US Department of the Interior
Bureau of Land Management

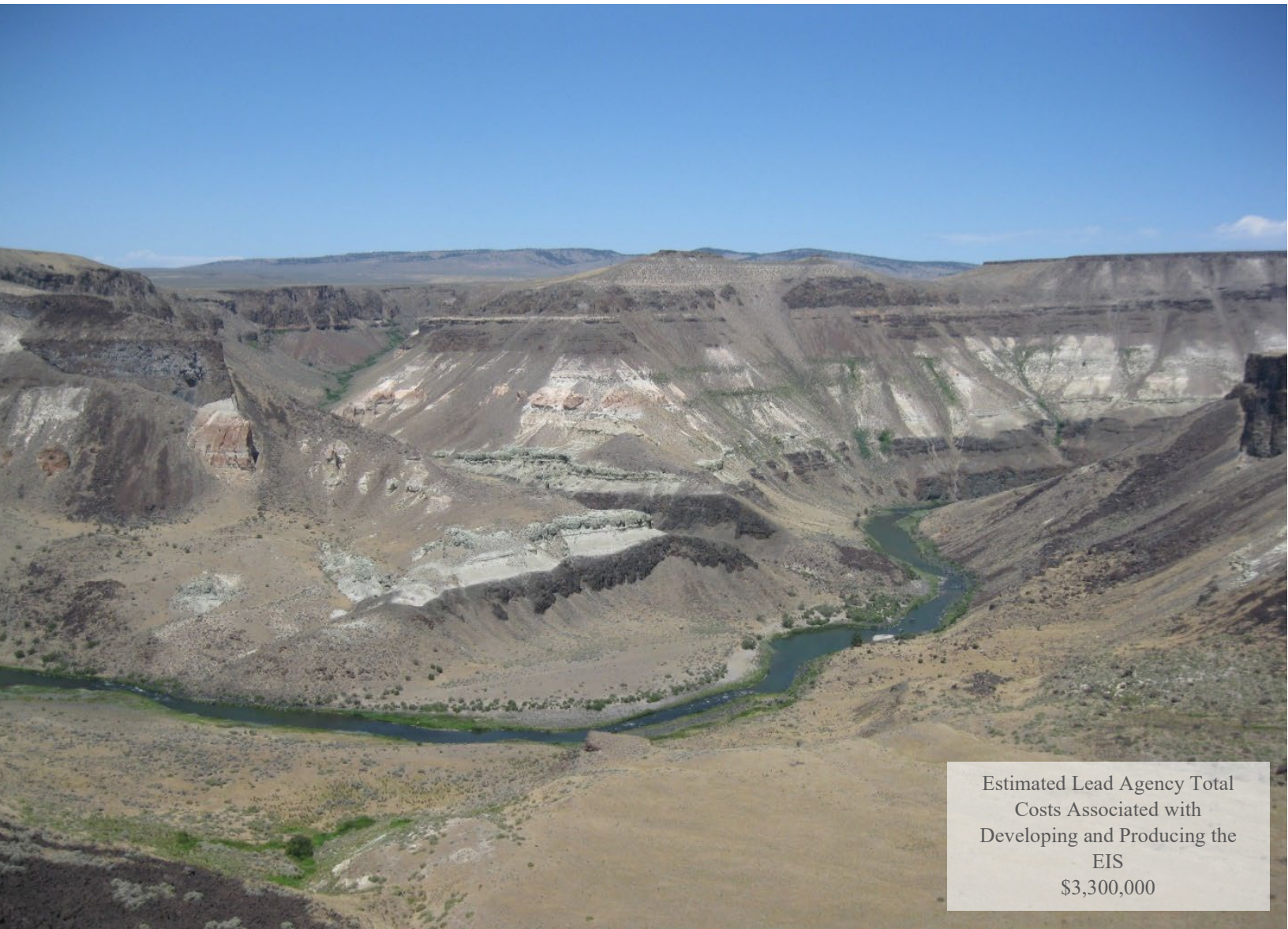
Vale District Office
100 Oregon Street
Vale, Oregon 97918

June 2023

Southeastern Oregon Proposed Resource Management Plan Amendment and Final Environmental Impact Statement

Volume 1 (of 2)—Text

Executive Summary, Chapters 1–4



Estimated Lead Agency Total Costs Associated with Developing and Producing the EIS
$3,300,000

June 2023

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United States Department of the Interior

Bureau of Land Management

Southeastern Oregon Proposed Resource Management Plan and Final Environmental Impact Statement

Vale District, Oregon

June 2023

Cooperating Agencies and Consulting Tribe:

U.S. Fish and Wildlife Service Oregon Department of Fish and Wildlife

Burns Paiute Tribe

Abstract:

The Southeastern Oregon Proposed Resource Management Plan Amendment and Final Environmental Impact Statement (Proposed RMP Amendment/Final EIS) describes and evaluates a range of potential management approaches for approximately 4.6 million acres of Bureau of Land Management (BLM) administered lands in the Vale District, Malheur Field Office. The BLM prepared this document in coordination with cooperating agencies and consulting tribes and with input from the public. The Proposed RMP Amendment would amend the 2002 Southeastern Oregon RMP.

The purpose for this RMP amendment is to comply with provisions of a 2010 Settlement Agreement, which requires the BLM to undertake a RMP amendment to address wilderness characteristics, off-highway vehicle (OHV) use, and two specific components of livestock grazing management. The BLM analyzed five alternatives, including the No Action Alternative and the Proposed RMP Amendment.

Under the No Action Alternative, the planning area would continue to be managed under the 2002 RMP as amended and would continue to provide interim protections on approximately 1.2 million acres—outside of existing Wilderness Study Areas—that were determined by BLM to possess wilderness characteristics. The interim protections are identified in the provisions of the 2010 Settlement.

Under the Proposed RMP Amendment, BLM would prioritize protection of wilderness characteristics in thirty-three areas (417,190 acres). Management of public lands in these areas would emphasize the maintenance and/or enhancement of the wilderness resource: roadless size of the unit, naturalness, and outstanding opportunities for solitude and primitive and unconfined recreation. The Proposed RMP Amendment would also carry forward the existing Travel Management objectives for off-highway vehicle (OHV) area designations (open, limited and closed), and would designate approximately 319,501 acres that are currently open to motorized use as limited to existing roads and primitive routes. This would bring the total of OHV Limited acres in the planning area to 4,585,249. Two areas, totaling approximately 40,368 acres, would continue to be designated as OHV Open to recreational motorized and non-motorized

use. The current 15,829 acres that are closed to motorized use under the 2002 SEORMP/ROD would remain OHV Closed.

