peek, J.M., Chair. Proceedings of the elk – logging – roads symposium. 1976. December 16-17, 1975, Moscow, Idaho. Forest, Wildlife, and Range Experiment Station, University of Idaho, Moscow, Idaho, USA.

Reeves, G.H., P.A. Bisson, B.E. Rieman, and L.E. Benda. 2006. Postfire logging in riparian areas. Conservation Biology. Online journal.

Reinig, L., R.L. Beveridge, J.P. Potyondy, F.M. Hernandez. 1991. BOISED User's Guide and Program Documentation Version 3.01. USDA Forest Service, Boise National Forest, Boise, Idaho, USA.

Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce, Jr., G. Goodwin, R. Smith, and E.L. Fisher. 1992. Management recommendations for the northern goshawk in the Southwestern United States. General Technical Report RM-217. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Albuquerque, New Mexico, USA.

Rieman, B., Lee, D., Burns, D., Gresswell, R., Young, M., Stowell, R., Rinne, J., Howell, P. 2003. Status of native fishes in the western United States and issues for fire and fuels management. Forest Ecology and Management 178:197-211.

Robichaud, P.R. 2003. Infiltration rates after prescribed fire in Northern Rocky Mountain Forests. USDA Forest Service, Rocky Mountain Research Station, Ogden, Utah, USA.

Robichaud, P.R., F.B. Pierson, and R.E. Brown. 2007. Runoff and erosion effects after prescribed fire and wildfire on volcanic ash-cap soils. Rocky Mountain Research Station Proceedings RMRS-P-44. USDA Forest Service, Rocky Mountain Research Station. Pages 83-94.

Rothwell, R.L. 1983. Erosion and sediment control at road-stream crossings. The Forestry Chronicle. Pages 62-66.

Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx analysis and strategy. Forest Service Publication #R1-00-53. USDA Forest Service, Missoula, Montana, USA.

Russell, R.E., V.A. Saab, and J.G. Dudley. 2007. Habitat-suitability models for cavity-nesting birds in a postfire landscape. The Journal of Wildlife Management 71(8).

Saab, V.A., J. Dudley, and W.T. Thompson. 2004. Factors influencing occupancy of nest cavities in recently burned forests. The Condor 106:20-36.

Saab, V. A., R.E. Russell, and J.G. Dudley. 2006. Nest densities of cavity-nesting birds in relation to postfire salvage logging and time since wildfire. The Condor 109:97-108.

Seyedbagheri, K.A. 1996. Idaho forestry Best Management Practices: compilation of research on their effectiveness. General Technical Report INT-GTR-339. USDA Forest Service, Intermountain Research Station, Ogden, Utah, USA.

Spruell, P. 2000. Genetic analysis of bull trout from the Weiser Ranger District. Wild Trout & Salmon Genetics Laboratory, Division of Biological Sciences, University of Montana, Missoula, Montana, USA.

Switalski, T.A., J.A. Bissonette, T.H. DeLuca, C.H. Luce, and M.A. Madej. 2004. Benefits and impacts of road removal. Frontiers in Ecology and the Environment 2:21-28.

Suttle, K.B., M.E. Power, J.M. Levine, and C. McNeely. 2004. How fine sediment in riverbeds impairs growth and survival of juvenile salmonids. Ecological Applications 14:969-974.

Thomas, J.W., Technical Editor. 1979. Wildlife habitats in managed forests; the Blue Mountains of Oregon and Washington. Agriculture Handbook No. 553. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon, USA. Pages 105, 107, 109-122.

University of Arizona. 2001. WALTER website. http://walter.arizona.edu/fire/risk_factors/fire_return_interval_departure.asp

USDA Forest Service. 1981. Standards and guidelines for soil and related resources. Unpublished Report. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

USDA Forest Service. 1992. Fire Behavior Field Reference Guide, PMS-436-4, NFES 2224.

USDA Forest Service. 1995. Soil management handbook (Forest Service Handbook 2509.18). Region 4 Supplement No. 2509.18-95-1. USDA Forest Service, Intermountain Region, Ogden, Utah, USA.

USDA Forest Service. 1995. Intermountain Region soil interpretive guide. USDA Forest Service, Intermountain Region, Ogden, Utah, USA.

USDA Forest Service. 1999-2008. Soil, water, and fisheries monitoring results. West Zone Soil Productivity Monitoring, Soil Compaction Monitoring, Council and Weiser Ranger Districts. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

USDA Forest Service. 2000. Canada lynx conservation agreement; USDA Forest Service and USDI Fish and Wildlife Service. US Forest Service Agreement #00-MU-11015600-013. USDA Forest Service, Region 1, Missoula, Montana, USA.

USDA Forest Service. 2001. Soil, water, and fisheries monitoring results. West Zone Soil Productivity Monitoring, Soil Compaction Monitoring, Council and Weiser Ranger Districts. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

USDA Forest Service. 2002. Payette National Forest West Zone monitoring results, 2000 and 2001. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

USDA Forest Service. 2003a. Southwest Idaho Ecogroup Final Environmental Impact Statement. USDA Forest Service, Payette, Boise, and Sawtooth National Forests, Idaho, USA.

USDA Forest Service. 2003b. Payette National Forest Land and Resource Management Plan. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

USDFA Forest Service. 2004. Alternative Consultation Agreement to Implement Section 7 Counterpart Regulations. USDA Forest Service, National Marine Fisheries Service, and US Fish and Wildlife Service.

USDA Forest Service. 2007. Burned Area Emergency Stabilization Plan, Grays Creek Fire, Soil and Water Resources Assessment.

USDA Forest Service. 2009. Memorandum of Understanding on the Migratory Bird Treaty Act. USDA Forest Service, Washington Office, Washington, D.C., USA.

USDA Forest Service. 2009. Wildhorse Roads Analysis Process. Payette National Forest, McCall, Idaho USA.

USDI Fish and Wildlife Service. 1987. Northern Rocky Mountain Wolf Recovery Plan. USDI Fish and Wildlife Service, Mountain-Prairie Region, Denver, Colorado, USA.

USDI Fish and Wildlife Service. 2003. Recovery plan for the Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*). USDI Fish and Wildlife Service, Region 1, Portland, Oregon, USA.

USDI Fish and Wildlife Service. 2005. Recovery outline; contiguous United States Distinct Population Segment of the Canada lynx. USDI Fish and Wildlife Service, Mountain-Prairie Region, Denver, Colorado, USA.

Williams, C.L., and E. Veach. 1999. Are bull trout, Salvelinus confluentus, present in the Middle Fork Weiser River drainage, Bear Creek drainage, and Crooked River drainage: a study completed by the Payette National Forest, Council Ranger District. Unpublished report. USDA Forest Service, Payette National Forest, Council Ranger District, Council, Idaho, USA.

Wodzell, S.M. and J.G. King. 2003. Postfire erosional processes in the Pacific Northwest and Rocky Mountain regions. Forest Ecology and Management 178:75-87.

Zurstadt, C. 2006. Memo on observation of road obliteration adjacent to stream. USDA Forest Service, Payette National Forest, McCall, Idaho, USA.

B. Glossary

303(d)- Section of the Clean Water Act that defines standards for state water quality. States are required to submit updated lists of water bodies that do not meet section 303(d) standards to the Environmental Protection Agency every two years. States must also develop plans for improving the water quality of listed water bodies, with the goal of "delisting" them.

Action area - The area including the project area and a larger area surrounding the project area, chosen to analyze the effects of the proposed project on wildlife resources. The action area is often related to watersheds or sub-watersheds, but must include enough land to adequately account for the effects of the project on each of the wildlife species analyzed.

Activity area-The smallest logical land area where the effect that is being analyzed or monitored is expected to occur. The area may vary in size depending on the effect that is being analyzed or monitored, because some effects are quite localized and some occur across landscapes.

Activity fuel-The combustible material resulting from or altered by forestry practices such as timber harvest or thinning, as opposed to naturally created fuels.

Air quality-The composition of air with respect to quantities of pollution therein; used most frequently in connection with "standards" of maximum acceptable pollutant concentrations.

Allotment (grazing) -Area designated for the use of a certain number and kind of livestock for a prescribed period of time.

Alternative - In an Environmental Impact Statement (EIS) or Environmental Assessment (EA), one of a number of possible options for responding to the purpose and need for action.

Analysis area – One or more areas grouped for purposes of analysis based on common impacts, effects, and social or economic factors.

Aquatic Conservation Strategy (ACS)-
Beneficial use – An actual or potential use that may be made of the waters of the State that are protected against quality degradation. Beneficial uses contained in the State Water Quality Standards include domestic, agricultural, and industrial water supplies, recreation, aquatic life, and salmonid spawning.

Best Management Practices (BMPs) - Practices determined by the State of Idaho Division of Environmental Quality to be the most effective and practical means of preventing or reducing the amount of pollution generated by non-point sources.

Biological Assessment (BA) – A document required by the Endangered Species Act, prepared by the fisheries and wildlife biologists to determine the effects of the proposed project on federally-listed fish and wildlife species, as well as species proposed for federal listing, and designated and proposed critical habitat for listed species. The fisheries and wildlife BAs are usually prepared separately. Each document provides an official determination of effects for each species. Following review by the District Ranger and the Forest fisheries or wildlife biologist, the BA is reviewed by the U.S. Fish and Wildlife Service (FWS), through a process called consultation. The FWS can suggest changes to the project, or concur with the biologists' determinations and mitigations.

Biological Evaluation (BE) – A document required by the Endangered Species Act, prepared by the fisheries and wildlife biologists to determine if there are effects to listed species. If so, then a BA is completed. The BE also is used to determine the effects of the proposed project on Region 4 sensitive species and migratory bird species habitats.

Biological Opinion (BO)- A document resulting from formal consultation that states the opinion of USDI, Forest Service or NOAA fisheries as to whether a federal action is likely to jeopardize the continued existence of listed species or their habitat.

Board foot - A measurement of wood equivalent to a board 1-foot square and 1 inch thick. Usually expressed in terms of thousand board feet (MBF) or million board feet (MMBF).
broadcast burning - Burning forest fuels as they are, with no piling or windrowing.

Candidate species - Plant and animal species being considered for listing as endangered or threatened, under the Endangered Species Act, in the opinion of the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS). Category 1 candidate species are groups for which the FWS or NMFS has sufficient information to support listing proposals; category 2 candidate species are those for which available information indicates a possible problem, but that need further study to determine the need for listing.

Canopy – The more-or-less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Cavity – The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.

Channel stability - The ability of a stream channel to resist the effects of natural and human caused disturbance.

Chain – a measurement of distance equivalent to 66 feet.

Climax conditions --- The highest ecological development of a plant community capable of perpetuation under the prevailing climactic conditions.
coarse woody debris (CWD) - Pieces of woody material having a diameter of at least 3 inches and a length greater than 6 feet (also referred to as large woody debris, or LWD).

Cold water biota--- Animal and plant life that grow best in water temperatures below 18 degrees C.

Commercial thin- Any type of thinning that produces merchantable material at least equal to the value of the direct cost of harvesting.

Condition class – The degree of departure from historic fire regimes and vegetation characteristics. Condition Classes are a method to quantify the amount of area that has uncharacteristic or undesirable fire risk. Condition Class 1 shows no departure from historic fire regimes, Condition Class 2 shows moderate alterations, and Condition Class 3 shows the greatest amount of departure.

Corridor (landscape) - Landscape element that connects similar patches of habitat through an area with different characteristics. For example, streamside vegetation may create a corridor of willows and hardwoods between meadows or through a conifer forest.

Cover type - The current or existing vegetation of an area, described by the dominant vegetation.

Critical Habitat - Endangered Species Act - Designated by the FWS or NMFS, specific areas, within a geographical area occupied by a threatened or endangered species, on which are found physical or biological features essential to conservation of the species. These areas may require special management consideration or protection, and can also include specific areas outside the occupied area that are deemed essential for conservation.

Cultural resources - Cultural resources include sites, structures, or objects used by prehistoric and historic residents or travelers. They are non-renewable resources that tell of life-styles of prehistoric and historic people. Cultural resources within the Forests are diverse and include properties such as archaeological ruins, pictographs, early tools, burial sites, log cabins, mining structures, guard stations, and fire lookouts.

Cumulative effects - Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Current condition- The present condition of a resource or resource area.

Cut slope-- that portion of the slope that is excavated for road construction, trails, landings, or skidtrails.

DBH (diameter at breast height) – Diameter at breast height. The diameter of a tree measured 4 feet 6 inches above the ground.

Decommission - see Road Decommissioning.

Degrade - To degrade is to measurably change a resource condition for the worse within an identified scale and time frame. Where existing conditions are within the range of desired conditions, “degrade” means to move the existing condition outside of the desired range. Where existing conditions are already outside the range of desired conditions, “degrade” means to change the existing condition to anything measurably worse. The term “degrade” can apply to any condition or condition indicator at any scale of size or time, but those scales need to be identified. This definition of “degrade” is not intended to define degradation for the State of Idaho as it applies to their Antidegradation Policy (IDAPA 16.01.02.051).

Demographic - Related to the vital statistics of human populations (size, density, growth, distribution, etc.).

Denning habitat or sites - Habitat and locations used by mammals during reproduction and rearing of their young, when the young are highly dependent on adults for survival.

Desired Condition (DC) - Also called Desired Future Condition, a portrayal of the land, resource, or social and economic conditions that are expected in 50-100 years if management goals and objectives are achieved. A vision of the long-term conditions of the land.

Detrimental soil disturbance(DD)- The alteration of natural soil characteristics that results in immediate or prolonged loss of soil productivity and soil-hydrologic conditions. Detrimental disturbance can occur from soil that has been displaced, compacted, puddled or severely burned.

Disturbance - Any event, such as wildfire or a timber, sale that alters the structure, composition, or function of an ecosystem.

Ecosystem - A naturally occurring, self-maintained system of living and non-living interacting parts that are organized into biophysical and human dimension components.

Ecosystem health - A condition where the components and functions of an ecosystem are sustained over time and where the system’s capacity for self-repair is maintained, such that goals for ecosystem uses, values, and services are met.

Endangered species - Designated by the FWS or NOAA Fisheries, in accordance with the Endangered Species Act, an animal or plant species, or critical habitat, that has been given federal protection status, because it is in danger of extinction throughout all or a significant portion of its natural range.

Endemic – A plant or animal native to the local area.

Environmental Impact Statement (EIS) - A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals significantly affecting the environment. A tool for decision making, it describes the positive and negative effects of the undertaking and cites alternative actions.

Ephemeral stream - A stream or portion of a stream that flows only in direct response to precipitation or run-off events, and that receives little or no continuous water from springs, snow, or other sources. Unlike intermittent streams, an ephemeral usually does not have a defined stream channel or banks, and its channel is at all times above the water table.

Erosion – This includes processes of weathering, solution, corrosion, and transportation of earth and rock materials. Forces involved may be water, ice, wind, and gravity.

Executive Order (EO) - Executive orders are official documents, numbered consecutively, through which the President of the United States manages the operations of the Federal Government.

Fill - Earth or rock moved during road construction and used to build up portions of the roadway.

Fill slope - The sloping earth surface on the downhill side of a road resulting from roadway excavation.

Fine fuels - Cured grasses, leaves, needles, twigs, and small branches that ignite easily and carry fire rapidly.

Firefighter effectiveness – The ease at which firefighters are able to suppress a fire, based on the flame lengths and rates of spread, which are dependent on the fuel loading and horizontal and vertical continuity of the fuels.

Fire regimes - The characteristics of fire in a given ecosystem, including factors such as frequency, intensity, severity, and patch size. The terms used for the different fire regimes are: Group I, II, III, IV, and V. Group I fires are generally of lowest intensity and severity with the smallest patches of mortality, while lethal fires are generally of highest intensity and severity with the largest patches of mortality. The others fall in between.

Fire intensity - The effects of fire on the above-ground vegetation generally described in terms of mortality.

Fire return interval - The average time between wildfires in a given ecosystem.

Fire scar - A healing or healed over injury caused or aggravated by fire, on a woody plant.

Fire severity - Fire effects at and below the ground surface. Describes the impacts to organic material on the ground surface, changes to soils, and mortality of below-ground vegetative buds, roots, rhizomes, and other organisms.

Forage - Plant material (usually grasses, forbs, and brush) that is available for animal consumption.

Forbs - Broadleaf ground vegetation with little or no woody material.

Forest plan – In this document, the Payette National Forest Land and Resource Management Plan (2003).

Forest Vegetation Simulator (FVS)- A model used to compare changes in stand growth, tree mortality, and average diameters over time.

Fragmentation - The splitting or isolation of habitat into smaller patches because of human actions. Habitat can be fragmented by management activities such as timber harvest and road construction, and changes such as agricultural development, major road systems, and reservoir impoundments.

Fuel-- Any substance or composite mixture susceptible to ignition and combustion.

Fuel loading -The weight per unit area of downed woody material (Brown et al. 1982).

Fuels Management Analyst (FMA) Plus- A computer modeling program used to predict and model fire behavior. Inputs include weather conditions, stand data, and fuel models.

Fuel model-A set of numerical values that describe a fuel type for the mathematical model that predicts spread rate and intensity. The parameters that can be varied in a fuel model are: loading, surface area-to-volume ratio, fuel bed depth, and heat content of fuel and moisture of extinction.

Fuel moisture-The amount of moisture in the fuel. Dead fuels can absorb or lose moisture from the air. Small diameter fuels can change in moisture content rapidly, because they have large surface area compared to their volume.

Fuel profile -The properties that describe wildland fuel including chemistry, compaction, continuity, loading, moisture content, and size. The fuel profile consists of aerial fuels as well as surface and ground fuels.

Fuel treatment-The rearrangement or disposal of natural or activity fuels to reduce the fire hazard. Fuels are defined as both living and dead vegetative materials consumable by fire.

Fuelbreak-Areas manipulated for the common purpose of altering surface fuels, decreasing ladder fuels, and reducing tree densities (opening the tree canopy) to reduce the risk of uncharacteristic wildfire and the potential for crown fire (adapted from Agee et al. 1999).

Geographic Information System (GIS) - A computer system that stores and uses spatial (mapable) data.

Goal - As Forest Plan management direction, a goal is a concise statement that helps describe a desired condition, or how to achieve that condition. Goals are typically expressed in broad, general terms that are timeless, in that there are no specific dates by which the goals are to be achieved. Goal statements form the basis from which objectives are developed.

Granitics-- Soils derived from granite. Pertaining to relatively coarse grained, light colored rocks.

Ground cover – All vegetative material within 3 feet of the exposed soil surface as well as any additional litter, rock, and rock fragments that are in contact with the soil surface.

Ground fire –A fire that burns the organic material in the upper soil layer (DeBano et al. 1998).

Guideline - As Forest Plan management direction, a guideline is a preferred or advisable course of action generally expected to be carried out. Deviation from compliance does not require a Forest Plan amendment (as with a standard), but rationale for deviation must be documented in the project decision document.

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Habitat security - The protection inherent in any situation that allows big game to remain in a defined area despite an increase in stress or disturbance associated with the hunting season or other human activity. The components of security may include, but are not limited to: vegetation, topography, road density, general accessibility, hunting season timing and duration, and land ownership. Habitat security is area specific, while hiding cover (see definition below) is site specific.

Habitat type – The aggregate of all areas that support or can support the same primary vegetation at climax.

Harvest - Removal of timber (or a portion of an animal population) to achieve a desired condition.

Herbaceous- Referring to grasses and small annual and perennial plants.

Hiding cover – vegetation capable of hiding 90% of a standing adult ungulate (deer, elk, moose) from the view of a human at a distance equal to or less than 200 feet; generally, any vegetation used by ungulates for security or to escape from danger.

Historical Range of Variability (HRV) - The natural fluctuation of healthy ecosystem components over time. In this document, HRV refers to the range of conditions and processes that likely occurred prior to settlement of the area by people of European descent (around the mid 1800s), and that would have varied within certain limits over time.

Home range – The area that an animal habitually uses during nesting, resting, bathing, foraging, and roosting.

Hydrologic - Refers to the properties, distribution, and effects of water. “Hydrology” is the study of water; its occurrence, circulation, distribution, properties, and reactions with the environment.

Hydrologic Unit Code (HUC) - A hierarchal coding system developed by the U.S. Geological Service to map geographic boundaries of watersheds of various sizes.

ID (Interdisciplinary) team - A team of individuals with skills from different disciplines that focus on the same task or project.

Idaho Batholith - A great mass of intruded igneous rock that is primarily granite and covers much of central Idaho.

Indicator - In effects analysis, a way or device for measuring effects from management alternatives on a particular resource or issue.

Indirect effects-- Impacts caused by an action but occurring later in time or farther removed in distance.

Insignificant effect - An insignificant effect is one that cannot by detected, measured, or evaluated in any meaningful way.

Intermittent stream - A stream or portion of a stream that flows only in direct response to precipitation or seasonal run-off, and that receives little or no water from springs or other permanent sources. Unlike ephemeral streams, an intermittent has well-defined channel and banks, and it may seasonally be below the water table.

Irretrievable commitments- Losses of production or use for a period of time. An example is suited timberland being used for a skidtrail. Timber growth on the land is irretrievably lost while the land is a skidtrail, but the timber resource is not irreversibly lost because the land could grow trees again in the near future.

Irreversible commitments- Permanent or essentially permanent resource uses or losses that cannot be reversed, except in the extreme long term. Examples include minerals that have been extracted or soil productivity that has been lost.

Issue-- A public or agency concern about a specific action or area that is addressed in the NEPA process.

Juxtaposition – The position of being side by side or close together. Relative position of forage, cover, and other important habitat components for big game.

Knutson-Vandenburg Act (KV) - In 1930, Congress passed the Knutson-Vandenburg Act (KV Act) to authorize collection of funds (KV Funds) for reforestation and timber stand improvement on areas cut over following a timber sale. Funds are to be used to protect and improve the future productivity of renewable resources on timber sale areas.

Ladder fuels -Continuous vertical vegetation that connects surface fuels to the crown fuels of overstory trees, forming a ladder by which a fire can spread into tree or shrub crowns (DeBano et al. 1998).

Landform- A natural feature of the land surface such as a mountain, valley, or ridge.

Landing –A location (usually cleared and level) where logs are stored or loaded onto logging trucks for transport.

Landslide prone - Land that has a probability of mass movement greater than or equal to 10% during a period of 100 years.

Landtype - A portion of the landscape resulting from geomorphic and climatic processes with defined characteristics having predictable soil, hydrologic, engineering, productivity, and other behavior patterns.

Landtype associations - A grouping of landtypes similar in general surface configuration and origin.

Level I Maintenance- These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate" all traffic. These roads are not shown on motor vehicle use maps. Roads receiving level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at level 1, they are closed to vehicular traffic but may be available and suitable for non-motorized uses (FSH 7709.59)..

Long-term - For environmental effects, greater than 15 years. See short-term and temporary.

Lop and scatter- When branches are cut from fallen trees and scattered over the area rather than piled for burning. This allows the slash to lie close to the ground to reduce the fire hazard and accelerate decomposition.

Maintain - When used in a management goal or objective for biological and physical resources, “maintain” means to stay within the range of desired conditions.
The context is that resource conditions are already within their desired range, and the expectation is that management actions to achieve goals or objectives maintain resource conditions within their desired range in the planning period.

When used in a standard or guideline for biological and physical resources, “maintain” means that current conditions are neither restored or degraded, but remain essentially the same. The context is that resource conditions may or may not be in their desired range, and the expectation is that maintenance management actions do not degrade or restore current conditions.

This is an important distinction because most goal or objective management actions cannot be designed to achieve desired conditions for all resources. Specific actions are designed to achieve desired conditions for specific resources, but may simultaneously have effects on those or other resources. The intent behind “maintain” when used in a standard or guideline is to keep those effects from degrading resource conditions; i.e., moving conditions from functioning properly to functioning at risk, or making conditions measurably worse when they are currently functioning at risk or not functioning properly. See definitions for “degrade” and “restore” in this Glossary.

For Recreation, Scenic Environment, Heritage, Lands, Special Uses, and Wilderness resources, “maintain” means to continue a current or existing practice, activity, management strategy, resource condition, or level of use.

For physical improvements managed under the Roads and Facilities programs, “maintain” means to keep the road or facility in a usable condition.

For resource inventories, databases, plans, maps, or other documents related to all resources, “maintain” means to periodically update these items to reflect current conditions and/or status.

Management Area - A land area with similar management goals and a common prescription, as described in the Forest Plan.

Management direction – Activities that must be carried out to meet the goals of agency management.

Management Indicator Species (MIS) - Representative species whose habitat conditions or population changes are used to assess the impacts of management activities on similar species in a particular area. MIS are generally presumed to be sensitive to habitat changes.

Management Prescription Category (MPC) - Management prescriptions are defined as, “Management practices and intensity selected and scheduled for application on a specific area to attain multiple use and other goals and objectives” (36 CFR 219.3). MPCs are broad categories of management prescriptions that indicate the general management emphasis prescribed for a given area. They are based on Forest

Service definitions developed at the national level, and represent management emphasis themes, ranging from Wilderness (1.0) to Concentrated Development (8.0). The national MPCs have been customized during Forest Plan revision to better fit the needs and issues of the Southwest Idaho Ecogroup Forests.

Market value – The price that timber and wood products would bring if sold today.

MBF and MMBF – One thousand board feet, and one million board feet, respectively.
merchantable (timber) – Trees or stands of size and quality suitable for marketing and utilization.

Mitigation - Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

Mixed conifer – Stands on the Payette composed primarily of ponderosa pine, Douglas-fir, and grand fir.

Monitoring - The process of collecting information to evaluate if objectives and anticipated results of a management plan are being realized, or if implementation is proceeding as planned.

Mortality (stand)-- The number or volume of trees that died because of fire, insects, disease, climatic factors, or competition from other trees or vegetation.

National Environmental Policy Act (NEPA) - The National Environmental Policy Act of 1969 requires environmental analysis and public disclosure of federal actions.

National Fire Plan (NFP) - Strategic and implementation goals, budget requests and appropriations, and agency action plans to address severe wildland fires, reduce fire impacts on rural communities, and ensure effective firefighting capability in the future.

National Forest Management Act (NFMA) – A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

National Register of Historic Places (NRHP) - A list of cultural resources that have local, state, or national significance maintained by the Secretary of the Interior.

Native species - Animals or plants that originated in the area in which they live. Species that normally live and thrive in a particular ecosystem.

Natural fuel - The combustible material resulting from natural processes and not directly generated or altered by land management practices.

No action (alternative) - The most likely condition expected to exist if current management practices continue unchanged. The analysis of this alternative is required for federal actions under NEPA.

Non-point pollution – Pollution that emanates from diffuse and intermittent sources.

Non-system road (also termed unclassified road or unauthorized road)- Roads on National Forest System lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as trails. Non-system roads also include those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).

Noxious weed - A state-designated plant species that causes negative ecological and economic impacts to both agricultural and other lands within the state.

Objective - As Forest Plan management direction, an objective is a concise time-specific statement of actions or results designed to help achieve goals. Objectives form the basis for project-level actions or proposals to help achieve Forest goals. The time frame for accomplishing objectives, unless otherwise stated, is generally considered to be the planning period, or the next 10 to 15 years. More specific dates are not typically used because achievement can be delayed by funding, litigation, environmental changes, and other influences beyond the Forest's control.

Open road density-- Miles of open road per square mile.

Opening (created) -Related to vegetation management, openings are created only by planned, even-aged, regeneration timber harvesting. Only those even-aged timber harvest practices that reduce stocking levels to less than 10 percent create openings. Canopy closure will normally be used to determine stocking levels. Residual stands of mature trees will generally have less than 10% stocking when fewer than 10 to 15 trees per acre remain following harvest.

Overstory – That portion of the trees, in a Forest of more than one story, forming the upper or uppermost canopy.

Overstory removal-- Removal of most or all of the trees forming the uppermost canopy in a two or multi storied stand. The remaining trees are of good quality and will be managed as the next crop of trees on the site.

Perennial stream - A stream that typically maintains year-round surface flow, except possibly during extreme periods of drought. A perennial stream receives its water from springs or other permanent sources, and the water table usually stands at a higher level than the floor of the stream.

Potential Vegetation Group (PVG) – Potential vegetation types grouped on the basis of a similar general moisture or temperature environment.

Prescribed fire - Any fire ignited by management actions to meet specific objectives.
project area The area that includes a project or proposed activities that are in the planning stages.

Project area- The area bounding all management activities associated with a project. This area is greater than the total acres treated; some analysis of effects to resources may be appropriate at this scale and others may occur at the activity area level and not include the entire project area.

Proposed action - A proposal made by the Forest Service or other federal agency to authorize, recommend, or implement an action to meet a specific purpose and need.

Proposed species- Species that are proposed to the USDI Fish and Wildlife Service for threatened or candidate status.

Proposed endangered-Taxa proposed to be listed as endangered.

Proposed threatened- Taxa proposed to be listed as threatened.

Recontour –Reestablish the natural slope of the land where a road has been located. This may involve pulling the fill material up onto the road surface and/or bringing in material to replace that, which was removed to build the road.

Recreation Opportunity Spectrum (ROS) - A framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences are arranged along a continuum or spectrum divided into six classes--primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban.

Reforestation – The natural or artificial restocking of an area with Forest trees.

Regeneration – The renewal of a tree crop, whether by natural or artificial means. Also, the young crop itself, which commonly is referred to as reproduction.

Restore - For biological and physical resources, restore means to repair, re-establish, or recover ecosystem functions, processes, or components so that they are moving toward or within their range of desired conditions. For the Recreation, Scenic Environment, Heritage, Lands, Special Uses, Wilderness, Roads and Facilities resources, restore means to use management actions to re-establish desired resource conditions.

Revegetation The re establishment of plant cover, either naturally or by manually seeding.

riparian - Relating to the banks of natural watercourses such as rivers or streams.

Riparian Conservation Areas (RCAs) - Portions of watersheds where riparian-dependant resources receive primary emphasis, and management activities are subject to specific goals, objectives, standards, and guidelines. RCAs include traditional riparian corridors, perennial and intermittent streams, wetlands, lakes, springs, reservoirs, and other areas where proper riparian functions and ecological processes are crucial to maintenance of the area's water, sediment, woody debris, nutrient delivery system, and associated biotic communities and habitat.

Ripping - Breaking up a compacted surface to a depth of at least 16 inches.

Road decommissioning - Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1, FSM 7703). Decommissioning in this Environmental Assessment includes the following:

1. Reestablishing former drainage patterns, stabilizing slopes, and restoring vegetation;

2. Removing culverts, reestablishing drainages, removing unstable fills, pulling back road shoulders, and scattering slash on the roadbed;

3. Completely eliminating the roadbed by restoring natural contours and slopes

Road maintenance - The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective.

Road reconstruction - Activity that results in improvement or realignment of an existing classified road as defined below:

Road improvement – Activity that results in an increase of an existing road's traffic service level expansion of its capacity, or a change in its original design function.

Road realignment – Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).

Sawtimber -Trees containing at least one 8-foot sawlog with a top diameter of 6-inches and meeting regional specifications for freedom from defect.
scale - Defined in this framework as geographic extent; for example, region, sub-regional, or landscape scale.

Scarification -- Exposing or roughing mineral soil surface for better seed germination.

Scoping - The process the Forest Service uses to determine, through public involvement, the range of issues that the planning process should address.

Seasonally closed (seasonal road closure) - Roads closed to motorized use on a seasonal basis (e.g., closed during hunting season).

Section 106 review- A review required by the National Historic Preservation Act to determine effects of a federal action on cultural resources.

Section 7 Consultation Consultation required by the Endangered Species Act with the appropriate jurisdictional agency for a listed species.

Sediment - Any solid material (mineral and organic) that has been moved to a water body and is being transported or has been deposited.

Sensitive species - A Forest Service or BLM designation, sensitive plant and animal species are selected by the Regional Forester or the BLM State Director because population viability may be a concern, as evidenced by a current or predicted downward trend in population numbers or density, or a current or

predicted downward trend in habitat capability that would reduce a species' existing distribution. Sensitive species are not addressed in or covered by the Endangered Species Act.

Seral - The unique characteristics of a biotic community that is a developmental, transitory stage in an orderly ecological succession involving changes in species, structure, and community processes with time.