The Proposed RMP Amendment would also maintain existing Management Objectives for livestock grazing and rangeland management, and would establish the following additional management direction:

> BLM would continue to follow livestock grazing administration regulations found in 43 CFR § 4180 and manage in accordance with "Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington" (BLM 1997) and would continue to implement the 2002 SEORMP/ROD management direction for livestock grazing. In addition, under the Proposed RMP Amendment the BLM would consider taking action to make progress toward achieving land health standards, regardless of causal factor(s) in cases where standards are not being attained. BLM would also not permit increases to animal unit months (AUM) if existing rangeland health assessments and evaluations are not available or do not reflect current conditions.
>
> BLM would continue to follow existing guidance should BLM receive a voluntary relinquishment of a grazing permit. Under this guidance, BLM would continue to be required to accept all voluntary relinquishments. Resource considerations in the relinquished area, and the degree to which grazing is compatible or in conflict with other resources or uses, would be evaluated through a NEPA analysis. The BLM would provide the rationale for how these resource considerations were addressed in an allocation decision. This decision would establish the allocation of forage resources for the life of the plan; additional land use planning-level analysis would not be required. If livestock grazing is found to be incompatible, the forage allocation could be made to another resource. If grazing is found to be compatible with the other resource considerations, then the area would remain available to livestock grazing and/or be designated as a reserve common allotment.

The Proposed RMP/Final EIS is open for a 30-day protest period beginning with the date the U.S. Environmental Protection Agency publishes the Notice of Availability of the Proposed RMP/Final EIS in the Federal Register. Protests must be filed with the Director of the BLM as described in the letter to the Interested Public.

For more information, contact:

Vale District, Malheur Field Office
100 Oregon Street
Vale, Oregon 97918
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Email: blm_or_vl_seormp@blm.gov

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Malheur Field Office
100 Oregon Street
Vale, OR 97918

Dear Interested Public:

This letter announces the availability of the Southeastern Oregon Proposed Resource Management Plan (RMP) Amendment and Final Environmental Impact Statement (EIS). This document responds to commitments the Bureau of Land Management (BLM) made in a 2010 settlement agreement to analyze, through an RMP amendment, a range of alternatives that address three key issues:

- *lands with wilderness characteristics;*
- *off-highway vehicle area designations (Open, Limited, and Closed); and*
- *livestock grazing issues related to meeting Standards for Rangeland Health and voluntary grazing permit/lease relinquishment processes.*

The Federal Land Policy and Management Act (FLPMA) provides that the BLM shall manage the public lands under the principles of multiple use and sustained yield. Under the Proposed RMP Amendment, the BLM would protect 33 of the 76 areas identified by BLM as having wilderness characteristics. These 33 areas total 417,190 acres. The Proposed RMP Amendment also proposes to limit OHV use to existing motorized routes in 319,501 acres that are currently open to cross-country OHV use. This brings the total of OHV limited acres in the planning area to 4.5 million. All 33 of the protected lands with wilderness characteristic areas are within this OHV limited category. Two OHV areas within the planning area, totaling 40,368 acres, would remain open to cross-country OHV use. The 15,829 acres that are currently closed to motorized use would remain closed. The Proposed RMP Amendment also provides additional guidance on the implementation of Standards for Rangeland Health and the processing of voluntary livestock grazing permit relinquishments.

The Proposed RMP Amendment/Final EIS is posted on the BLM's National Environmental Policy Act Register website, under "Documents & Reports" at https://eplanning.blm.gov/eplanning-ui/project/87435/510. If you do not have access to the internet, you may request the digital file by contacting the BLM Vale District Office.

The release of this document initiates a 30-day protest period. All protests must be in writing and filed with the BLM Director, either as a hard copy or electronically via the NEPA Register for this project by the close of the protest period. The close of the protest period is 30 days from the date that the Final EIS Notice of Availability is published by the Environmental Protection Agency in the Federal Register. The only electronic protests the BLM will accept are those filed through BLM's National NEPA Register. All protest letters sent to the BLM via fax or e-mail will be considered invalid unless a properly filed protest is also submitted.

Instructions for filing a protest can be found online at https://www.blm.gov/programs/planning-and-nepa/public-participation/filing-a-planprotest and also at 43 CFR 1610.5-2. If you do not have the ability to file your protest electronically, hard copy protests must be mailed to one of the following addresses:

- *Regular Mail: BLM Director (210), Attention: Protest Coordinator, P.O. Box 261117, Lakewood, CO 80226*
- *Overnight Delivery: BLM Director (210), Attention: Protest Coordinator, Denver Federal Center, Building 40, Lakewood, CO 80215.*

I appreciate your input to this planning process and look forward to your continued interest and participation. For additional information or clarification regarding this document, please contact project lead Brent Grasty at 541-473-3144. Interested parties may also communicate electronically via the project email BLM_OR_VL_SEORMP@blm.gov.

Sincerely,

Darrel W Monger
Vale District Manager
Oregon/Washington BLM

Acronyms and Abbreviations

Note: Refer to the list below for abbreviations or acronyms that may have been used in this document.

ACEC—Area of Critical Environmental Concern
AIM—Assessment, Inventory, and Monitoring
AML—appropriate management level
AMR—appropriate management response
APD—Application for Permit to Drill
ARMPA—Approved RMP Amendment (GRSG)
ATV—all-terrain vehicle
AUM—animal unit month
B2H—Boardman to Hemingway
BA—biological assessment
BCA—Backcountry Conservation Areas
BIA—Bureau of Indian Affairs
BLM—Bureau of Land Management
BMP—best management practice
BO—biological opinion
CCC—consultation, coordination, and cooperation
CEQ—Council on Environmental Quality
CFR—Code of Federal Regulations
COA—Conditions of Approval
CSU—controlled surface use
CWA—*Clean Water Act*
DEQ—Department of Environmental Quality
DLCD—Department of Land Conservation and Development
DOI—Department of the Interior
DPC—desired plant community
DRFCs—desired range of future conditions
DRMPA—Draft Resource Management Plan Amendment
EA—environmental assessment
EDRR—Early Detection and Rapid Response
EGS—enhanced geothermal systems
EIS—environmental impact statement, Draft or Final (DEIS, FEIS)
ERMA—Extensive Recreation Management Area
ESA—*Endangered Species Act*
ESI—ecological site inventory
ESR—Emergency Stabilization and Rehabilitation
FAMS—Facility Asset Management System
FARD—Functioning at Risk, trend not apparent
FARN—Riparian Function at Risk, trend not apparent
FARU—Riparian Functioning at Risk, upward trend
FIAT—Fire and Invasive Assessment Team
FLPMA—*Federal Land Policy and Management Act*
FMP—fire management plan
FOFEM—First Order Fire Effects Model
FRCC—fire regime condition class
FRG—fire regime group
FWS—US Fish and Wildlife Service
GCM—global climate models
GDP—Geothermal Drilling Permit
GeoBob—Geographic Biotic Observations
GHG—greenhouse gas
GHMA—General Habitat Management Area
GIS—geographic information system
GMA—Geographic Management Area
GRSG—Greater Sage-grouse
HAs—herd area
HMA—herd management area
HUC—hydrologic unit code
ICBEMP—Interior Columbia Basin Ecosystem Management Project
IDFG—Idaho Fish and Game
IDT—interdisciplinary team
IIPM—Integrated Invasive Plant Management
ILAP—Integrated Landscape Assessment Project
IM—Instruction Memorandum
IMP—Interim Management Policy
IMPLWR—Interim Management Policy for Land Under Wilderness Review
JRA—Jordan Resource Area (combined into the Malheur Field Office with the MRA)
INFISH—Inland Native Fish Strategy
KGRA—Known Geothermic Resource Area
LCGMA—Louse Canyon Geographic Management Area
LCT—Lahontan Cutthroat Trout
LTZ—Land tenure zones
LUP—Land Use Planning
MDPs—Master Development Plans
MFO—Malheur Field Office
MOU—Memorandum of Understanding
MRA—Malheur Resource Area (now MFO)
NARA—National Archives and Records Administration
NASA—National Aeronautics and Space Administration
NCA—National Conservation Area
NCL—National Conservation Lands
NCRIMS—National Cultural Resources Information Management System
ND—No data available to determine riparian condition
NEPA—*National Environmental Policy Act*
NF—Riparian area not functioning
NFESRP—Normal Fire Emergency Stabilization and Rehabilitation Plan
NFMA—*National Forest Management Act*
NLCS—National Landscape Conservation System (also known as NCL)
NHOT—National Historic Oregon Trail

NHPA—*National Historic Preservation Act*
NIDIS—National Integrated Drought Information System
NL—no leasing
NOA—Notice of Availability
NOAA—National Oceanographic and Atmospheric Administration
NOI—Notice of Intent
NR—No Riparian
NPRPA—*National Petroleum Reserve Production Act*
NPS—National Park Service
NPSP—nonpoint source pollution
NRCS—Natural Resources Conservation Service
NREL—National Renewable Energy Laboratory
NRHP—National Register of Historic Places
NSO—no surface occupancy
NTS—National Trails System
NWSRA—*National Wild and Scenic River Act*
NWSRS—National Wild and Scenic River System
OBSMP—Oregon's Bighorn Sheep Management Plan
O&C Lands Act—Oregon and California
OCCRI—Oregon Climate Change Research Institute
ODA—Oregon Department of Agriculture
ODEQ—Oregon Department of Environmental Quality
ODF—Oregon Department of Forestry
ODFW—Oregon Department of Fish and Wildlife
OHV—off-highway vehicle
ONDA—Oregon Natural Desert Association
ONHP—Oregon Natural Heritage Program
ORV—outstandingly remarkable value
OSO—Oregon State Office
OSP&R—Oregon State Parks and Recreation
OSU—Oregon State University
PAC—Priority Areas of Conservation
PFC—riparian system in proper functioning condition
PHMA—Priority Habitat Management Area
PRMPA—Proposed Resources Management Plan Amendment
PRPA—*Paleontological Resources Preservation Act*
PSEORMP/FEIS—Proposed SEORMP and Final EIS
R&PP—*Recreation and Public Purpose Act*
R&R—Resistance and Resilience
RAS—Range Administration System
RCA—Reserve Common Allotments
RDF—Required Design Feature
ReGAP—Regional Gap (analysis)
Rel.—Release
RFFA—Reasonably Foreseeable Future Actions
RHCAs—Riparian Habitat Conservation Areas
RMP—Resource Management Plan
RNA—Research Natural Area
ROD—Record of Decision
ROW—Rights-of-way
S&Gs—Standards and Guidelines
SC-GHG—social cost of greenhouse gases
SEORAC—Southeastern Oregon Resource Advisory Council
SEORMP—Southeastern Oregon Resource Management Plan
SFA—Sage-grouse Focal Area
SHPO—State Historic Preservation Office
SMA—Designated Special Management Area
SMCMPA—Steens Mountain Cooperative Management and Protection Area
SNOTEL—snow telemetry stations
SRMAs—Special Recreation Management Areas
SSAS—Special Status Animal Species
SSS—Special status species
SWE—snow water equivalent
TGA—*Taylor Grazing Act*
TMDL—Total Maximum Dailey Load
TMP—Travel Management Plan
TNC—The Nature Conservancy
TRCP—Theodore Roosevelt Conservation Partnership
TTM—Travel and Transportation Management
TVCC—Treasure Valley Community College
UDD—unnecessary or undue degradation
UDRMP—Upper Deschutes RMP
USC—United States Code
USDI—US Department of the Interior
USEPA—US Environmental Protection Agency
USFWS—US Fish and Wildlife Service
USGS—US Geological Survey
UTV—Utility Type (or Terrain Vehicle
VCC—vegetation condition class
VDEP—vegetation departure
VRA—Visual Resource Inventories
VRM—Visual Resource Management
WFRHBA—*Wild Free-Roaming Horses and Burrow Act*
WFDSS—Wildland Fire Decision Support System
WIU—wilderness characteristics inventory unit
WMU—Wildlife Management Unit
WQMP—Water Quality Management Plan
WQRPs—Water Quality Restoration Plans
WSA—Wilderness Study Area
WSR—Wild and Scenic River
WSRA—*Wild and Scenic River Act*
WUI—wildland urban interface