Short term - For environmental effects, greater than 3 to 15 years. See temporary and long term.

Short-term road closure – Roads placed in maintenance level 1 and closed to vehicular traffic for greater than one year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level, and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

Silvicultural prescription - The method selected to manage a forest stand. Silvicultural prescriptions are broken into broad types, including even aged and uneven aged. Even aged prescriptions include clearcut, seed tree, and shelterwood. Uneven aged prescriptions include individual tree selection and group selection. Other non regeneration prescriptions include thinning and sanitation/salvage cuttings.

Silviculture - The care and tending of stands of trees to meet specific objectives.
site potential tree height - For delineating RCAs, a site potential tree height is the height that a dominant or co-dominant tree within a stand is expected to attain at an age of 200 years. Outside of RCAs, a site potential tree height is the average height that the dominant or co-dominant tree within a stand will attain within 100 years.

Site preparation – A general term for removing unwanted vegetation, slash, roots, and stones from a site before reforestation.

Skid trail - A route used by loggers to drag logs from stump to landing.

Skidding – A loose term for hauling trees by sliding, not on wheels, from stump to roadside, deck, skidway, or other landing.

Skyline logging - A logging system using steel cable, a tower, and a powered winch to elevate logs from their position in the woods and carry them suspended to a point where they can be loaded on to trucks.

Slash - The residue left on the ground after timber cutting and/or accumulation as a result of storm, fire, or other damage. It includes logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

Slash filter windrow-- Woody debris placed along a slope to trap and hold sediment coming off a hill or road above.

Snag - standing dead tree.

Soil compaction – Where one or more of the following conditions occurs in relation to natural: a 50% reduction in macropore space; less than 15% macropore space, total; 15% increase in soil bulk density; or a 40% reduction in hydraulic conductivity.

Soil erosion - Soil erosion is the detachment and transport of soil particles or aggregates by wind, water, or gravity. Management practices may increase soil erosion hazard when they remove ground cover and detach soil particles. .

Soil productivity - Soil productivity includes the inherent capacity of a soil under management to support the growth of specified plants, plant communities, or a sequence of plant communities. Soil productivity may be expressed in terms of volume or weight/unit area/year, percent plant cover, or other measures of biomass accumulation.

Species composition-- The different tree species within a stand, usually expressed as a percentage within each age class.

Stand - An aggregation of trees or other vegetation occupying a specific area and sufficiently uniform in composition (species), age arrangement, and condition as to be distinguishable from the Forest or other vegetation of land cover on adjoining areas.

Stand density-- A measure of how crowded a stand is. Measures of density include: trees per acre, square feet of basal area, stand density index (SDI), and percent of maximum SDI.

Stand initiation - A stage of stand development following a disturbance when new individuals and species continue to appear for several years (Oliver and Larson 1996).

Stand structure-- The different sizes and ages of trees within a stand.

Standard - As Forest Plan management direction, a standard is a binding limitation placed on management actions. It must be within the authority and ability of the Forest Service to enforce. A project or action that varies from a relevant standard may not be authorized unless the Forest Plan is amended to modify, remove, or waive application of the standard.

State Historic Preservation Officer (SHPO) - A person appointed by a state's Governor to administer the State Historic Preservation Program.

Strata - Groups of stands that are relatively homogeneous in age, productivity, and density.

Structure - The size and arrangement, both vertically and horizontally, of vegetation.

Stumpage - Value of timber as it stands uncut in the woods

Substrate - The composition of a streambed, including mineral and organic materials.

Subwatershed - An area of land that drains to a common point. A subwatershed is smaller subdivision of a watershed but is larger than a drainage or site. Subwatersheds are often synonymous with sixth-field hydrologic units, which are nested within larger watersheds (fifth-field units), and are comprised of smaller drainages, sites, and stream reaches.

Succession - The replacement in time of one plant community with another. The prior plant community (or successional stage) creates conditions that are favorable for the establishment of the next stage. These changes often occur in a predictable order. More specifically, the gradual and natural progression in composition and structure of an ecosystem toward a climax condition or stage.

Successional stage – A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax.

Summer range-- The area essential for big game to carry out their reproductive cycles.

Surface erosion-- The wearing away of the land surface by running water or wind.

Surface fire - A fire that burns only surface fuels (DeBano et al. 1998).

Sustainability-- The ability to maintain a desired condition or flow of benefits over time.

System roads - (also termed classified roads) Roads wholly or partially within or adjacent to national Forest System lands that are determined to be needed for long-term motor vehicle access. System roads can include state roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service.

Temporary- For environmental effects, 0 to 3 years. See short-term and long-term.

Temporary road - Roads authorized by contract, permit, lease, other written authorization, or emergency operation, that are not intended to be a part of the forest transportation system, that are not necessary for

long-term resource management, and that is not a forest road or a forest trail and that is not included in a forest transportation atlas (36 CFR 212.1).

Thinning - A cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality (Helms 1998). Types of thinning include the following: Crown thinning - the removal of trees from the dominant and codominant crown classes in order to favor the best trees of those same crown classes- synonym thinning from above. Free thinning - The removal of trees to control stand spacing and favor desired trees, using a combination of thinning criteria without regard to crown position. Low thinning - The removal of trees from the lower crown classes to favor those in the upper crown classes – synonym thinning from below.

Threatened species - Designated by the FWS or NOAA Fisheries, in accordance with the Endangered Species Act; a plant or animal species, or critical habitat, given federal protection, because it is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

Timber sale contract-- The binding document between the Forest Service and timber purchaser that states, among other things, how the sale will be logged.

Timber Stand Improvement (TSI)- An intermediate treatment made to improve the composition, structure, condition, health, and growth of even or uneven aged stands.

Total Maximum Daily Load (TMDL) - TMDL is the sum of waste load allocations for point sources, non-point sources, natural background, and a margin of safety. A TMDL specifies the amount of a pollutant that needs to be reduced to meet water quality standards set by the state. TMDL is used in a process to attain water quality standards that (1) identifies water quality problems and contributing pollutant sources, (2) allocates pollution control responsibilities among sources in the watershed, and (3) provides a basis for taking actions needed to restore a water body.

Total Soil Resource Commitment (TSRC) – A measure of how much land in a project area is converted to a non-productive condition for 50 years or more. Examples are permanent skidtrails, landings, roads, campgrounds, administrative sites, and recreational trails.

Tractor logging – Any logging method, which uses a tractor as the motive power for transporting logs from the stumps to a collecting point – whether by dragging or carrying the logs.

Unauthorized Road or Trail (see non-system road)- A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas (36 CFR 212.1).

Uncharacteristic wildfire - A fire that is burning in a way that does not emulate historical effects. This may include fire intensity, severity, size, and landscape patterns.

Underburn-- A light broadcast burn under an existing forest canopy. A fire prescribed to reduce fuels without damaging existing trees.

Understory-- The trees and other woody species growing under a more-or-less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Viability- The ability of wildlife or plant populations to maintain a sufficient size so that it persists over time in spite of normal fluctuations in numbers. Viability is usually expressed as a probability of maintaining a specific population for a specified period.

Viable population - A population that is regarded as having the estimated numbers and distribution of reproductive individuals to ensure that it will continue to exist over time and will be well distributed within a given area.

Visual Quality Objective (VQO) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape. The categories include Preservation, Retention, Partial Retention, Modification, and Maximum Modification.

Water quality - Refers to the chemical, physical, or biological characteristics that describe the conditions of a river, stream, or lake.

Water Quality Limited Segment (WQLS) - A stretch or area of surface water where technology-based controls are not sufficient to prevent violations of water-quality standards. In such cases, new permit limitations are based on ambient-water-quality considerations.

Waterbar- An earthen barrier across a road or skidtrail used to divert water and reduce erosion. It is usually designed to allow limited vehicle passage.

Watershed - The entire land area that contributes water to a drainage system or stream.

Watershed Condition Indicator (WCI) - WCIs are an integrated suite of aquatic (including biophysical components), riparian (including riparian –associated vegetation species), and hydrologic (including uplands) condition measures that are intended to be used at a variety of watershed scales. They assist in determining the current condition of a watershed and should be used to help design appropriate management actions, or to alter or mitigate proposed and or ongoing actions, to move watersheds toward desired conditions. WCIs represent a diagnostic means to determine factors of current condition and assist in determining future conditions associated with implementing management actions or natural restoration over time.

Wetlands - Land areas that are wet at least for part of the year, are poorly drained, and are characterized by hydrophytic vegetation, hydric soils, and wetland hydrology. Examples of wetlands include swamps, marshes, and bogs.

Whole-tree yarding – Method of tree harvest where felled trees are yarded or skidded to landing locations with top and limbs intact. Trees are then delimbed, topped, and bucked at the landing and associated slash is then treated at the landing.

Wildland fire or wildfire - Any fire not involving a home or other structure, other than prescribed fire, that occurs in the wildland.

Wildland/Urban Interface (WUI) - The line, area, or zone where structures and other human developments meet or intermingle with undeveloped wildland or vegetative fuel.

Yarding – The operation of hauling timber from the stump to a collecting point.

C. Modeling Forms

BOISED Modeling Assumptions for the Crooked River Vegetation Managementt Project
Melanie Vining, Hydrologist, February 12, 2009

THE BOISED MODEL

MODELING PROGRAM: BOISED is an operational sediment yield model used by the Boise and Payette National Forests to evaluate alternative land management scenarios. BOISED is a local adaptation of the R1/R4 sediment yield model developed by the Northern and Intermountain Regions of the U. S. Forest Service for application to forested watershed associated with the Idaho Batholith (Reinig et al. 1991). The model predicts changes in erosion over time and adjustments are made to fit the model to geologic parent materials other than granitics.

PURPOSE OF THE MODEL: BOISED can provide an estimation of on-site erosion and produces quantified estimates of average annual sediment yields for the undisturbed condition, past activities, and activities proposed in the future. The model can be used to predict natural sediment rates and sediment yield increases that may result from road construction, timber harvest, and forest fires. BOISED models dominant erosion processes, including surface and mass erosion, for each landtype in a watershed to provide estimates of natural sediment yields for undisturbed watersheds and sediment yields resulting from management activities.

METHODOLOGY: The user develops a data input file that contains acres for each landtype, harvest units, and large fires, and miles of roads within each subwatershed of an analysis area. Harvest units, large fires, and road miles must be stratified by landtype. Harvest units must also be stratified by harvest method and yarding method, and include year of harvest. Fire data must also be stratified by burn intensity and include date of fire. Road miles are further stratified by construction activity (i.e., new construction, light reconstruction, heavy reconstruction, reclaimed), level of use (e.g., open, closed, etc.), and needs to include road gradient and year of original construction. Data is generally obtained from Geographic Information System (GIS) coverages based on field observations.

ASSUMPTIONS: The Boise National Forest Modified WRENS (Water Resources Evaluation of Non-point Silvicultural Sources) Procedure was applied to all landtypes on the Boise National Forest to generate a list of natural sediment yields and geologic erosion factors for the BOISED sediment yield model. Arnold (1988) completed estimates for natural sedimentation rates and geologic erosion factors for landtypes that exist on parent geologies other than the granitics of the Idaho Batholith, including those on the Payette National Forest.

Basic erosion rates for road construction and road management were estimated based on the relative amount of soil disturbance compared to new construction.
Sediment from logging, fire, and roads is delivered to the stream system the same year erosion occurs. Not all sediment is necessarily delivered to streams, nor is it necessarily delivered in the same year as erosion occurs.

LIMITATIONS: The BOISED program is intended to be used within small forested watersheds approximately 1 to 50 square miles (32,000 acres) in size.
The BOISED model simplifies for analysis an extremely complex physical system and was developed from empirical data supplemented by extrapolation based on professional judgment and our current understanding of erosion and sediment transport processes on forested lands (Potyondy et al. 1991).
It is inappropriate to use the model as a highly reliable predictor of absolute quantities of sediment delivered to streams at specific times. It is only appropriate to use model results for comparison of alternative management scenarios within a watershed (Potyondy and Burton 1992).

BOISED model outputs have error bands of at least plus or minus 100 percent and they might be as high as plus or minus 250 percent (Potyondy and Burton 1992).

Sediment yield increases, which differ by more than 20 percent, are probably different enough in terms of relative land disturbance to be observable on the ground (Potyondy and Burton 1992).

The geomorphic threshold is based on watersheds sampled on the Clearwater National Forest and has never been field tested on the Payette National Forest, therefore that portion of the model's output should not be applied on this Forest (Potyondy and Burton 1992). The sediment routing component is cited as "the weakest part of the model" and also should not be applied on this Forest (Potyondy and Burton 1992). The routing coefficient is a very broad based value derived for the average of many stream systems and may not accurately reflect sediment transport characteristics of the particular stream system in question (Reinig et al. 1991).

STRENGTHS: The BOISED model is based on sound research data and produces results that accurately reflect our understanding of how real world erosional processes work. The model correctly depicts relative proportional differences between disturbed and undisturbed conditions for scenarios of proposed land-disturbing activities. Alternatives with large amounts of on-the-ground land disturbance have higher modeled sediment yields than alternatives with little land disturbance (Potyondy and Burton 1992).

DATA STORAGE: Data files are stored electronically on the hydrologist's computer hard drive and in hard copy with each project record. BOISED output can be reproduced at any time, provided the data input file and the BOISED software is available, so it is not necessary to retain copies electronically or in hard copy format.

OUTPUT: Output data from the BOISED model that are recommended for use on the Payette National Forest are as follows:

Natural Sediment Yield – A table listing each landtype within the watershed and the respective acres, square miles, natural sediment yield, total landtype natural sediment yield, average landtype slope, surface and mass sediment delivery ratios, and the geologic erosion factor assigned to each landtype. Average natural sediment yield – the total natural sediment rate divided by the square miles within the watershed (tons/square mile/year).

Average natural sediment yield to the critical reach – the total natural sediment rate to critical reach divided by the square miles within the watershed (tons/square mile/year).
Timber Harvest Sediment Yield – estimated sediment production from logging for each of the first three decades following the specified current year.

Fire Sediment Yield – estimated sediment production from fire for each of the first three decades following the specified current year.

Roading Sediment Yield - estimated sediment production from road construction activities for each of the first three decades following the specified current year.

Sediment Yield Summary Table – This is the most useful output for most users. It summarizes sediment yield from all sources for 10 years prior to implementation of the current project and 10 years post-implementation in one table. Total average annual sediment yield for each activity (i.e., logging, fire, roading) in tons per year is listed. Total Management-Induced Sediment at Mouth – this is the Total Delivered Sediment multiplied by the routing coefficient from page one of the output data. Annual

Percent Increase Over Natural Sediment – this displays the projected sediment yield for any single year. Three-year Running Mean Percent Increase Over Natural Sediment – this is the column typically displayed to compare sediment yield from different management scenarios.

References for the BOISED model:

Arnold, J. F. 1988. A Procedure For Estimating Natural Sediment Yields And Geologic Erosion Factors For The Boise National Forest. Boise National Forest, Boise, Idaho.

Potyondy, J. P., and T. Burton. 1992. Pages 3-5 *in* Guidelines for the use of the BOISED Sediment Yield Model and the fisheries habitat condition index (HCI) in forest plan implementation on the Boise National Forest. Draft document. USDA Forest Service, Boise National Forest, Boise, Idaho.

Reinig, L., R.L. Beveridge, J.P. Potyondy, F.M. Hernandez. 1991. BOISED User's Guide and Program Documentation Version 3.0.1. Boise National Forest. 1991.

Area of Analysis
The Crooked River subwatershed – 14,980 acres (~24 square miles) were chosen as the area for sediment analyses as they encompass the proposed actions, drainage area above project area, and the critical reach at the lower end of the project area (Figure 1 in report body). The area analyzed is within the recommended limits of the model (1-50 square miles).

Road Assumptions

- All roads were characterized as moderate gradient (between 5-10%)
- Existing condition run based on BOISED default values
- Road construction and reconstruction occurs in 2009
- Temporary roads built in 2009 and reclaimed in 2015
- Constructed roads become closed roads in 2015
- Reconstructed roads return to existing use in 2015
- Road decommissioning occurs in 2011

Roads were categorized for input to BOISED as follows:

- Roads were labeled using the last five digits of the road number.
- For roads with 2 lines of input variables, the upper line is the existing condition and lower line denotes coefficients used to model proposed activities.
- Road use was coded as heavy, light, closed, or decommissioned
- Road mitigation coefficients were entered using numerical codes for the following factors, which can help reduce sedimentation from roads.