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Southeastern Oregon
Proposed Resource Management Plan Amendment
and
Final Environmental Impact Statement

Executive Summary

Background and Introduction

This Southeastern Oregon (SEO) Proposed Resource Management Plan Amendment and Final Environmental Impact Statement (PRMPA/FEIS) is a focused amendment, limited to addressing issues and alternatives required by a 2010 Settlement Agreement. The proposed amendment provides options for future management of lands with wilderness characteristics, off-highway vehicles, and specific aspects of grazing management on public land administered by the Bureau of Land Management (BLM) in Southeastern Oregon. This 4.6-million-acre planning area encompasses all public lands within the Malheur Field Office of the Vale District. Within the planning area there are 1.3 million acres of Wilderness Study Areas (WSAs). In 2012, the BLM completed an inventory update of lands with wilderness characteristics outside of WSAs, as agreed to in the 2010 Settlement Agreement. The BLM reassessed the inventory update in 2017. Through this inventory update, the BLM determined that there are an additional 1.2 million acres that meet the criteria of possessing wilderness characteristics.

BLM's Draft RMP Amendment and Draft EIS (DRMPA)/DEIS analyzed five alternatives and was published in May 2019, beginning a 90-day public review period (BLM 2019a). Over 4,000 comments were received on the DRMPA/DEIS, reflecting a broad cross-section of local, state, and federal entities, and the general public interests and issues that the BLM then considered in developing this PRMPA/FEIS. The PRMPA/FEIS also incorporates updates and revisions.

The PRMPA/FEIS is prepared in accordance with the *Federal Land Policy and Management Act of 1976* (43 CFR 1610) and the *National Environmental Policy Act of 1976*. It is an amendment to the 2002 RMP, as amended by the 2015 and 2019 Oregon Greater Sage-grouse Approved RMP Amendments and Records of Decision.

Purpose and Need for this RMP Amendment and Environmental Impact Statement

The Purpose and Need (Chapter 1) for this SEORMP Amendment is to comply with the provisions of the 2010 Settlement Agreement (Appendix R). Specifically, this amendment is limited to addressing: future management of lands with wilderness characteristics, off-highway vehicle (OHV) allocations (open, limited, and closed), and livestock grazing as it relates to (a) implementation of management responses when Standards for Rangeland Health are not met as a result of existing livestock grazing and (b) analysis of processes used when the BLM receives a voluntary relinquishment of a grazing permit. The BLM developed a full range of alternatives to consider these three issues and published these in the Draft RMP Amendment/EIS.

The National Environmental Policy Act (NEPA) requires that the BLM prepare an EIS for all actions that significantly affect the quality of the human environment. In this case, the RMP Amendment is a "federal action" that triggers preparation of an EIS. The NEPA requires analysis of a reasonable range of alternatives, including a "No Action" Alternative and a description of the environmental effects of the alternatives.

BLM's Consultation, Coordination, and Public Involvement in the Development of this Proposed RMP/Final EIS

The BLM's development of the PRMPA/FEIS entailed an extensive consultation and coordination process, which included Tribal governments, federal, state, and local governments, and cooperating agencies. Chapter 4 and Appendix H detail this coordination.

Tribal Governments

There are five potentially affected federally recognized Tribes who have interest in the planning area: the Burns Paiute Tribe, Confederated Tribes of the Umatilla Indian Reservation, Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation and the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation. The BLM is coordinating with all the Tribes on the planning effort. The BLM consulted per BLM Manual 8130 (BLM 2004) and Handbook 1780 (BLM 2016c) and sent copies of documents to tribal officials for review and comment. The BLM contacted the Tribes by mail, email, or phone at multiple stages in the planning process, (direct outreach, official Scoping period, DRMPA/DEIS comment period, and during administrative review periods) and did not receive any response from five of the Tribes. The Burns Paiute Tribe and BLM entered into formal government-to-government consultation on the planning effort. The BLM contacted the Burns Paiute Tribe at multiple stages through email, mail, face-to-face meetings, and phone calls; to discuss the RMPA, provide updates, and to accept and address comments and questions.

State Historic Preservation Office Consultation

The BLM coordinates with the Oregon State Historic Preservation Office (SHPO) on BLM management planning processes in conformance with Section III.A. of the 2015 BLM-SHPO State Protocol. To date, the BLM has provided the SHPO a copy of the DRMPA/DEIS for their review and comment and will provide the SHPO with the PRMPA/Final EIS.

Regulatory Agency Consultation

The *Endangered Species Act* (ESA), Section 7(a)(2), requires the BLM to consult with the US Fish and Wildlife Service (USFWS) on the effects of the PRMPA/FEIS on species listed as threatened or endangered. The BLM prepared a biological evaluation regarding three species and conducted informal consultation with the USFWS. In the biological evaluation, the BLM found that the PRMPA may affect, but is not likely to adversely affect, the Lahontan cutthroat trout *(Oncorhynchus clarkii henshawi*), as the effects of this action are insignificant, discountable, or wholly beneficial. The BLM also determined that implementation of the PRMPA will have no effect on bull trout (*Salvelinus confluentus*) and yellow-billed cuckoo (*Coccyzus americanus*), or their critical habitat. The USFWS concurred with the BLM determination on December 2, 2023, thereby completing Section 7 Consultation. See Chapter 4 and Appendix H.3 for more details.

Cooperating Agencies

On February 28, 2018, the BLM invited Tribal governments and State and local agencies with jurisdiction by either law or special expertise, or both, to participate as cooperating agencies in the planning process. A cooperating agency can be a Tribe, federal, state, or local government agency with jurisdiction by law or special expertise that assists a lead federal agency in developing an environmental assessment or environmental impact statement (40 CFR, Sec. 1508.5).

The US Fish and Wildlife Service and Oregon Department of Fish and Wildlife signed a Memoranda of Understanding (MOU) and became formal cooperating agencies. Throughout the planning process, the BLM solicited input from these cooperating agencies. Both agencies provided comments on the DRMPA/DEIS (See Appendix S). The BLM also held resource-specific conference calls and meetings with the cooperating agencies (See PRMPA/FEIS, Appendix H).