Road Mitigation Coefficients

Heavy Road Reconstruction - Incorporates slash windrows along base of fill slopes and gravel road surface within 200 feet of streams, road re-alignment (inslope to outslope where feasible).

Road Segment	% of Total Area	Activity	Activity Reduction	Total Reduction
Cut Slope	55	None	0	0.15 * 0 = 0
Fill Slope	25	Slash windrow	80%	0.25 * 80 = 20
Tread	20	Gravel	80%	0.20 * 80 = 16
Totals	100	Weighted Average		36%
		Erosion Mitigation Factor		0.64

Road Obliteration - Incorporates ripping the road tread, partial to full recontour, scatter slash for 50% effective cover, slash/mulch/logs or silt fence at perennial stream crossings, seed and fertilizer.

Road Segment	% of Total Area	Activity	Activity Reduction	Total Reduction
Cut Slope	55	Recontour/slash/seed	95%	0.55 * .95 = 52
Fill Slope	25	Recontour/slash/seed	95%	0.25 * 95 = 24
Tread	20	Recontour/slash/seed	95%	0.20 * 95 = 19
Totals	100			95%
		Erosion Mitigation Factor (by 3rd year after obliteration)		0.05

Road Gravelling- Adding a gravel tread to an existing native surface road

Road Segment	% of Total Area	Activity	Activity Reduction	Total Reduction
Cut Slope	55	None	0	0.55 * .0 = 0
Fill Slope	25	None	0	0.25 * 0 = 0
Tread	20	Gravel	80%	0.20 * 95 = 16
Totals	100			16%
		Erosion Mitigation Factor (upon application of gravel surface)		.84

New Road Construction -Incorporates gravel within 200 feet of streams, slash filter windrows on fill slopes, slash/mulch/seed and fertilizer or hydromulch on cut and fill slopes.

Road Segment	% of Total Area	Activity	Total Reduction
Cut Slope	15	½ to 1 Slope/Mulch/seed	0.15 * 30 = 4.5
Contributing Area	40	Netting/seed mulch/filter	0.40 * 80 = 32
Fill Slope	25	Filter/windrow	0.25 * 80 = 20
Tread	20	Gravel	0.20 * 80 = 16
Totals	100	Weighted Average	73%
		Erosion Mitigation Factor	0.27

Research references for mitigation coefficients:

Burroughs Jr., Edward R., John G. King. 1989. Reduction of Soil Erosion on Forest roads. USDA Forest Service Research Paper INT-264. 19 pages.

Reinig, L. 1991. BOISED User's Guide and Program Documentation. Boise National Forest, Boise, Idaho.

Harvest Assumptions

- Harvest activities completed in 2009 (anticipated late summer-winter)
- All harvest modeled using information from the vegetation prescription for each unit, which was obtained from the Timber Management Assistant
- Jammer/cable harvest modeled as cable harvest
- Other harvest methods modeled include skyline, tractor and helicopter (aerial)

Prescribed Fire Assumptions

- Prescribed burning implemented in2010.
- All fire modeled as low intensity

Model Form - Fuels Management Analyst (FMA) Plus, CrownMass

MODELING PROGRAM: Fuels Management Analyst (FMA) Plus (Fire Program Solutions/Acacia Services. 1999-2007. Fuels Management Analyst (FMA) Plus 3 Release 3.0.6 – Crown Mass: Assessment of Potential Fire Behavior: Release 3.0.37).

PURPOSE OF THE MODEL: This model was used in this analysis to predict potential fire behavior. The outputs, from FMA+3 Crown Mass Module that were used in this analysis were the predicted flame length and fire type.

METHODOLOGY: The CrownMass program uses canopy base height and canopy bulk density characteristics coupled with surface fuel profile, topographic, and environmental information to facilitate the estimation of surface fire behavior, potential crown fire involvement, and first order fire effects (Carlton 2005). Canopy base height, canopy bulk density, surface fuel profile, topographic, and environmental information are all inputs that are based upon user defined fields. CrownMass contains algorithms to display the following fire behavior and fire effects values based on the work of Alexander (1988), Ryan and Reinhardt (1988), Beukema et al. (1999) Rothermel (1972), Andrews (1986), Andrews (1989) and Finney (1998) (Carlton 2005).

ASSUMPTIONS: The fire behavior calculations are provided for assessment purposes to aid in the comparison of different fuel profiles that might exist naturally or be created via management actions. The fire behavior and fire effects outputs are based upon user defined inputs. The following assumptions were used when entering user defined fields:

Canopy Base Height(CBH) & Canopy Bulk Density(CBD) – field collected data and ocular estimates were used for the initial entry of stand data that Crown Mss uses to calculate CBH & CBD. For outyear projections, an approximate average growth per year of 0.15 inches in diameter and one foot in height was used. Some ingrowth was also assumed to occur. For treated stands, estimations of trees per acre were based upon discussions with the project silviculturalist. CBH was estimated based upon a predicted prescribed fire for stands in which prescribed fire is a part of the proposal.

Environmental Conditions – The environmental conditions used for modeling were based on the Weiser River RAWS data from 1999-2008 retrieved from KCFast. Only the months representative of a typical fire season were used in the calculations (May-October). 90the percentile weather conditions were used for non-WUI areas and 97th percentile weather conditions were used for WUI areas. Changes to environmental conditions for outyear projections were made to the wind adjustment factor and fuel shading, based upon expected changes from management activities and natural succession.

Fuel Profile – The user defined fuel profiles were based on ocular estimates. Outyear projections were adjusted based on professional knowledge and experience. These changes included considerations of management actions and natural succession.

Topography – Topography for modeling was projected to be less than 30%. This was left constant for all modeling so that effects to fire behavior from differences in stand characteristics and fuel profiles could be compared.

DATA STORAGE: Inputs/outputs for modeling runs are found in the fuels project record.

LIMITATIONS: The predicted fire behavior is based upon user defined inputs of canopy base height, canopy bulk density, surface fuel profile, topographic, and environmental information. The fire behavior calculations are provided for assessment purposes to aid in the comparison of different fuel profiles that might exist naturally or be created via management actions (Carlton 2005).

OUTPUT: Model outputs used in the analysis for this project included:

1) Flame length &
2) Resultant Fire Type.

Flame length is calculated from surface fire intensity.
There are three possible ***resultant fire types*** predicted in CrownMass:

- *Surface Fire*
- *Passive Crown Fire*

- *Active Crown Fire.*

Surface fire is one that burns only in the surface fuelbed. ***Passive Crown Fire*** is traditionally called "torching". It is small scale, consuming single or small groups of trees of bushes. This stage of a crown fire reinforces fire the spread of a fire, but the main fire spread is still dependent upon surface fire behavior. ***Active Crown Fire*** is associated with a "pulsing spread. The surface fire ignites crowns and the fire spread is able to propagate through the canopy. After a distance, the crown fire weakens due to a lack of reinforcing surface fire heat. When the surface fire catches up to where the crown fire died, the surface fire intensity again initiates a crown fire "pulse".

PREPARER: Paul Klasner/Fuels Specialist **DATE:** March 2009

Model Form - Fuels Management Analyst (FMA) Plus, CrownMass

MODELING PROGRAM: Fire Regime Condition Class Software Analysis – Standard Landscape Method

PURPOSE OF THE MODEL: This model was used in this analysis calculate the Fire Regime Condition Class (FRCC) and the corresponding departure from reference conditions.

METHODOLOGY: The FRCC software uses user defined inputs for reference conditions. These reference conditions are then compared to user defined inputs of conditions on the landscape at a given point in time. The inputs used in the calculation include: strata; strata percent composition; current fire frequency; reference fire frequency; current fire severity; reference fire severity; current percentage of each succession class; reference percentage of each succession class. The Interagency Fire Regime Condition Class Guidebook – Version 1.3.0 – January 2008) was used when inputting data and explains the process.

ASSUMPTIONS: The reference conditions used for this analysis were based upon Appendix A of the Forest Plan. See Reference Conditions section below. Breaks between "open" and "closed" succession classes were based upon the Forest Plan.
Strata and Strata % Composition – were based upon PVGs in the project area. The PVG was assigned by the project silviculturalist.
Fire Frequency –was based upon field estimations, fire history records, and professional judgment.
Fire severity – was based on FMA+3 modeling results and professional judgment.
Percentages of Succession Class- were based upon strata assignments made by the project silviculturalist. The strata were converted to succession class based upon the table provided below in the Reference Conditions section.

DATA STORAGE: Inputs/outputs for modeling can be found in the fuels project record.

LIMITATIONS: FRCC and landscape departure are based on user defined inputs, therefore the resulting outputs from this process are based upon professional judgment and experience.

OUTPUT: Model outputs used in the analysis for this project included:

1) FRCC &
2) Landscape departure.

Definitions of these outputs can be found in the Interagency Fire Regime Condition Class Guidebook – Version 1.3.0.

PREPARER: Paul Klasner/Fuels Specialist **DATE:** March 2009

REFERENCE CONDITIONS:
The following table are the reference conditions used for FRCC Analysis.

Reference Condition Characteristics for Forested PVGs on the Payette National Forest

(12/11/2008)

These Reference Conditions are based upon Desired Future Conditions documented in the PAF-LRMP Appendix A. Midpoint values were used.
This chart summarizes the Desired Future Conditions outlined in the Forest Plan for PVGs in all MPCs except for 5.2. DFCs are based upon HRV from Morgan and Parson.

Succession Class (S-Class)

Potential Vegetation Group (PVG)[1]	CODE[1]	A: Early Seral[1]	B: MidSer - Closed[1]	C: MidSer - Open[1]	D: LateSer - Open[1]	E: LateSer - Closed[1]	U: Uncharacteristic[10]	Fire Freq (MFI)[2]	Dominant Fire Regime[2]	Repl. Fire %[3]
1 - Dry Ponderosa Pine / Xeric Douglas-fir	PVG1	9	2	15	67	7	>70% CC	15	I	10
2 - Warm, Dry Douglas-fir / Moist Ponderosa Pine	PVG2	6	3	14	65	12	>70% CC	16	I	10
3 - Cool, Moist Douglas-fir	PVG3*	9	26	5	9	51	>70% CC	36	III	30
4 - Cool, Dry Douglas-fir	PVG4	14	27	2	4	53	>70% CC	62	III	30
5 - Dry Grand Fir	PVG5	5	12	6	27	50	>70% CC	20	I	20
6 - Moist Grand Fir	PVG6	8	24	3	7	58	>70% CC	62	III	30
7 - Warm, Dry Subalpine Fir	PVG7	11	32	3	4	50	>70% CC	70	III	60
8 - Warm, Moist Subalpine Fir	PVG8	16	14	21	30	19	<39% CC	120	V	90
9 - Hydric Subalpine Fir	PVG9	14	12	19	34	21	<39% CC	200	V	90
10 - Persistent Lodgepole Pine	PVG10**	20	6 (8)	54 (72)	18 (0)	2 (0)	<39% CC	120	IV, V	90
11 - High Elevation Subalpine Fir (with whitebark pine)	PVG11**	12	32 (81)	3 (7)	4 (0)	49 (0)	>70% CC	47	III	60

[1] - Based on Appendix A of PAF LRMP (2003)

[2] - Based upon Ecosystem Diversity Matrix and Appendix A of PAF LRMP

[3] - Based upon email from Kathey Geier-Hayes (4/23/2008).

[10] - CC=Canopy Closure. This is based upon Table A-5 in the PAF-LRMP Appendix A.

* - Not common on the PAF

** - Values in parenthesis may be more representative and were derived by combining B+E and C+D

The following table was used to convert the project silviculturalists existing strata and strata projections to succession classes (S-Class) for use in the FRCC Standard Landscape Departure Method. For descriptions of strata and how they were derived, the project silviculturalist provided strata information for each stand (both pre and post treatment) descriptions of strata can be found in the "Payette National Forest Strata" book (a copy of this can be found in the fuels project record).

Conversion Table (for PVGs 1-7 & 11)	
S Class	**Strata**
A - Early Seral	20, 29, 70
B - Mid Seral Closed	22, 32, 34
C - Mid Seral Open	21, 30, 33
D - Late Seral Open	25, 41
E - Late Seral Closed	24, 26, 42
U - Uncharacteristic	23, 35, 60, 61

Conversion Table (for PVGs 8-10)	
S Class	**Strata**
A - Early Seral	20, 29, 30, 32
B - Mid Seral Closed	35
C - Mid Seral Open	22, 34
D - Late Seral Open	24, 26, 42
E - Late Seral Closed	23
U - Uncharacteristic	21,25,33,41

D. Cumulative Effects

Table D-1 Actions That May Be Considered in the Cumulative Effects Analysis for the Crooked River Vegetation Management Project

Action	Description	Date
	Past	
Timber harvest on National Forest System land	The area considered for cumulative effects for this action is the Wildhorse 5th level hydrologic unit (HU). The Wildhorse Watershed encompasses 102,433 acres within the national forest boundary. There are 62,064 acres of forested land in the watershed. There are 13,586 acres of private land within the watershed. Of the 88,848 acres of national forest land in the watershed about 58,035 acres are forested. Approximately 26,510 (46%) of those forested acres have been managed in the past. Around 45% of this management was intermediate silvicultural treatments (partial cuts) and the remainder was regeneration treatments (clearcuts and shelterwood cuts). The most recent project occurred 2007 in the Bear Creek subwatershed (tributary to the Wildhorse River) where blow down caused by a tornado was salvaged followed by burning of activity fuels on approximately 1,800 acres. Timber harvest occurred on an estimated 5,675 acres of NFS lands within the Crooked River 6th field HU between the 1950's and 1990's. Included in the above harvest acres are numerous past timber sales (TS) and salvage sales (SS) in the **project area** including: Crooked River (1957, 1963), Deer Creek (1965), Coyote Gulch (1966), Dick Ross Cr. Salvage (1968), Crooked River Point (1969), Gladheart Gulch (1969), Rogers Exchange 80 (1971), Fizz Fuzz (1974), Moonshine (1974), Spring Creek (1974), Derrick Creek (1977), Ethel May (1977), Wanda Ilene (1977), Bear Telephone (1978), Coyote Gulch (1978), Ditch Creek (1980), Ditch Creek (1980), Paradise Flat (1982), Upper Crooked River (1983), Ski Trail Salvage (1986), Chipmunk Springs (1987), Clifton Springs (1989), Lafferty Salvage (1991), Thorn Creek (1996), Grand Fry Salvage (Unknown), State Sec 36 (Unknown), and several unnamed sales from 1950 to 1967 totaling 393 acres.	1950's to 1990's
Timber harvest on Private land	There are 13,586 acres of private land in the watershed of which about 4,030 acres are forested. About 2,170 (54%) of those forested acres have been managed using various cutting methods. About 57% of this management was intermediate silvicultural treatments (partial cuts) and the remainder was regeneration treatments (clearcuts).	Early 1900's to present
National Forest System roads	While some limited road building likely occurred between 1930's-1960, the majority has been in conjunction with past timber harvest starting in the 1960's.	1930's to 1960s.
Fire Suppression	Active fire suppression since the 1930's has likely limited the number and extent of wildland fire and associated effects on vegetation structure, composition and function across the area.	1930's -present
Fires	There have been no large fires within the watershed in recent history.	1944-present
Livestock management	Cattle and sheep grazing have occurred throughout the area since the late 1800's.	Late 1800's-present