Southeast Oregon Resource Advisory Committee

The BLM worked closely with the Southeast Oregon Resource Advisory Committee (referred to as SEORAC or RAC throughout this document). The BLM managers engaged early in the process (2014–2016) with the RAC to obtain their input and recommendations on processes for identifying lands with wilderness characteristics for protection. The BLM requested the RAC's recommendations for potential management allocations for protected units. The RAC's recommendations were a foundation for the development of Alternative D and the PRMPA (SEORAC 2014).

Public Involvement

This process was initiated with publication of a Notice of Intent (NOI) in the Federal Register on April 8, 2010 (75 FR 17950), followed by a series of five public scoping meetings. The BLM distributed press releases and letters to a complete list of interested publics. Comments were received throughout the 30-day comment period, culminating in the publication of a Scoping Report in 2012 (BLM 2012i).

The BLM managers and staff met individually with members of the public, non-governmental organizations, and local governments to continue to identify potential alternatives and issues associated with the amendment.

The DRMPA/DEIS was published in May 2019, initiating a 90-day public review and comment period (BLM 2019a). The BLM received over 4000 letters, emails, and postcards as part of the comments on the draft document. During the comment period, the BLM held two public meetings in Malheur County, and one meeting in McDermitt, NV, providing opportunities for input on the amendment. Over 60 members of the public attended the three meetings. The BLM considered these comments on the DRMPA/DEIS when developing the PRMPA/FEIS. Updates and revisions are shown in blue text in Chapter 3 and select Appendices; notable changes between Draft and Proposed Amendments are summarized in Appendix Q. Responses to the public comments received can be found in Appendix P.

The Alternatives and Proposed SEORMP Amendment

The BLM developed a range of approaches—or alternatives—for managing wilderness characteristics, off-highway vehicles and two specific grazing processes related to Standards for Rangeland Health and the voluntary relinquishment of a livestock grazing permit. The alternatives were developed with input from the public, the Southeast Oregon Resource Advisory Committee, cooperating agencies (USFWS and the Oregon Department of Fish and Wildlife), the Burns-Paiute and other Tribal governments, and BLM managers and resource specialists at the Vale District and Oregon/Washington State Office.

Appendix A *Alternatives* describes a No Action Alternative (i.e., continuation of current management) and four action alternatives (Alternatives A, B, C, and D). The BLM developed the DRMPA/DEIS alternatives, pursuant to the requirements of the FLPMA and the NEPA with the objective of meeting the Purpose and Need, Chapter 1. The BLM's PRMPA has been developed based on public comments and internal input on the DRMPA/DEIS, is described in Chapter 2 and includes elements from the range of alternatives that were analyzed in the DRMPA/DEIS.

The alternatives and PRMPA are summarized below. The No Action Alternative and Alternative A represent a continuation of current management direction under the 2002 SEORMP, as amended. In addition, the No Action Alternative reflects BLM's commitment under the 2010 Settlement Agreement to

authorize no actions that could diminish the size of, or cause an entire wilderness characteristics inventory unit to no longer possess those characteristics, until BLM completes the NEPA analysis and RMP Amendment.

Alternatives B, C, and D, and the PRMPA would incorporate a new objective and management direction for lands that are prioritized for protection of wilderness characteristics. These three alternatives and the PRMPA would establish a 250' road setback (buffer) area at the boundary of the lands with wilderness characteristic units that are proposed for protection. The setbacks would be managed separately from those areas prioritized for protection, permitting other activities or uses, and thereby affording greater management flexibility adjacent to the protected area.

Alternatives B, C and D and the PRMPA also analyze a range of off-highway vehicle (OHV) area designations and propose livestock grazing management direction as it relates to: (a) implementation of management responses when Standards for Rangeland Health are not attained as a result of existing livestock grazing, and (b) processes used when the BLM receives a voluntary relinquishment of a grazing permit. Table ES-1, below, summarizes notable differences among the alternatives and the PRMPA.

The BLM considered several additional alternatives that were not carried forward for detailed analysis. The alternatives, along with the rationale for not analyzing them in detail, are presented in Appendix D.

No Action Alternative

In accordance with the 2010 Settlement Agreement, interim protections for the 76 units identified by BLM as having wilderness characteristics would continue. Actions that could diminish the size—or cause the entire BLM inventory unit to no longer meet the criteria—of lands with wilderness characteristics are prohibited. The BLM would continue to implement the OHV allocations and livestock grazing management direction of the 2002 Southeastern Oregon RMP, as amended by the 2015 Oregon Greater Sage-Grouse Approved RMP Amendments[1] (BLM 2015d).

Alternative A (Preferred Alternative in the DEIS)

There would be no land use plan-level management direction for, or protective measures of, the 76 units identified as having wilderness characteristics. Under Alternative A, the BLM would continue to implement the OHV allocations and livestock grazing management direction of the 2002 Southeastern Oregon RMP, as amended by the 2015 Oregon Greater Sage-grouse Approved RMP Amendments.

Alternative B

All 76 wilderness characteristic units (1,206,780 acres), excluding applicable boundary road setbacks, would be managed to protect those characteristics. These units, in addition to all WSAs would be Closed to off-highway vehicle (OHV) use. All currently Open OHV areas outside of WSAs and wilderness characteristics units would limit OHV use to existing routes. Grazing permits would be suspended for the life of the RMPA where existing livestock grazing is determined to be a significant factor in not meeting Standards for Rangeland Health. Voluntary relinquishment of a grazing permit would result in certain identified areas (set forth in Provision 29(2) of the 2010 Settlement Agreement; also see Appendix A

[1] In March 2019, the BLM amended its 2015 Approved Resource Management Plan Amendment (ARMPA) for Greater Sage-grouse habitat management, issuing an additional Record of Decision (BLM 2019d). The March 2019 amendment retained the 2015 GRSG ARMPA allocations, objectives, and management direction, with the exception of allowing grazing to continue in the Key RNAs.
The March 2019 amendment was appealed (*Western Watersheds Project v. Schneider, Case No. 1:16-cv-00083-BLW* [D. Id. Oct. 16, 2019]) and in October 2019, the District Court of Idaho issued a preliminary injunction suspending implementation all of BLM's 2019 Sage-grouse ARMPAs (1:16-CV-00083-BLW). During this injunction, the 2015 GRSG ARMPA ROD remains in effect.

Alternatives, Table A-2, and Appendix G *Permit Relinquishment Processes by Alternative*) no longer being available for livestock grazing for the life of the RMP Amendment.

Alternative C

Twenty-seven wilderness characteristic units (167,550 acres), excluding applicable boundary road setbacks, would be identified for protection of wilderness characteristics. OHV Open management continues in eight specific areas. These eight OHV Open areas (107,075 acres) would continue to be available for cross-country motorized travel. For all other areas currently designated as OHV Open (252,794 acres), management would change to OHV Limited to existing routes for motorized vehicle use. Current management direction would continue regarding how the BLM evaluates and conducts Standards for Rangeland Health and Guidelines for Livestock Management. BLM would continue to follow guidance under Washington Office Instruction Memorandum WO IM 2013-184 for processing a voluntarily relinquished grazing permit, and would require that NEPA analysis and a subsequent planning-level decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use if grazing is determined through analysis to be incompatible with other resources or resource uses. Alternative C identifies a set of specific resource values and resource uses (Table 2-3, Chapter 2) to considered when a voluntary permit relinquishment is received. Under Alternative C, if livestock grazing was determined through analysis, to be incompatible with one or more of these other resources or uses, the permitted area could become unavailable to livestock grazing pending land use planning-level analysis and decision.

Alternative D

Thirty-three wilderness characteristic units (417,190 acres), excluding applicable boundary road setbacks, would be prioritized for protection of wilderness characteristics. All lands with wilderness characteristics in the 33 units would be managed as OHV Limited to existing routes for motorized vehicles, unless currently closed to OHV access. The OHV allocations under this alternative are similar to the No Action Alternative and Alternative A, with 34,183 fewer acres Open to cross-country OHV use.

Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the Standards for Rangeland Health, the BLM would suspend term grazing permits for the duration of the permit (generally up to 10 years) or until monitoring indicates that significant progress is made toward attaining standards. This alternative would designate as unavailable to grazing (or reduced where common use by multiple permittees occurs) those areas of a relinquished permit that overlap lands set forth in Provision 29(1) of the 2010 Settlement Agreement (see Appendix A, Table A-4 and Appendix G *Permit Relinquishment Processes by Alternative*) for the life of the RMPA.

PRMPA

Thirty-three lands with wilderness characteristics units (417,190 acres) would be prioritized for protection. These 33 areas reflect those units proposed for protection under Alternative D. A new objective would be established for protected lands with wilderness characteristics, as would management direction to prioritize protection of these areas, including the following land use plan-level direction.

The BLM would protect the 33 units by designating them as visual resource management (VRM) Class II (the level of allowable change to the landscape in Class II areas is low) unless already VRM Class I. These areas would also be designated as Land Tenure Zone 1 (retain in federal ownership). Major Rights-of-way projects such as large-scale renewable energy projects would be prohibited as would surface occupancy for saleable minerals and the development of new mineral material sites. Protected units would be designated as no surface occupancy for leasable minerals, unless currently closed.

The PRMPA would reduce the number of acres currently designated as open to OHV use by approximately 320,000 and would limit vehicle use in these areas to existing routes. The total OHV Limited areas in the planning area would be 4.5 million acres. Two areas totaling 40,000 acres, that are near the town of Vale, Oregon, would remain open to cross-country OHV use. The 15,829 acres that are currently closed to motor vehicle use would remain closed.

Under the PRMPA, BLM would continue to implement Oregon-Washington Standards for Rangeland Health and Guidelines for Livestock Management, in accordance with 43 CFR 4180.2, under which BLM must take appropriate action to address where standards are not achieved, if BLM determines that existing livestock grazing is a significant causal factor. In addition, the PRMPA proposes that BLM will consider taking action to address circumstances where Standards for Rangeland Health are not being achieved, regardless of causal factor. Actions could include changes to livestock grazing management. The PRMPA also proposes to not increase AUMs in areas where an updated Rangeland Health Assessment and Evaluation has either not been prepared or does not reflect current conditions.

Under the PRMPA, the BLM would continue to follow guidance under Washington Office Instruction Memorandum WO IM 2013-184 for processing a voluntarily relinquished grazing permit, and would require that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use if grazing is determined through analysis to be incompatible with other resources or resource uses. The PRMPA identifies the same set of specific resource values and resource uses (Table 2-3, Chapter 2) to be considered when a voluntary permit relinquishment is received as identified under Alternative C. Under the PRMPA, the permitted area could become unavailable to grazing through project-level NEPA analysis and subsequent decision; no additional land use planning-level analysis or decision would be required.

Changes Made to the Alternatives as a Result of Public Comment on the Draft RMP Amendment and Draft Environmental Impact Statement

Notable changes between the Draft and Final EIS can be found in Appendix Q and in blue text in the document.

Effects of the Alternatives and Proposed RMP Amendment

The effects analysis is a description of the impacts on the human environment from the alternatives and the PRMPA. The Council on Environmental Quality regulations for implementing the *National Environmental Policy Act* state that the human environment is the natural and physical environment and the relationship of people to that environment (40 CFR 1508.14).

Chapter 3, Affected Environment and Environmental Consequences, describes the existing resource conditions and trends in the planning area. It also describes the direct, indirect, and cumulative effects of the PRMPA and each of the alternatives. This includes descriptions of the environmental, social, and economic consequences of implementing the alternatives. The purpose of this document is to provide the BLM decision-makers and the public with an analysis of the environmental consequences of the PRMPA and the alternatives. Table ES-1, below, provides Land Use Planning Allocations by Alternative.

Next Steps

The publication of the Notice of Availability in the Federal Register by the US Environmental Protection Agency initiates a 30-day protest period and a 60-day Oregon Governor consistency review. Protests must be postmarked or received no later than 30 calendar days following publication of the Notice of

Availability. Please refer to the instructions in the "Dear Reader Letter" at the beginning of this document for additional information on how to submit a protest. The close of the protest period will be 30-days after the publication of the Federal Register Notice of Availability and announced on the Southeastern Oregon Resource Management Plan Amendment website DOI-BLM-ORWA-V000-2017-0038-EIS on the BLM's National NEPA Register for this project. Following resolution of any protests and the completion of the consistency review by the Governor of Oregon, the Approved Southeastern Oregon RMP Amendment and Record of Decision will be announced via news release and made available electronically on the national NEPA register website.