Table D-1 Continued

Action	Description	Date
	Present and/or Ongoing	
Timber harvest/Precommercial Thinning/Prescribed Fire/Reforestation on National Forest	The area considered for cumulative effects for this action is the Wildhorse 5th level hydrologic unit (HU). Stage Stop II commercial thinning and prescribed fire on 33 acres adjacent to private land. Commercial thinning is complete and burning continues. Idaho Power transmission line (Oxbow-McCall) corridor maintenance includes ongoing clearing of trees and brush. Trees that are cut within the 100 ft corridor and of commercial size may be harvested. Lick Creek Vegetation Management Project (possible implementation in 2009) will involve mechanically thinning approximately 982 of which 443 acres would benefit northern Idaho ground squirrel. Lick Creek is a tributary to Bear Creek. Summit Gulch Vegetation Management Project (possible implementation in 2009) in the Bear Creek subwatershed would implement thinning on approximately 889 acres and prescribed burning on 2061 acres and improve habitat for northern Idaho ground squirrel. In 2009 and 2010 reforestation will occur on approximately 300 acres of the Bear Tornado Recovery Project. The Green Hornet Hazardous Fuels Reduction Projects is outside of the Widlhorse Watershed, but lies approximately 2 miles south of the Crooked River Vegetation Management Project area. The project involves mechanical thinning and prescribed fire on 570 acres and thinning by hand in 100 acres of riparian area.	Ongoing
Timber harvest on Private land	The reasonably foreseeable actions on private land in the Wildhorse Watershed include additional harvest treatments in the easily accessible areas, precommercial thinning in the regeneration treatment areas, and fuel reduction treatments around structures.	Ongoing
Travel Management Plan	The recent Travel Management Plan Decision (signed February 2009) eliminated cross-country motorized travel from areas previously open (C, D and E areas on 1995 Travel Map), closed unauthorized roads that may have been travelable with ATV or full size vehicles, increased the miles of motorized trails available for ATV use, and within the Crooked River area opened previously closed system roads to seasonal use.. The Decision had no effect on winter use.	February 2009
ATV and other motorized use	Future motorized use on designated roads and trails only. No cross-country travel would be permitted. Levels of unauthorized use would decrease with increased education and public awareness of travel management designations.	Ongoing
Forest Trails	Management of forest trails including brush and tree clearing, erosion work, route signing and maintenance.	Ongoing
Recreation Use on NFS Lands	Camping at Lafferty Developed Campground and numerous dispersed camp sites (June-October) with associated hiking, ATV/OHV, fishing and hunting activities. Hunting in the spring (bear, turkey) and fall (big game) months. Fishing during the spring, fall and summer. Snowmobiling from December-March.	Ongoing
Water Diversions	Diversions from Crooked River for irrigating pastures on private land. One domestic spring development. Numerous spring developments for livestock.	Ongoing
Roads	Road densities within the Crooked River 6th field HU are approximately 5.1 miles per square mile.	Ongoing
Road Maintenance	Cleaning culverts, blading existing roads, brushing right-of-ways.	Ongoing
Livestock management	Management of the Crooked River On-Off & Wildhorse-Crooked River C&H Allotments.	Ongoing
Firewood Harvest on NFS Lands	Harvest to occur along open roads and designated areas while adhering to Forest Firewood Permits.	Ongoing

Action	Description	Date
Present and/or Ongoing		
Noxious weeds	Treatment of noxious weeds following direction in the 1987 Payette NF Noxious Weed and Poisonous Plant Control Program EA and DN.	Ongoing
Fire Suppression	Active fire suppression will continue under current forest plan and agency policy.	Ongoing
Hedges domestic water special use permit.	Takes water from a developed spring and transports it 2500 feet to private users through a 2-in pipe. Water right allows for up to 0.05 cubic feet per second to be diverted. The spring is a tributary to Dick Ross Creek, which is a tributary to Crooked River.	Ongoing
Oxbow-McCall overhead power lines special use permit (Idaho Power)	Overhead power lines run from Oxbow power facility to McCall crossing Crooked River in one location. Special use permit authorize operation and maintenance of the power lines. Maintenance of the 100 ft wide corridor requires routine clearing of brush and trees.	Ongoing
Cuprum–Bear exchange buried cable special use permit (Cambridge telephone)	Cable is buried along the Council-Cuprum road from Cuprum up Huntley Gulch and branches off into Bear. From Bear the cable continues up the Council-Cuprum road to private property along Crooked River and down the Wildhorse River. Cable is buried beneath stream channels using a boring machine and in some cases is attached to bridges or converted to overhead lines.	Ongoing

Table D-1 Continued

Action	Description	Date
Future		
Timber harvest/Precommercial Thinning on National Forest	Activities planned on Forest Service lands in the Wildhorse watershed include precommercial thinning about 1,900 acres of young conifer plantations, treatments similar to those in the Proposed Action in mature stands and older plantations, and periodic underburns to maintain low levels of ground fuels and fuel ladders.	Uncertain
Prescribed fire on National Forest Lands	Given the desire to maintain grasslands/shrublands and appropriate condition classes in forested areas, future prescribed fire (underburning) is likely. Wildland fire use is allowable within the Cuddy Mountain Roadless Area west of the project area	Uncertain
Firewood Harvest on NFS Lands	Harvest to occur along open roads and designated areas while adhering to Forest Firewood Permits.	Ongoing
Improve NFS Recreation Trails	Maintenance of existing designated system recreation trails including erosion control and hazard tree removal.	Ongoing
ATV and other motorized use	Future motorized use on designated roads and trails only. No cross-country travel would be permitted. Levels of unauthorized use would decrease with increased education and public awareness of travel management designations.	Ongoing
Roads	There will be no net increase in road densities on Forest System lands within the Crooked River subwatershed (Forest Plan standard). Road densities on non-Forest System lands could increase.	Ongoing
Recreation Use on NFS Lands	Recreation use would continue as described for present/on-going, however, levels of use could increase commensurate with increases in local and regional population growth.	Ongoing
Seven Devils Outfitter and Guides	Special use permit to allow guided snowmobile and horseback trips from Seven Devils lodge	2009
Ornamental rock quarry	Pemitted removal of rock from an existing quarry for personal use.	2009
Powers irrigation ditch pipe project	Special use permit to improve an irrigation ditch that crosses Forest System lands.	2009

*Cumulative Effects Analysis varies by resource. Past, Present, Ongoing and Future Actions applicable to each resource's cumulative effects sections will vary.

E. Response to Comments

PAYETTE FOREST
Crooked River Vegetation Management Project
30-DAY PUBLIC COMMENT ANALYSIS PER 36 CFR 215

ISSUE IDENTIFICATION/ RESOLUTION STRATEGY

The attached Issue Resolution Strategy is provided to help facilitate compliance with 36 CFR 215. The intended use of this table is to organize the public's comments, identify analysis requirements, and to determine if a comment is substantive.

Substantive comments are defined as "comments within the scope of the proposed action, specific to the proposed action, have a direct relationship to the proposed action and include supporting reasons for the Responsible Official to consider" (36 CFR 215.2). Substantive comments provide meaningful and useful information from commenters about their concerns and issues and can be used to enhance project analysis and project planning.
Coding options are as follows:

Extraneous and/or statement of opinion. (1)	Comment can be dismissed because either the cause of effect or the resource of concern is absent. For example, the issue of domestic Sheep transmitting disease to bighorn sheep may be irrelevant because either domestic sheep (cause) or bighorn sheep habitat (affected resource) are absent.
Outside Scope (2)	Comment can be dismissed because it's not within the scope of actions to be considered in alternatives or covered under the Purpose and Need of the Proposed Action.
Beyond Scope (3)	Comment can be dismissed because it is beyond the Regional Forester's authority to resolve in this specific analysis, or it is better addressed at a different scale or outside of the revision process. For example, it may be used if we get public comments over grazing fees, global warming, etc.
Concern will be discussed/analyzed in the document (4)	Comment is addressing an issue we have already covered in our proposed action and purpose and need statement or will be covered in chapter 1, 2, or 3 of the environmental document.
Legal Requirement and/or Forest Plan Consistency Requirement (5)	This comment addresses an issue we are already legally mandated to address and/or is required to be followed by the Forest Plan.
Definition of procedure (6)	Comment is a question and/or incorrect definition of our procedures and requires a follow up phone call by a specialist, team leader, NEPA coordinator or district ranger.
Need additional analysis – possibly drive an alternative or a change to the document (7)	A legitimate concern by the public that does not meet the above definitions. This concern could be an issue that drives an additional alternative.

Comments from letters have been paraphrased for this table. Specialists had access to the entire letter when responding to these concerns. All letters and more extensive responses (when necessary) are in the project record.

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
There are historical considerations that are appropriate for this area. Your records in the Supervisors office reflect that a postal road served the town of Clifton and people living in the Wild horse area. This road pre-dates the establishment of the Payette National Forest and should be considered a state or county road or at least subject possibly to RS 2477 consideration. Postal roads were established by the United States government and when the Post Offices abandoned the roads they were turned over to the various territorial governments for their control. They appear to fall outside the purview of RS 2477 for that reason. Some of your projects proposed decommissioning/obliteration appears to be on this road which you do not have jurisdiction of.	4	Yes	A map of the routes asserted by Adams County as public rights-of-way under R.S. 2477 was compared the proposed road management actions. Approximately 0.5 miles of road in the southern portion of Section 10 and the northern portion of Section 15 were eliminated from the list of proposed decommissioning because they are in the vicinity of an asserted route. No other roads proposed roads for decommissioning were in the vicinity of County asserted routes.	Caleb Zurstadt

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
The under-burning of such a large area in a single season seems to potentially have a detrimental effect on several species, especially the areas wild turkey population. The introduction of wild turkeys occurred in this area in the 1960's and seems to remain a key area for the birds. It seems appropriate to modify the yearly treatment sizes until alternate areas have recovered.	4, 5	Yes	Forest Plan Goal WIGO01 states that we must provide habitat capable of supporting viable populations of native and desired non-native wildlife species. The wild turkey is a desired non-native species. The agency is a cooperator with the National Wild Turkey Federation, promoting turkey conservation throughout most of the country. Our inquiries with Idaho Department of Fish and Game indicate that the West Zone turkey population is at maximum levels and they support prescribed burning to maintain quality turkey habitat. As a protective measure for turkeys, the area to be burned in a specific season would be surveyed for birds and nests. Forest Plan Goal WIGO02 states that we should reduce human-caused disturbances that cause undesirable effects to wildlife populations during critical life stages. If spring burning is considered, nest surveys would be conducted and identified nests would be protected, as practicable. The size of the burn blocks is partially based on an area that is of realistic size and shape to allow for meeting prescribed burning criteria, which include proper ignition, rate of spread, fuel availability, resource protection, property protection, and human safety. One of the main reasons for burning this area is to reduce the potential for future, uncharacteristic, stand-replacement fires. Another reason for burning this area is to improve habitat for many wildlife species, including turkeys, by returning fire to the local environment. It is understood, and accepted, that although prescribed burns would have some short-term negative effects to individual animals and their habitat, the overall, long-term result would be more viable wildlife populations and improved habitats.	Jon Almack
While habitat designation and standards remain for the Bull Trout's habitat it appears that a review with the US Fish and Wildlife Service to assure that the habitat designation should remain is appropriate.	2	No	Thank you for your comment. Crooked River is not designated Critical Habitat for bull trout. Designation of Critical Habitat is outside the scope of this project.	Caleb Zurstadt

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
...the decommissioning of so many roads that appear to be access for management currently and the future doesn't seem appropriate. The treatment methods and equipment outlined in the proposal are not much different from past methods so the rationale for the decommissioning is not apparent. If the decommissioning is NOT obliteration but some form of closure such as reasonable erosion control treatments without a debris dump and with travel restrictions, I could accept that. That would leave the access relatively available for protection actions by the agency.	4	Yes	The Payette National Forest Travel Management Plan has identified roads to be used for access by the public and for management purposes as “open”. Roads identified for decommissioning with this project are designated as “closed” under the Travel Plan. In addition, research has shown that over the long term, decommissioning roads, especially those located in riparian areas, benefits watersheds by increasing floodplain connectivity, increasing soil productivity, and decreasing fine sediment delivery to streams, which can degrade habitat for fish and aquatic species. Forest Plan standards guidelines for the soil and water resources currently include goals for reducing the impacts that roads have on stream channel function and watershed health. Alternative B includes less road decommissioning than Alternative C, calling instead for stabilizing of 1.5 miles of non-system road by ripping to ameliorate compaction, seeding, pulling culverts and waterbarring to reduce erosion, which would leave the road prism intact.	Melanie Vining

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
Past prescribed fire treatments on the areas surrounding the project area are some very close examples of prescribed fire that exceeded both the prescription and the expected level of residual stand damage. Having been involved in the great success of the plantations it is very disconcerting to see that they potentially could be "torched" by someone trying to reach a fire goal but stretching the prescription. I would rather see these areas be utilized as thinning for biomass production areas. It seems appropriate to apply fire later in the life of these areas after initial thinning when the prescription is not so hard to meet. The widely scattered prescribed fire areas on Crooked River Point are very questionable as are the objectives of such treatments.	4	Yes	This comment is relevant and has been addressed in the fuels specialist report. Project design criteria were used to mitigate this issue from further analysis. The objectives for burning in plantations have been developed to meet desired future conditions specified in the Forest Plan. In discussions with the project silviculturalist, some mortality is desirable. The monitoring plan for evaluating the effects of burning in plantations can be found in Appendix E of the EA. Based on field exams, the plantations proposed to be burned are currently 6 to 15 inches in diameter and 30 to 50 feet tall. Prescription parameters will be developed using fire behavior and effects models and local knowledge to meet project objectives. In discussions with fuels specialists on other forests (The Boise and Nez Perce) who have been prescribed burning in plantations. They have had success meeting project objectives in plantations of this size. Regarding thinning for biomass production, this was discussed as an alternative but was eliminated as an alternative method due to: - the desired leave trees are the larger more productive trees; - the average piece size to be removed is relatively small; and - there is a lack of a small wood market that can pay for the cost of removal in the area. These factors combined make the mechanically treating these plantations for biomass production cost prohibitive. In the regards to the comment “someone trying to reach a fire goal by stretching the prescription”; the Forest is legally required to try and insure that project implementation is consistent with the actions described in the EA and Record of Decision. The widely scattered prescribed fire areas on Crooked River Point were mistakenly put on the scoping document. Thank you for pointing these out. They have been removed from the proposal.	Paul Klasner

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
Some areas should have some special protection applied to them before under-burning is even considered. One area is the Crooked River Seed Production Area and the genetic "mother" trees that are found in the area. These sites should meet protection needs that can be outlined by the Forest's Geneticist at Moscow. Idaho. The protection standards will vary depending on the current needs of the tree improvement program and seed orchard.	4	Yes	In discussion with the project Silviculturalist, the objective of this project is to produce conditions that meet the desired future conditions in the Forest Plan. The objective of underburning is to create fire resilient stand conditions to protect areas from uncharacteristic wildland fire. The desired future conditions are for large, healthy, fire resistant trees. The project objectives are in line with objectives of Seed Production Areas. Therefore, no further analysis is needed. "Mother Trees" will be identified before prescribed burning and protected.	Paul Klasner
The entire project area has had several dwarf mistletoe control programs undertaken during past timber harvest operations and thinning programs. It is imperative that these project areas control objectives be followed up to assure control and determine if long term objectives were met. In particular the areas near Crooked River Point, Coyote Gulch, and section 25 near Rocky Comfort had historic problems. This pathogen should be a consideration in all operations. Some areas required clearcutting and planting in the past to deal with the level of infection. Many treated sites didn't allow buffer species planting so treatments in those areas should have some priority if control of the pathogen is an objective.	2, 4	Yes	Part of the Purpose and Need for this project is to “improve stand health, growth, and resiliency”. No stand regeneration treatments are proposed and so mistletoe protection for planted seedlings would not be a design feature. Dwarf mistletoe would be addressed in the silvicultural prescriptions and marking guides. Dwarf mistletoe ratings and other tree vigor indicators would be used to select cut trees. Cutting low vigor trees would reduce stand densities and provide increased resources for the residual stand. The follow up monitoring noted in this comment is outside the scope of this project. Monitoring the health of established plantations is a part of the ongoing Timber Stand Improvement (TSI) program. The mistletoe control site information provided in this comment will be provided to the TSI program manager.	Jeff Canfield