Table ES-1. Acres of land use planning allocations by alternative.[2]

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Summary	Continuation of existing management under the 2002 SEORMP and ROD, as amended, and as required by the 2010 Settlement Agreement. All proposed actions are analyzed to avoid diminishing or eliminating wilderness characteristics.	Reflects management under the 2002 SEORMP and ROD, as amended. The 2002 ROD did not provide specific management or protection of lands with wilderness characteristics. Alternative A would not propose additional land use planning-level resource protection for the wilderness characteristics resources.	Emphasize protection of all 76 wilderness characteristics units (excluding road boundary setbacks).	Emphasize protection of twenty-seven (27) identified lands with wilderness characteristics (excluding boundary road setbacks)) units). See Appendix C Alternatives C and D Methodologies for details on identifying units for protection under Alternative C.	Emphasize protection of thirty-three (33) identified lands with wilderness characteristics (excluding road boundary setbacks) units. See Appendix C - Alternatives C and D Methodologies for details on identifying units for protection under Alternative D.	Emphasize protection of the thirty-three (33) identified lands with wilderness characteristics (excluding road boundary setbacks) units. The 33 units analyzed under Alternative D would be managed to emphasize protection of wilderness characteristics under this PRMPA.
		OHV Area Designations and Grazing Management are not amended.	All 76 wilderness characteristics units and all WSAs would be managed as Closed to OHV use.	The twenty-seven (27) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes for OHV.	The thirty-three (33) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes for OHV.	The thirty-three (33) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes. Two areas near the city of Vale, Oregon would be retained as OHV Open.

[2] Unless otherwise specified, numbers refer to acres by land use allocation.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Summary (*Cont.'d*)		Livestock management would be carried forward as identified under the 2002 SEORMP/ROD, as amended.	Where the BLM determines existing livestock grazing practices are a significant causal factor in not meeting Standards for Rangeland Health, the BLM would suspend the grazing permit for the life of the RMP. When a grazing permit is voluntarily relinquished and pastures are within 2010 Settlement Agreement-specified management areas (Appendix A, Table A-2), the BLM would not re-allocate use to livestock grazing for the life of the RMP.	Permit renewal regarding existing livestock grazing practices as a significant causal factor would be managed as under the 2002 SEORMP/ROD. Processing voluntary relinquishment of a grazing permit same as the No Action Alternative. The BLM has clarified this process in this Alternative.	Where the BLM determines livestock grazing practices are a significant causal factor in not meeting Standards for Rangeland Health, the BLM would suspend the grazing permit until monitoring identifies the area is making significant progress toward meeting the standard. When a permit is voluntarily relinquished, and pastures overlap 2010 Settlement Agreement-specified management areas (Appendix A, Table A-4), the BLM would not re-allocate use to livestock grazing for the life of the RMP.	Permit renewal regarding existing livestock grazing practices as a significant causal factor would be managed as under the 2002 SEORMP/ROD. Processing voluntary relinquishment of a grazing permit and implementation of Oregon/Washington BLM implementation of Standards for Rangeland Health remain the same as the No Action Alternative.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Units Identified to Prioritize Protection of Lands with Wilderness Character-istics[3] *(See Appendix B of the DRMPA/DEIS for protected unit summaries and maps)*	Management under the 2010 Settlement Agreement would continue: all 76 units found to possess wilderness characteristics are managed to not permit any actions that would, "diminish the size or cause the entire BLM inventory unit to no longer meet the criteria for wilderness characteristics." Boundary Road Setbacks: None Seventy-six (76) units protected for wilderness characteristics: 1,236,907 acres **(Map WC 2: DEIS)**	Management would not establish new land use planning-level direction to prioritize protection of wilderness characteristics. Boundary Road Setbacks: None No additional land use planning protections for wilderness characteristics **(Map WC 1: DEIS)**	All 76 units (excluding setbacks) determined by the BLM to possess wilderness characteristics would be managed to prioritize protection of those characteristics. Alternative A prioritizes all units with wilderness characteristics. Boundary Road Setbacks:30,127 acres Seventy-six (76) units protected for wilderness characteristics: 1,206,780 acres **(Map WC 3: DEIS)**	27 identified units determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Protection of units identified by applying BLM's 2017 analysis methodology (see Appendix C Methodology). Boundary Road Setbacks: 5,714 acres Twenty-seven (27) units protected for wilderness characteristics: 167,709 acres **(Map WC 4: DEIS)**	33 units identified areas determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Protection of units identified based on recommendations of the SEORAC (see Appendix C Methodology). Boundary Road Setbacks: 9,247 acres Thirty-three (33) units protected for wilderness characteristics: 417,196 acres **(Map WC 5: DEIS)**	33 units identified areas determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Units analyzed for prioritized protection under Alternative D carried forward into the PRMPA. Boundary Road Setbacks: 9,247 acres Thirty-three (33) units protected for wilderness characteristics: 417,190 acres **(Map WC 6)**

[3]Appendix B in this RMPA/DEIS provides unit summaries for each protected unit.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Off-highway Vehicle (OHV) Motorized Use	Continuation of existing management.		All wilderness characteristics units, including setbacks, and all WSAs, including Lands Adjacent (2002 SEORMP and ROD) would be assigned an OHV area designation of Closed to motorized vehicles. All existing primitive routes in these areas would be Closed to OHV use. Motorized access for authorized and administrative uses would be allowed.	Protected wilderness characteristics units, excluding setbacks, would be managed as Limited to existing routes, unless already managed as Closed to motorized vehicles. Existing OHV management under the 2002 SEORMP/ROD in setbacks would continue. Eight discrete areas in the northern portion of the planning area which are currently Open to OHV use would be retained as Open.	Protected wilderness characteristics units, including setbacks, would be managed as Limited to existing primitive routes, unless already managed as Closed to motorized vehicles. OHV area designations in WSAs are unchanged (currently Limited in the 2002 SEORMP/ROD).	Except as noted below, all currently OHV Open areas would be designated as OHV Limited, including protected wilderness characteristics units and their respective setbacks, unless already managed as Closed to motorized vehicles.
			All other areas currently managed as Open (cross-country motorized travel allowed) to OHV use would be managed as OHV Limited to existing roads and primitive routes.	All other areas currently managed as Open (cross-country motorized travel allowed) to OHV use would be managed as OHV Limited to existing roads and primitive routes.	All other public lands in the planning area would retain their current OHV designation as identified in the 2002 SEORMP, as amended.	40,368 acres would continue to be managed as OHV Open as identified in the 2002 SEORMP, as amended.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Off-highway Vehicle Motorized Use (Cont.'d)	**OHV Area Allocations (acres)** *Open:* 359,869 *Limited:* 4,265,748 *Closed to motorized vehicles:* 15,829 **Map OHV 1: DEIS)**		**OHV Area Allocations (acres)** *Open:* 0 *Limited:* 2,127,604 *Closed to motorized vehicles:* 2,513,842 **Map OHV 2: DEIS)**	**OHV Area Allocations (acres)** *Open:* 107,075 *Limited:* 4,518,539 *Closed to motorized vehicles:* 15,829 **Map OHV 3: DEIS)**	**OHV Area Allocations (acres)** *Open:* 325,686 *Limited:* 4,299,928 *Closed to motorized vehicles:* 15,829 **Map OHV 4: DEIS)**	**OHV Area Allocations (acres)** *Open*: 40,368 *Limited*: 4,585,249 *Closed to motorized vehicles*: 15,829 **Map OHV 5)**
Visual Resource Management (VRM) Classification	Continuation of existing management[4] **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 219,040 VRM Class III: 639,284		All lands with wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I). **Acres of Visual Resource Manage-ment by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 1,291,381 VRM Class III: 490,445	Identified lands for prioritized protection of wilderness charac-teristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Manage-ment by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 350,315 VRM Class III: 617,779	Identified lands for prioritized protection of wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543	Identified lands for prioritized protection of wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543