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
In much of this project area where the terrain is moderate and undulating it appears that more harvest treatments within riparian conservation areas (RCA) should be undertaken. The area has ease of access during the winter time. This would allow over-snow operations within the RCA with equipment restrictions, requirements for pulling line, and felling requirements to implement the operation with minimal encroachment on the sites. These RCA's are often very dense grand fir stands that will act as wicks for fire if not managed for density in some manner and would be difficult to under-burn without damage.	4	Yes	In the Crooked River Project mechanical thinning would facilitate the use of prescribed fire throughout the project area and in conjunction move vegetation toward the Forest Plan desired condition. In many forested stands the structure is such that underburning would occur without commercial thinning. There are 22 acres of RCA where mechanical thinning is deemed necessary to facilitate prescribed fire. Approximately 471 acres of RCA are proposed for prescribed for to move vegetation toward the Forest Plan desired condition. The mechanical thinning and landscape scale burning would reduce the likelihood of uncharacteristic or undesirable wildfire across the project area.	Melanie Vining, Caleb Zurstadt
The agency should continue to support the biomass utilization efforts that have started in the County. It is important that appropriate changes be made to harvest operations so biomass and fuel wood will continue to be made available.	4	Yes	The timber sale contract would require understory trees that are 4 to 7 inches in diameter to be removed along with sawlogs in all ground based harvest units. The contract would also require that cull material suitable for firewood be kept separate from slash piles on log landings. Depending on the sale economics and the availability of economic stimulus funds, slash piles would be chipped and the chips would be hauled to a biomass utilization facility.	Jeff Canfield

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Ron Hamilton - November 4, 2008				
The agency often discusses pollution from various burning operations but often overlooks the carbon sequestering of utilization. Also overlooked is the volume of natural mercury pollution that occurs with all burning operations, especially wild-fires. Comparisons of various treatment actions on these pollutants would be appropriate.	4	Yes	Effects of forest management on carbon cycles are complex, and uncertain (Malmsheimer et al. 2008). All action alternatives for the Project would move vegetation toward the Forest Plan desired condition, which promotes large tree forest structure, a more open canopy, and fire resistant seral tree species. By promoting growth of large fire resistant trees, reducing ladder fuels, and burning the understory at regular intervals the project would lower the risk of large, stand replacing wildfires, which would create a pulse of carbon emissions (Malmsheimer et al. 2008). Stands with larger trees potentially store more carbon in the long term than denser stands with smaller diameter trees. In addition, smaller diameter trees that are removed would be made available for biomass. In some cases, such as power generation, biomass utilization would result in carbon emissions. In other cases biomass is utilized for products in which carbon is stored, such as composite wood products (Malmsheimer et al. 2008).. Air quality concerns from heavy metals such as mercury are regulated by the Idaho/Montana Airshed Group. Any prescribed burning operations will be approved by them.	Caleb Zurstadt
It would be appropriate to disclose the "fire wise" treatments that have been applied to the private lands that lie within the project area. Identifying problems with county ordinances, as well as other situations that hamper fire safety would be appropriate to discuss especially if it influences the treatments that may need adjustments to deal with the situation.	3	Yes	The Forest Service cannot require landowners to treat their lands; however, the Forest Service routinely offers "fire wise" advice to landowners. The Forest Service met with landowners during the Stage Stop II prescribed burn and would offer more "fire wise" guidance preceding any prescribed fire on this project. Any treatments that private landowners apply that meet “fire wise” descriptions would be helpful in the event of a wildland fire in the vicinity, but the WUI portion of this project is being designed in order to increase fire fighter effectiveness in the vicinity of structures so that fires on the forest can be kept off of private property and so that fires originating on private property can be managed effectively on Forest System lands. County ordinances are outside the scope of disclosure of effects from this project.	Paul Klasner

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Harold Powers - November 28, 2008				
A road branches off from the Council-Cuprum road, near mile post 20, and crosses our land in a northerly direction and enters the U.S. Forest Service land. Originally this road extended northerly and was again intersected by the relocated Council-Cuprum road. The destruction of this intersection by the U.S. Forest Service precluded the easy access to the area without using our private road. This intersection needs to be re-established to again provide ready and easy access to these. public lands in this area. We object to the use of our private road for the execution of the present and future plans of logging and other activities to improve the U. S. Forest tree production and reduction of wildfIre potential.	1	No	Mr. Powers, thank you for the comment. A Declaration of Public Road for the Oling Ranch Road (RD 50511)was signed by the Adams County Chairman in 1991. Because RD 50511 provides efficient public and administrative access to Forest System lands reconstruction of the old road and bridge is outside the needs and scope of the proposed project.	Caleb Zurstadt
The private road divides our pasture into two parcels. We graze cattle in both parcels and need easy cattle access to both parcels. The gate is essential to promote this endeavor yet it will cause considerable delay for truckers and other personnel in caring out the U.S. Forest Service project activities.	4	Yes	The Forest Service will consider options for a cattle guard and other road improvements to facilitate log haul, and public and administrative access.	Caleb Zurstadt
We do not object to the U.S. Forest Service activity that improves our public land. In fact, we applaud the U.S. Forest Service for this planned activity. We look forward to the completion of this work in the area.	1	No	Thank you for your comments.	Caleb Zurstadt

a) Idaho State Parks and Recreation, Jeff Cook - December 2, 2008				
We were concerned about the road decommissioning and its effects on public access. We recommended that the district examine alternatives that would convert some of these roads into trails (motorized or non-motorized).	4	Yes	The proposed alternatives would not change public access. Public access was analyzed in the EIS for the PNF Travel Plan. New travel routes are outside the scope of this project; however, this project does not preclude designation and construction of future routes under another NEPA process.	Caleb Zurstadt
b) Idaho Fish and Game, Scott Reinecker – December 5, 2008				
FLOW-related issues we offer for your consideration include loss of roosting habitat, snag retention, disturbance, and additional surveys. The proposed prescription of thinning from below presumably will retain large-diameter trees (and snags), which are critical components of FLOW nesting and foraging habitat. However, FLOW also need denser thickets for roosting. Some of the proposed harvest units coincide with modeled FLOW habitat. Thinning these areas could affect currently occupied habitat, specifically in T18N R3W S 14 (sw corner), S 15, and S 23. Thinning which results in a homogenous, sparse understory also could affect other suitable FLOW habitat which may or may not be occupied. A mosaic of dense thickets juxtaposed with more open understory provides optimum habitat. Vegetation treatment in occupied habitat should be timed to avoid disturbance during the nesting season. FLOW are present in this area from early May through August. The Forest has GIS layers for both owl detections and suitable habitat. We recommend that these data be considered during the analysis. Marking	4, 5	Yes	The flammulated owl (FLOW) is a Region 4 Sensitive species for the Payette National Forest (PNF). The Forest Plan requires that we manage for viable populations of wildlife species, by providing adequate, appropriate habitats. The PNF contracts Idaho Department of Fish and Game (IDFG) to conduct FLOW surveys across the Forest; some of these survey routes are near the Crooked River project area. Our project design was informally presented to Diane Evans Mack, Research Biologist for IDFG; her comments were incorporated into the project as much as possible. As required by the Forest Plan, the project is designed to move the habitat toward historic conditions, which would improve habitat for white-headed woodpeckers (WHWO), by reducing the tree canopy closure, reducing the understory tree layer, and promoting the long-term survival of large-diameter ponderosa pine, where possible. The WHWO is a PNF Management Indicator Species and also is a Region 4 Sensitive species. As part of the silviculture management strategy for this project, due to the natural occurrence of clustered forested sites that do not require silvicultural treatment, patches of ponderosa pine with a denser understory would be distributed throughout most harvest units. This harvest design is planned for harvest units in the locations that you list (T18N, R3W, S14, S15, S23). In these specific sites, we also plan to reduce canopy closure and burn much of the understory, to provide improved habitat for the federally-listed (Threatened) Northern Idaho ground squirrel (NIDGS), which occurs in a colony on private land in Section 14. Guided by GIS data, and input from IDFG biologists, appropriate surveys for FLOWs would be conducted to identify nest sites and occupied forest stands, prior to harvest activities. Harvest prescriptions would be altered, as practicable, to protect nest sites and enhance FLOW habitat where feasible. Habitat management requirements for northern goshawks (NOGO) also would provide a natural distribution of forested patches, some with, and some without, a denser understory and clustering of live trees and snags. In NOGO Post-Fledging Areas (PFAs) and Foraging Areas (FAs), harvest	Jon Almack

prescriptions should retain all large-diameter trees and snags. We also recommend nocturnal broadcast surveys be conducted elsewhere in the project area during the nesting season before the project is implemented to document the potential broader distribution of this species.			activities also would have specific restrictions the nesting and rearing period of March 1 to September 30, as directed by the Wildlife Biologist. FLOWs would benefit from this NOGO timing restriction, because the PFAs and FAs are >600 acres and ~6,000 acres, respectively.	
The primary NIDGS-related issues are timing of ground-disturbing activities and slash piles. Considering all age classes, NIDGS are active from late March through August. Within or adjacent to NIDGS sites, winter logging after squirrels have retreated underground for hibernation avoids direct disturbance, restrictions on skid trail placement, and potential mortalities from timber hauling. Similarly, fall burns avoid the squirrels' above-ground season. Slash piles near occupied habitat pose a potential problem if they are left to dry for a year then burned. NIDGS often burrow under large woody debris. The Forest has a GIS layer of NIDGS sites. We recommend that these data be referenced during the analysis.	4, 5	Yes	NIDGS conservation and recovery issues are discussed in Chapter 3 and the Mitigation Table of the EA, with supporting information located in the Wildlife Specialist's Report in the Project Record. The project design was developed with appropriate NIDGS management in mind. The agency has incorporated suggested NIDGS management considerations gleened from Diane Evans Mack, IDFG NIDGS research biologist and chair of the NIDGS Technical Team; Bill Rautsaw, PNF NIDGS project coordinator and member of the NIDGS Technical Team; Mike Henon, PNF and IDFG wildlife technician with NIDGS specialty; and Ana Egnew, PNF Wildlife Program Manager. All of your NIDGS concerns have been addressed in our original project design and mitigation measures.	Jon Almack
Turkey nesting and roosting is common in the project area. We recommend that roost trees be protected and project management activities be designed to avoid the turkey nesting season (April 1 – June 15).	4, 5	Yes	Please refer to the response to a comment from Ron Hamilton regarding prescribed fire and turkey's.	Jon Almack

As always, as many road closures and/or decommissions as possible are welcomed to reduce elk and deer vulnerability and maintain habitat effectiveness.	4, 5	Yes	The Forest Plan requires that we close or decommission roads, when necessary and feasible, to protect wildlife resources, including elk and deer. Both action alternatives for this project are designed with road management approaches that lead to a reduction of road density in the project area. Elk security is provided in non-linear blocks of habitat that should be >/= 30% of the analysis area(in this case, 2 watersheds, the Wildhorse and Hornet 5th HUCs), >/= 250 acres in size, and >/= 0.5 miles from motorized access (either open roads or Off-Highway Vehicle (OHV) trails). Elk calving areas also are protected from project-related activities. No set security standard exists for deer habitat management, other than using road management to reduce vulnerability to hunting mortality and protecting fawning areas. A detailed discussion of the big game security analysis is included in Chapter 3 and the Wildlife Specialist's Report in the Project Record.	Jon Almack
Rod Johnson, Wildhorse/Crooked River C&H permitee - December 8, 2008				
...in general roads should not be decommissioned because it is a waste of time and money. Cows use the roads to access higher ground, and he and other permitees use the roads to get to salting areas and for other administrative purposes. Once roads are decommissioned you can't even get a saddle horse on them.	7	Yes	Alternative B has less road decommissioning than alternative C. Roads are decommissioned to meet Forest Plan standards, objectives, and guidelines for offsetting temporary and short term impacts from the project, improve watershed condition in the long-term, and return the Forest floor to a more productive state. Where appropriate livestock trails can remain on decommissioned roads.	Caleb Zurstadt
Washington County Commissioners, Roy Mink - November 5, 2008				
Washington County Commissioners "don't have any problem with the project". He also commented that it would have helped to show the old Hornet Gaurd Station on the map because he would be able to tell where the project was in relation to Washington County.	1	No	Thank you for your comments.	Caleb Zurstadt
Casey Anderson, Manager of OX Ranch - November 21, 2008				
Just as soon we (i. e., FS) not decommission roads in the area. Gates are OK.	7	Yes	Alternative B has less road decommissioning than alternative C. Roads are decommissioned to meet Forest Plan standards, objectives, and guidelines for offsetting temporary and short term impacts from the project, improve watershed condition in the long-term, and return the Forest floor to a more productive state. Where appropriate livestock trails can remain on decommissioned roads.	Caleb Zurstadt

Packer Victory Family Heritage, Irene V. Victory - November 5, 2008				
Why are you going to reclaim Skid Trails? Save money and let the Forest Take Them Back in a natural way.	4	Yes	Skidtrails are considered to be Total Soil Resource Commitments (TSRC). Research studies conducted on the Payette National Forest have shown that soil compaction to depths of greater than 6 inches (as occurs on skidtrails) persists for many decades (Froelich 1983) and does not recover "naturally". The Forest Plan desired condition is for TSRC to be less than 5 percent within activity areas. The existing condition for TSRC in Crooked River is greater than 5 percent requiring a reduction in TSRC through management activities. The obliteration of new skidtrails and existing skidtrails contributes to the required decrease in TSRC. TSRC is discussed and analyzed in Chapter 3 with mitigation measures displayed in Chapters 2 and 3.	Dean Martens
Your proposal to decommission roads leaves the public recreationist with less and less access to the Forest. Is that your aim?	4	Yes	The proposed alternatives would not change public access. Public access was analyzed in the EIS for the PNF Travel Plan. New travel routes are outside the scope of this project; however, this project does not preclude designation and construction of future routes, under a separate, future NEPA process..	Caleb Zurstadt
Temporary roads should be left open for public use.	4	Yes	The Payette National Forest Travel Management Plan currently designates roads for public and administrative access as "open"; all other roads on the landscape are closed. The Snake River Management Area of the Forest Plan contains a standard that prohibits a net increase in road density. Leaving temporary roads on the landscape would violate this standard, unless an equivalent length of existing road is decommissioned. Temporary roads are considered to be Total Soil Resource Commitments (TSRC). Research studies conducted on the Payette National Forest have shown that soil compaction to depths of greater than 6 inches (as occurs on temporary roads) persists for many decades (Froelich 1983) and does not recover "naturally". The Forest Plan desired condition is for TSRC to be less than 5 percent within activity areas. The existing condition for TSRC in Crooked River is greater than 5 percent requiring a reduction in TSRC through management activities. The obliteration of temporary roads contributes to the required decrease in TSRC. TSRC is discussed and analyzed in Chapter 3 with mitigation measures displayed in Chapters 2 and 3,	Dean Martens, Melanie Vining

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
One alternative should substitute large amounts of harvesting with commercial/precommercial thinning. This alternative would still provide a commercial product, shift forest structure toward historic conditions, reduce fuel loads and open habitat for Northern Idaho Ground Squirrels.	6	yes	All harvest units would involve commercial thinning. With the exception of 27 acres of precommercial thinning in an improvement cut all precommercial thinning would be restricted to underburning plantations followed by future thinning by hand if needed.	Caleb Zurstadt
The scoping document did not include any volume estimates. The environmental analysis needs to include this specific information for all alternatives. As much as possible, the largest, most fire-resistant trees should be left standing. The Forest Service needs to define diameter limits and desired spacing between crowns for each unit. Where logging is appropriate, we believe that silvicultural techniques should have the lightest ecological impact on the forest.	4	Yes	The Proposed Action, Alternative B would produce about 9 million boardfeet of sawtimber and about 4,500 tons of slash that would be available for chipping and delivery to a biomass utilization facility. Alternative C would produce about 7.9 million boardfeet of sawtimber and about 3,950 tons of slash that would be available for chipping and delivery to a biomass utilization facility. The species composition in the proposed restoration units is a mix of ponderosa pine, Douglas-fir and grand fir. The larger diameter ponderosa pine and Douglas-fir would be favored for retention. Most fire susceptible grand fir trees except those with rot or damage would be cut. Grand fir trees with rot and damage would be retained for wildlife habitat. Tree vigor characteristics would be used to select trees to remove to reduce stand densities. Spacing between trees would be variable depending on these vigor characteristics. Stand densities would be reduced to between 60 and 80 square feet of basal area per acre.	Jeff Canfield
Because of concerns over impacts in soils and squirrels, the use of helicopters and cable or skyline systems is preferable to tractor-jammer logging. Any skid roads need to be designated, and passes should be limited. The District should investigate the impacts that various logging techniques and equipment will have on the Northern Idaho Ground Squirrel. We are also concerned about the effects of logging trucks driving	4, 5	Yes	Northern Idaho ground squirrel (NIDGS) conservation and recovery issues are discussed in Chapter 3 and the Mitigation Table of the EA, with supporting information located in the Wildlife Specialist's Report in the Project Record. The project design was developed with appropriate NIDGS management to improve NIDGS habitat in units that are near or adjacent to known colonies. All feasible protection measures have been incorporated into the project design or mitigation requirements, to protect individual animals and known colonies from disturbance or potential mortality. We have included project activity timing restrictions, harvest strategies, machinery use, log decking and slash management, surveys prior to burning, surveys at ground-disturbance sites, and vehicle traffic management (including a speed limit of 15 mph in appropriate locations). The agency has incorporated suggested NIDGS management	Jon Almack, Dean Martens

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
on roads adjacent to Northern Idaho Ground Squirrel colonies. Logging trucks should limit speeds to USFWS recommendations for minimizing potential roadkill. All land management activities should be timed in a manner that minimizes impacts to the squirrels. The Forest Service should investigate whether or not activities should be limited to periods when the squirrels are hibernating			considerations gleened from Diane Evans Mack, IDFG NIDGS research biologist and chair of the NIDGS Technical Team; Bill Rautsaw, PNF NIDGS project coordinator and member of the NIDGS Technical Team; Mike Henon, PNF and IDFG wildlife technician with NIDGS specialty; and Ana Egnew, PNF Wildlife Program Manager. Helicopters would typically be used in areas of steep, broken ground, where cable systems could not be used safely or effectively and road access did not exist. Cable systems would be used in specific areas, as on this project, where road access was adequate, but slopes were too steep for safe and efficient use of tractor systems. In most cases, where slopes are steep enough for use of cable systems or helicopters, the terrain is too steep for NIDGS use. However, if NIDGS, or NIDGS sign, were located on these steep sites, our same protection measures would be enacted to properly manage for NIDGS. All skidtrails are required to be designated and each skidtrail that is utilized with the project will be obliterated following the completion of activities. Heavy equipment use off of designated skidtails is limited to over the snow operations, and use of feller bunchers during periods of time when soil moistures are less than 20 percent. These issues are discussed and analyzed in Chapter 3 with mitigation measures contained in Chapters 2 and 3.	

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
A sufficient number of snags need to be left standing in each treatment area for cavity nesters until snags can be replaced by natural recruitment. Standing trees need to be overstocked to ensure sufficient habitat until new trees mature. In addition, an inventory of the types and sizes of downed woody material should be included in the treatments. When planning to burn unnaturally high fuel loads, it is important to leave a range of downed woody material on the ground in appropriate areas in order to preserve insect and wildlife species diversity.	4, 5	Yes	Snag retention in all harvest units would meet levels identified in Forest Plan standards and guidelines for the appropriate Potential Vegetation Group (PVG) and specific wildlife habitat requirements for snag-dependent species. Coarse Woody Debris (CWD) requirements, identified in the Forest Plan for support of soil health, also provide appropriate habitats for wildlife species, such as ants, worms, birds, and bears that may require woody material on the ground. Healthy soil is the basis for all wildlife habitat and is a vital part of the wildlife management strategy applied on the PNF. Where available a minimum of 4-10 tons of CWD per acre would remain after prescribed fire. Coarse Woody Debris (CWD) guidelines will be implemented in all activity areas (harvest units and prescribed burn areas). Harvest and burn prescriptions are required to maintain CWD levels at or above the desired condition for the Potential Vegetation Group (PVG) where desired conditions currently exist and to improve CWD levels toward (or meet) the desired condition where current levels do not meet the desired condition. The CWD issue is analyzed in Chapter 3 with mitigation measures discussed and displayed in Chapters 2 and 3.	Jon Almack
Any potential commercial uses for small-diameter fuels should be explored. One possibility would be stacking non-commercial boles and branches at landings for use by commercial and private firewood cutters. By hauling logs to landings, you can reduce incursions by firewood cutters into areas. The Forest Service should also consider utilizing slash or Council's Fuels for Schools program.	4	Yes	The timber sale contract would require understory trees that are 4 to 7 inches in diameter to be removed along with sawlogs in all ground based harvest units. The contract would also require that cull material suitable for firewood be kept separate from slash piles on log landings. Depending on the sale economics and the availability of economic stimulus funds, slash piles would be chipped and the chips would be hauled to a biomass utilization facility. This chipped material would be available for the Fuels for Schools program.	Jeff Canfield

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
The Forest Service needs to describe if any timber harvest activities are planned in either verified or potential old growth stands or in any Inventoried Roadless Areas. The selected alternative should not allow any harvest activities in these areas.	4	Yes	There are no inventoried roadless areas within the project area. There are 228 acres of large tree size class stands (see Forest Plan for size class definitions) proposed for restoration harvest treatments in the Proposed Action. These treatments would favor retention of large diameter ponderosa pine and Douglas-fir. These stands would remain in the large tree size class following treatment.	Caleb Zurstadt, Jeff Canfield
Because goshawks are forest and forest-edge predators that scan for prey from trees, creating openings larger than 4 acres effectively removes these areas from goshawk foraging habitat and departs from VSS requirements for openings in the Management Recommendations. All openings in the Airline project should be 4 acres or less with sufficient snags.	4	Yes	The Forest Plan requires that we manage properly for northern goshawks (NOGO). Our Regional direction is to use the "Southwest Guidelines" (USFS General Technical Report No.RM-217) as the basis for forest management in NOGO territories. We also have incorporated the 2007 "Implementation Guidelines" (USFS General Technical Report No. PNW-GTR-733) for NOGO management on this project. The 2007 Guidelines are simply the Southwest Guidelines, updated and better explained, to help biologists and foresters better understand and apply management guidelines for this species. We have identified 2 NOGO nest areas, 30 acres each, with 2-3 known active or alternate nests that are clustered within each area. Post-Fledling Areas (PFAs), over 600 acres each, and Foraging Areas, over 6,000 acres each, have been identified for each nesting area. Our project design incorporates current NOGO management strategies from the 2007 Guidelines, including protection of nest stands; appropriate silvicultural management within and outside of nest stands and PFAs; correct tree size, distribution and canopy closure, by dominant tree species stand; size and distribution of required forest openings, use of mechanical treatment of stands; and use of prescribed fire. All Vegetative Structural Stage categories have been converted to Potential Vegetation Groups (PVGs), to fit the forest and wildlife management strategies used on the PNF. A more detailed discussion of NOGO management is presented in Chapter 3 of this EA, with supporting information in the Wildlife Specialist's Report in the Project Record.	Jon Almack

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
The fragmentation of the forest by the proposed treatments needs to be assessed. The effects of regeneration harvesting on species dependent on contiguous forested habitat such as pileated woodpeckers, goshawk, marten, and fisher should be considered. Due to parasites or previous disturbances, goshawks often alternate between existing nests. These existing alternate nest sites may well be located in trees in or adjacent to the proposed units. The proposed action could remove or make these otherwise viable nests unusable. The Forest Service should also establish a 650-foot (30 acre) buffer around each alternate nest. Within these areas, vegetation treatments should be designed to enhance goshawk habitat through precommercial thinning and thinning from below if suitable.	4	Yes	The Forest Plan requires that we move the forest in the current condition to a structure and fire regime that existed historically, roughly 100 years ago. The Crooked River area historically was more open, supporting a mix of large-diameter, ponderosa pine forest with interspersed grasslands, shrubfields, and mixed conifer stands, depending on elevation, aspect, soil conditions, and fire history. This project is designed to shift the current forest to a structure and fire regime that would lead to the historical condition. Our project design specifically improves habitat for Northern Idaho ground squirrels (NIDGS) and white-headed woodpeckers (WHWO). Northern goshawk (NOGO) habitat would be improved by appropriate thinning and prescribed burning to prevent future uncharacteristic, stand-replacement wildfires. See above responses concerning NOGO habitat management. Pileated woodpecker, fisher, and marten habitats would be altered in this project; this is due to the project design features supporting NIDGS, WHWO, and NOGO habitat improvements. This project promotes the growth of ponderosa pine stands with large-diameter tress and a canopy closure, after harvest and underburning, of not less than 30%.	Jon Almack

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
A thorough field survey for threatened, endangered, and sensitive plants and animals should be undertaken as part of the biological assessment. Treatments need to be timed to reduce the impact on nesting birds and denning mammals. In addition to the direct impacts these treatments will have on local populations, the cumulative or linked impacts of these activities on adjacent populations needs to be considered.	4, 5	Yes	The Forest Plan, Forest Service policies and regulations, and federal legislation (ESA, NFMA, NEPA, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, etc.) require appropriate surveys for Threatened, Endangered, Proposed, Candidate (TEPC), Region 4 Senstive species, and migratory landbird habitats on every proposed federal action. As mentioned in other responses above, management consideration is given to all species known to occur in the project area; however, this project is designed to provided specific habitat improvement features for Northern Idaho ground squirrels and white-headed woodpeckers. Other species may benefit from these design features, while other species may not benefit from them. The project is designed to ensure that no federally-listed wildlife species would be adversely affected by agency activities, and although individuals listed as sensitive wildlife species may be negatively impacted, their populations would not trend toward federal listing. NEPA requires that federal agencies evaluate the proposed activity, based on direct, indirect, and cumulative effects to TEPC and Sensitive wildlife species, both at the project level and the landscape level (in this project, either the 5th HUC, or the biologist-determined Action Area). These analyses are presented in Chapter 3 of this EA, supported by information in the Wildlife Specialist's Report in the Project Record.	Jon Almack
The Forest Service should design the project to reduce potential negative impacts to riparian areas and aquatic organisms, including any bull trout or redband trout that may inhabit the watershed. Negative impacts to be considered include sedimentation, water temperature, fragmentation, loss of refugia, and competition with exotic species.	4	Yes	All Forest Plan Watershed Condition Indicators including sediment, temperature, RCAs, etc., would be maintained or improved in the long term through rehabilitation related to road decommissioning. A Biological Assessment for bull trout would be completed.	Caleb Zurstadt
The analysis needs to include a map indicating soil stability and landslide potential. Potentially erosive treatments such as thinning, salvage logging burning and road construction need to be placed outside these hazardous landtypes as much as possible.			The Crooked River Fuels project area has been evaluated for landslide potential. The area was evaluated using a computer model called SINMAP that uses ground slope and drainage area derived from a digital elevation model to determine landslide potential. The Crooked River Fuels project area has no inventoried or known landslides. More discussion of the analysis is on file in the Project Record.	Mike Dixon

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
The Forest Service should investigate whether or not this project will result in additional increases over natural sedimentation levels that will negate many of the benefits from long term reductions. The best alternative for this project will lower the sediment load to acceptable levels in the shortest time possible.	4	Yes	The temporary to short term increase in sedimentation associated with each Alternative was modeled using the computer modeling program BOISED. Both action alternatives would result in a long term decrease in baseline sediment yield as a result of road decommissioning. In addition, project design features and mitigations would be utilized that are designed to minimize sediment delivery to the stream channel during project implementation (i.e., riparian buffers, gravelling at road crossings, limiting off-trail equipment operations to dry conditions, etc). See the Water Resources and Fisheries sections of Chapter 3 of the Environmental Assessment for a discussion of the sediment modeling and specific mitigations associated with the water resource.	Melanie Vining
Previous management activities have resulted in excessive road densities throughout our National Forests, including the Payette National Forest. This density compromises the project area's ability to support wildlife and fish by promoting further human disturbance, fragmenting habitat, accelerating sedimentation, and encouraging ORV use. Furthermore, there is a positive correlation between roads, even temporary ones, and human-caused wildfire ignitions. Similarly, there is likely a correlation between easy access to this project area and the illegal shooting of squirrels.	1	Yes	Thank you for your comments on the topic.	Caleb Zurstadt
The Forest Service should do everything possible to base all treatments off preexisting roads. We fully support proposals to close and obliterate roads in this area in order to protect limit access to squirrel habitat and restore the biological integrity of this area.	4	Yes	Existing roads would be used whenever possible. In most cases non-system roads that are used for thinning would be decommissioned after use. Specifications for decommissioning roads include returning to contour, using available plugs of vegetation, and scattering boulder and coarse woody debris over disturbed soil. In many cases debris on the old road bed and uneven slope deters traffic; however, due to the gentle terrain and open nature of the grass and shrublands physically detouring unauthorized travel may be difficult.	Caleb Zurstadt

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
Where roads and trails are obliterated, care must be taken to minimize sedimentation, remove noxious weeds, revegetate the area with native plants, and strictly enforce road closures. Although road obliteration will improve water quality in the long term, it will inevitably entail soil disturbance and sedimentation. The analysis should include a list of additional mitigation measures such as road stream bank stabilization or culvert replacement to compensate for temporary increases in sedimentation.	4	Yes	Thank you for your comment. Road decommissioning associated with this project would include measures to minimize sedimentation over the temporary and short term while facilitating over the long term. This includes erosion control such as slash and certified weed-free straw or mulch and planting of live native shrubs. Decommissioned road/stream crossings would incorporate the above measures, as well as ensure recontouring to the natural slope of the stream channel to prevent further downcutting or headcutting. Before decommissioning, roads would be evaluated for the presence of noxious weeds and appropriate steps taken to treat consistent with the Forest Plan. Additional mitigations included in this project include upgrading three culverts (two perennial streams and one intermittent) within the project area in order to facilitate fish passage and accommodate high flows.	Melanie Vining
The devastating impacts of Off Road Vehicles (ORVs) on forest ecosystems are well established. ORVs degrade water quality, spread noxious weeds, fragment wildlife habitat, disturb wildlife, and displace non-motorized recreationists. The Payette National Forest needs to monitor and control the use of ORVs on Forest Service roads and trails in the project area. As part of this analysis, the Forest Service should restrict all OHV use to designated trails and deter illegal cross-country travel and travel on skid roads, temporary roads, and obliterated roads.	2, 4	Yes	Thank you for your comments on the impacts of ORV's. The proposed alternatives would not change public access. Public access was analyzed in the EIS for the PNF Travel Plan. New travel routes are outside the scope of this project; however, this project does not preclude designation and construction of future routes.	Caleb Zurstadt

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
The best way to control noxious weeds is to prevent their spread in the first place by limiting road use and limiting exposure of mineral soils where weeds may become established. Roads, trails, and rivers serve as the primary routes for noxious weed species expansion. Special care should be taken to safeguard ecologically intact areas that are not currently infested. Tractor-jammer hauling systems and off road vehicles contribute to the spread of noxious weeds. Where vehicle access is allowed, the tires and undercarriage must be hosed down with pressurized water to dislodge seeds in all alternatives. Funding needs to include surveys and treatment for noxious weeds before and after treatment.	4	Yes	Noxious weed populations will be inventoried and treated prior to any road obliteration/decommissioning. In those areas where timber harvest will occur and temporary road construction and skid trails are proposed, the opportunity may exist for acquisition of KV funds from the timber sale proceeds. These may be used for noxious weed treatment, if available. If these funds are not available, the Council Ranger District will continue to treat noxious weeds with appropriated funds. Timber sale contracts include provisions for noxious weed prevention measures regarding equipment. Refer to the Mitigation Table in Chapter 2 of the EA for a list of mitigations to prevent the spread of noxious weeds.	Maura Laverty

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Idaho Conservation League, John Robison - November 30, 2008				
If grazing is occurring in this area, the Forest Service needs to consider the cumulative impacts of grazing and associated management activities on forest fuels, water quality, soil conservation, and ecosystem integrity. The Forest Service needs to assess the impacts of any off-site compensation for grazing, such as moving livestock to other allotments.			The impacts from livestock grazing are documented in the baseline condition for the resources effected in the Rangeland Management Specialist report. There are no proposals to move livestock to other allotments. Prescribed burns do not normally burn at levels as severe or intense as wildfires; therefore the Forest Service will review areas of burning and other vegetation treatment for protection on a case by case basis. Forest Plan direction for rest from livestock grazing after fire activity includes the following Guidelines: VEGU05 (page III-31) states, "Where wildfire has burned within an allotment, burned areas should be evaluated to determine if rest from livestock grazing is necessary for recovery of desired vegetation conditions and related biophysical resources." VEGU06 (page III-31) states, "When sagebrush cover types are determined to need rest from livestock grazing following a wildfire, areas should be rested for a minimum of two growing seasons…." FMGU02 (page III-40) states, "When prescribed fire or wildland fire use areas burn more severely than prescribed or anticipated, with the potential for detrimental soil disturbance or loss of soil-hydrologic function, appropriate personnel should complete a field evaluation to determine the need for any rehabilitation measures."	Maura Laverty

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Hells Canyon Preservation Council - November 19, 2008				
Thinning to decrease overstocked stands should focus on small diameter trees. Please address the size range of trees proposed for thinning.	4	Yes	An objective of this project is to move forest vegetation toward Forest Plan desired conditions by promoting large seral tree structure. Eight inch diameter and larger trees would be cut and removed as sawlogs. The species composition in the proposed restoration units is a mix of ponderosa pine, Douglas-fir and grand fir. The larger diameter ponderosa pine and Douglas-fir would be favored for retention. Most fire susceptible grand fir trees except those with rot or damage would be cut. Grand fir trees with rot and damage would be retained for wildlife habitat. Tree vigor characteristics would be used to select trees to remove to reduce stand densities. Spacing between trees would be variable depending on these vigor characteristics. Stand densities would be reduced to between 60 and 80 square feet of basal area per acre. The timber sale contract would require understory trees that are 4 to 7 inches in diameter to be removed along with sawlogs in all ground based harvest units. This material would be available for biomass use.	Jeff Canfield
Logging in riparian conservation areas is likely to have adverse effects on aquatic species and other wildlife. We urge you to drop any logging in RCAs and impose appropriate no cut buffers along streams.	4	Yes	All Watershed Condition Indicators, such as sediment, LWD, RCA function, would be maintained or improved with project design features. Where logging would occur in 22 acres of RCA, design features include a 30-ft no harvest buffer on the intermittent channel and 120 ft no harvest buffer on the perennial. All machinery would remain on existing roads. Prescription for thinning would be designed to favor large tree structure and move the vegetation toward the Forest Plan desired condition.	Caleb Zurstadt
Soils may be degraded by this proposal through logging and to a lesser extent burning. Please address the adverse effects of this proposal on soils including compaction, puddling, displacement, burning, erosion and mass wasting. Timber harvest, slash disposal and site preparation can reduce the amount of organic material in the forest floor to below what is needed to ensure soil productivity. This is of particular concern if there is a history of logging in the area.	4	Yes	The effects to the soil resource are analyzed in Chapter 3. The indicators of Detrimental Disturbance (DD), Total Soil Resource Commitment (TSRC), and Coarse Woody Debris (CWD) are used to analyze the direct, indirect, and cumulative effects to the soil resource. DD includes the effects related to the soil resource through compaction, puddling, displacement, and hotly burned soils. Soil erosion is analyzed through the sediment modeling and analysis that is contained in the Water section of Chapter 3. Additional information on mass wasting and the landslide prone modeling is contained in the Project Record. Mitigation measures have been developed to assure that Forest Plan standards and guidelines for the indicators of DD, TSRC, and CWD are met. These mitigation measures are part of the analysis in Chapter 3 and are also displayed in Chapter 2.	Dean Martens

Concerns	Category of Comment #	Substantive yes or no	Forest Service Response	Assignment
Hells Canyon Preservation Council - November 19, 2008				
Temporary roads are not necessarily temporary in impact, even if decommissioned after use. Soil compaction / disturbance and sedimentation impacts may continue to persist and the natural recovery process can take decades. The EA should state the precise amount and location of any proposed new and temporary road construction. HCPC strongly suggests that any road construction, even temporary roads, be eliminated from this proposal.	4	Yes	Up to 1 mile of temporary road in the project area may be necessary to access landings. The EA provides a map of known temporary and permanent road. Requirements for road decommissioning include ripping surface to ameliorate compaction, full recontour to slope, and application of erosion control on exposed soil. There is no permanent road construction in Alternative C.	Caleb Zurstadt

F. Unit Treatment Table

Table F-1 Mechanical Thin Harvest Units

Unit	Alternative	Acres	PVG / Strata	Tree Size Class	Yarding System	Goshawk PFA	Pre & Post Treatment Stand Description **					
							Trees per Acre (8.0" & up)		% Canopy Closure		Ave. Basal Area per Acre (sq ft)	
							Before	After	Before	After	Before	After
1	B & C	38	5/22	Med	ground based	No	138	60	73	52	150	85
3	B & C	11	5/34	Med	ground based	Yes	132	71	85	45	160	90
4	B & C	6	2/22	Med	ground based	Yes	52	40	55	45	70	58
*5	B & C	11	2/22	Med	ground based	No	178	110	50	33	140	90
7	B & C	86	2/34	Med	ground based	No	83	45	60	33	133	80
8	B & C	119	2/22	Med	ground based	Yes	154	65	72	38	137	73
13	B & C	10	2/35	Med	ground based	Yes	282	101	92	47	200	80
16	B & C	12	5/22	Med	ground based	Yes	270	101	80	40	160	80
18	B & C	24	2/35	Med	skyline	Yes	254	101	75	35	180	80
21	B & C	15	5/35	Med	ground based	Yes	93	37	75	35	100	40
23	B & C	8	2/35	Med	ground based	Yes	187	71	70	45	200	90
26	B & C	9	2/22	Med	ground based	Yes	107	61	45	30	116	76
27	B & C	13	2/22	Med	ground based	Yes	177	49	55	35	190	70
31	B & C	26	2/35	Med	ground based	No	77	31	85	43	100	50
32	B & C	49	2/35	Med	ground based	No	111	39	70	35	127	67
33	B & C	27	2/22	Med	ground based	No	187	65	54	31	200	80
36	B & C	36	2/22	Med	ground based	No	160	63	65	33	225	90
37	B & C	13	2/35	Med	skyline	No	93	20	80	35	100	40
38	B & C	45	2/26	Med	ground based	No	83	57	55	37	127	80

Appendix F - Unit Treatment Table

Unit	Alternative	Acres	PVG / Strata	Tree Size Class	Yarding System	Goshawk PFA	Pre & Post Treatment Stand Description **					
							Trees per Acre (8.0" & up)		% Canopy Closure		Ave. Basal Area per Acre (sq ft)	
							Before	After	Before	After	Before	After
39	B & C	42	5/34	Med	ground based	No	98	37	73	45	120	60
*41	B & C	54	2/34	Med	ground based	No	69	32	85	40	115	65
43	B & C	29	2/35	Med	skyline	No	237	76	75	30	200	70
44	B & C	11	2/35	Med	ground based	No	123	57	65	35	140	80
45	B & C	46	2/34	Med	ground based	No	178	65	70	34	153	73
46	B & C	19	2/24	Large	ground based	No	105	41	55	46	120	90
47	B only	5	6/24	Large	ground based	Yes	72	35	73	45	137	87
48	B only	190	2/35	Med	ground based	No	139	48	85	45	169	80
49	B & C	78	2/22	Med	ground based	No	122	58	67	36	123	63
52	B & C	33	6/23	Large	ground based	Yes	113	51	85	40	200	90
53	B & C	35	2/22	Med	ground based	Yes	131	45	60	35	157	90
55	B & C	21	6/24	Large	ground based	Yes	40	25	70	44	90	60
56	B & C	19	6/24	Large	ground based	Yes	86	30	80	40	170	80
57	B & C	14	6/24	Large	ground based	Yes	90	38	70	52	160	90
58	B & C	41	6/24	Large	ground based	Yes	72	46	70	45	130	90
*59	B & C	15	6/34	Med	ground based	No	82	56	68	46	100	60
60	B & C	54	2/22	Med	ground based	No	64	27	65	45	87	60
63	B & C	14	5/35	Med	skyline	Yes	101	66	85	55	100	60
64	B & C	9	5/34	Med	ground based	Yes	114	40	65	30	180	80
*66	B & C	111	6/34	Med	ground	No	130	53	70	40	170	85

Unit	Alternative	Acres	PVG / Strata	Tree Size Class	Yarding System	Goshawk PFA	Pre & Post Treatment Stand Description **					
							Trees per Acre (8.0" & up)		% Canopy Closure		Ave. Basal Area per Acre (sq ft)	
							Before	After	Before	After	Before	After
					based							
68	B & C	24	6/22	Med	ground based	No	132	41	75	40	120	50
69	B & C	33	6/22	Med	ground based	No	81	39	75	44	120	70
70	B & C	22	6/24	Large	ground based	No	84	29	70	40	150	60
*75	B & C	9	6/22	Med	ground based	No	214	84	60	40	260	90
76	B & C	16	6/23	Large	ground based	No	224	74	70	40	240	80
120	B & C	69	2/22	Med	ground based	No	53	28	58	31	108	76
*121	B & C	21	2/34	Med	ground based	No	78	39	65	41	110	70
131	B & C	46	5/24	Large	ground based	No	61	24	56	39	60	33
139	B & C	12	5/35	Med	ground based	Yes	101	50	72	30	80	40
211	B & C	27	6/22	Med	ground based	Yes	53	32	70	40	85	40
276	B only	18	6/34	Med	ground based	No	115	52	65	40	134	76
	Total	**1695**										

* NIDGS treatment units. These units would be treated by thinning and prescribed burning reducing the tree canopy closure to a level of 20-30%. This includes units in PVG 6. In Unit #066, only the north end (approx 10-20 ac) would be reduced to this level, the remainder of the unit would have up to 40% canopy closure. The delineation of the NIDGS treatment area in Unit #066 would be determined by the Wildlife Biologist, when unit boundaries are marked.

** The treatment stand descriptions are estimates based on cruise plot data, aerial photo interpretation, a table used to calculate canopy closure, and a table used to cross walk between average stand diameter, trees per acre, and basal area per acre. Actual stand conditions would vary from these estimates.

Table F-2 Prescribed Fire Only Treatments (Forested Stands)

Stand Type	Unit	Alternative	Acres	PVG / Strata	Tree Size Class	Goshawk PFA
Plantation	200	B & C	31	5/20	Small	No
	206	B & C	12	6/32	Small	Yes
	*208	B & C	10	2/32	Small	No
	*210	B & C	13	6/32	Small	No
	214	B & C	11	5/32	Small	No
	215	B & C	47	6/21	Small	No
	221	B & C	54	2/32	Small	Yes
	222	B & C	34	6/32	Small	Yes
	223	B & C	22	2/32	Small	No
TOTAL			**234**			
Forested	6	B & C	95	2/22	Med	Yes
	9	B & C	12	6/24	Large	Yes
	*54	B & C	10	6/22	Med	No
	61	B & C	21	6/34	Med	No
	100	B & C	24	5/22	Med	Yes
	105	B & C	45	5/22	Med	Yes
	106	B & C	27	2/21	Med	No
	107	B & C	19	2/22	Med	Yes
	113	B & C	19	6/24	Large	No
	123	B only	53	2/33	Med	No
	125	B & C	95	2/22	Med	Yes
	135	B & C	46	2/21	Med	Yes
	137	B & C	49	2/25	Med	No
	140	B & C	10	2/21	Med	No
	*145	B & C	5	2/34	Med	No
	147	B & C	11	2/22	Med	No
	149	B & C	5	2/33	Med	No
	151	B & C	62	6/22	Med	No
	154	B & C	5	2/22	Med	No
	202	B & C	20	2/21	Med	No
	204	B & C	15	2/21	Med	Yes
	229	B & C	199	2/21	Med	Yes
	240	B & C	23	2/22	Med	Yes
	241	B & C	7	2/22	Med	Yes
	242	B & C	23	5/34	Med	No
	243	B & C	8	2/34	Med	No
Forested (continued)	245	B & C	9	6/22	Med	No
	250	B & C	3	6/33	Med	No
	253	B & C	13	2/22	Med	Yes
	254	B & C	8	2/34	Med	No
	256	B & C	11	6/34	Med	No
	258	B & C	9	2/24	Large	No
	261	B only	5	2/33	Med	No
	263	B & C	31	6/26	Med	No
	264	B & C	20	1/21	Med	No
	268	B & C	6	2/34	Med	No

Stand Type	Unit	Alternative	Acres	PVG / Strata	Tree Size Class	Goshawk PFA
	270	B & C	94	6/22	Med	Yes
	272	B & C	55	6/22	Med	Yes
	274	B & C	6	6/22	Med	No
	275	B & C	13	6/22	Med	No
	278	B & C	46	6/22	Med	No
	282	B & C	19	5/22	Med	No
	285	B & C	62	6/21	Med	Yes
TOTAL			**908**			
RCA	*80	B & C	47	2/34	Med	No
	226	B & C	11	2/22	Med	Yes
	227	B & C	28	2/22	Med	Yes
	232	B & C	20	2/21	Med	Yes
	233	B & C	23	2/35	Small	Yes
	238	B & C	18	5/22	Small	Yes
	244	B & C	14	6/22	Med	Yes
	247	B & C	39	6/24	Large	Yes
	248	B & C	17	6/22	Med	No
	251	B & C	59	6/22	Med	No
	255	B & C	32	5/35	Med	Yes
	257	B & C	71	2/22	Med	No
	259	B & C	7	2/22	Med	No
	260	B & C	4	2/22	Med	No
	271	B & C	58	6/23	Large	Yes
	281	B & C	24	6/22	Med	No
TOTAL			**472**			

*NIDGS treatment units: These units would be treated by prescribed burning, reducing the tree canopy closure to a level of 20-30%. This includes units in PVG 6.

Table F-3 Prescribed Fire Only in Grass/Shrublands and low productivity woodlands.

Stand Type	Unit	Alternative	Acres	Strata	Goshawk PFA
Grass/Shrubland	101	B & C	7	41	No
	102	B & C	141	60	Yes
	103	B & C	121	60	Yes
	*104	B & C	252	60	No
	108	B & C	164	60	No
	111	B & C	9	41	No
	114	B & C	92	41	Yes
	115	B only	38	41	No
	116	B & C	39	60	Yes
	118	B & C	8	60	No
	124	B only	7	60	No
	127	B & C	28	60	No
	*129	B & C	194	60	No
	130	B & C	22	41	Yes
	132	B & C	8	60	No
	*133	B & C	26	60	No
	136	B & C	145	60	Yes

Stand Type	Unit	Alternative	Acres	Strata	Goshawk PFA
	141	B & C	11	60	Yes
	143	B & C	21	60	Yes
	146	B & C	256	60	No
	*150	B & C	7	42	No
	152	B & C	25	60	Yes
	224	B & C	52	60	Yes
	231	B & C	14	41	Yes
	237	B & C	12	60	Yes
	239	B & C	8	60	Yes
	246	B & C	9	60	No
	249	B & C	15	60	No
	252	B & C	14	60	No
	265	B & C	6	41	Yes
	266	B & C	5	41	Yes
	277	B & C	6	41	No
	280	B & C	21	41	No
TOTAL			**1783**		

*NIDGS treatment units: These units would be treated by prescribed burning, reducing the tree canopy closure to a level of 20-30% in Unit 150.

G. List of Preparers

The following are members of the Interdisciplinary Team or have contributed background information and analysis for this EA.

Interdisciplinary Team Members

Core Team
Jon Almack – Wildlife
Jeff Canfield –Vegetation
Paul Klasner – Fire/Fuels/Air Quality
Dean Martens - Soils
Melanie Vining – Hydrology
Becky Wroblewski – GIS Support
Caleb Zurstadt – Team Leader/Fisheries

Adams County Liaison Contacts
Mike Paradis
Wendy Green

Extended Team Members
Gayle Dixon – Cultural Resources
Mike Dixon – Transportation/Economics
Alex Enna - Developmental fuels specialist
Alma Hanson – Botany
Larry Kingsbury – Cultural Resources
Maura Laverty – Rangeland Management
Brant Peterson – Recreation
Amy Stiefel - Forester

Management and Review
Sylvia Clark - Forest NEPA coordinator
Ana Egnew – Forest Wildlife Biologist
Bob Giles – Ecosystems Resources Staff Officer
Kim Johnson - Forest Silviculturist
Dave Kennell – Forest Hydrologist
Greg Lesch – Council and Weiser District Ranger