[4] VRM Class II objectives are defined as, "Retain the existing character of the landscape. Allow a low level of change that should not attract the attention of a casual observer." All VRM class objectives are presented in the Visual Resource Management Section 3.7.16 of Chapter 3.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
VRM Class *(Cont.,d)*	VRM Class IV: 2,472,520 **(Map VRM 1: DEIS)**		VRM Class IV: 1,549, 018 **(Map VRM 2: DEIS)**	VRM Class IV: 2,362,750 **(Map VRM 3: DEIS)**	VRM Class IV: 2,151,940 **(Map VRM 4: DEIS)**	VRM Class IV: 2,151,940 **(Map VRM 5)**
Minerals **-Leasable Minerals** ***CSU: Controlled Surface Use*** ***NSO: No Surface Occupancy***	*Unleased Minerals* Until the Amendment is completed, proposals for new leasable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics. *Leased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended.	*Unleased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended. *Leased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended.	*Unleased Minerals* Where leasable minerals are currently unleased, identified areas managed to protect wilderness characteristics would have no surface occupancy (NSO) unless otherwise more restrictive (Closed to leasing). Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. *Leased Minerals* Where leasable minerals are currently leased, apply the following stipulations to all areas protected for wilderness characteristics: Apply reasonable conservation measures consistent with management of wilderness characteristics. Implement design features for management of wilderness characteristics to meet VRM Class II objectives. Require Master Development Plans for fluid minerals processing within areas managed for wilderness characteristics. Require unitization for fluid minerals when necessary for proper development.			*Unleased Minerals* Same as Alternatives B, C and D for the 33 protected wilderness characteristics units proposed for protection under the PRMPA would be designated as NSO unless otherwise more restrictive (Closed to leasing). Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. Approximately 148,420 additional acres in the planning area would be NSO above NA and A. *Leased Minerals* Same as Alternatives B, C and D in areas protected for wilderness characteristics under the PRMPA. The same stipulations would apply in these areas.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Leasable Minerals ***CSU: Controlled Surface Use*** ***NSO: No Surface Occupancy*** *(Cont.'d)*	Geophysical Exploration Until the Amendment is completed, proposals for new leasable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics.	Geophysical Exploration Continuation of existing management under the 2002 SEORMP and ROD as amended.	Identify areas where land acquisitions, including nonfederal mineral rights, may benefit management of wilderness characteristics. If such acquisition is determined to provide a benefit, proceed with acquisition process where appropriate. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. Geophysical Exploration The BLM would allow geophysical exploration in units managed to emphasize protection of their wilderness characteristics, with appropriate design features to meet VRM Class II objectives and in a manner consistent with the new objective for wilderness characteristics. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks.			Geophysical Exploration Same as Alternatives B, C, and D in areas protected for wilderness characteristics under the PRMPA/FEIS.
	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,767,976 CSU: 1,800,450 Open: 145,411 **(MAP MIN 7: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,767,976 CSU: 1,800,450 Open: 145,411 **(MAP MIN 7: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 2,246,378 CSU: 1,339,355 Open: 128,104 **(MAP MIN 12: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,853,091 CSU: 1,715,378 Open: 145,368 **(MAP MIN 8: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,916,396 CSU: 1,662,995 Open: 134,446 **(MAP MIN 13: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288, 440 NSO: 1,916,396 CSU: 1,662,995 Open: 134,446 **(MAP MIN 17)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Saleable Minerals ***CSU: Controlled Surface Use***	Until the Amendment is completed, proposals for new saleable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics. If visual impairment criteria are met, these areas would remain open to free use permits and sales in existing designated pits and common use areas.	Continuation of existing management under the 2002 SEORMP and ROD as amended.	All identified units managed to prioritize protection of their wilderness characteristics would be Closed to new mineral material sales. If visual impairment criteria are met, these areas would remain open to free use permits as well as sales in existing designated pits and common use areas. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks.			
	Saleable Mineral Allocations (acres): Closed: 3,033,405 Open, CSU: 1,399,733 Open: 540,739 **(MAP MIN 9: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,033,405 Open CSU: 1,399,733 Open: 540,739 **(MAP MIN 9: DEIS)**	Saleable Mineral Allocations (acres) Closed: 3,511,664 Open CSU: 962,901 Open: 499,312 **(MAP MIN 14: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,120,353 Open CSU: 1,314,045 Open: 539,480 **(MAP MIN 10: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,183,104 Open CSU: 1,262,725 Open: 528,048 **(MAP MIN 15: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,183,104 Open CSU: 1,262,725 Open: 528,048 **(MAP MIN 18)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Land Tenure Zone Category	Continuation of existing management Land Tenure Zone (acres) Zone 1—(Retention/ Acquisition): 4,578,352 Zone 2—(Exchange): 52,302 Zone 3—(Disposal): 10,785 **(MAP LAND 1: DEIS)**	Continuation of existing management Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	76 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Zone 1—(Retention/ Acquisition): 4,578,556 Zone 2—(Exchange): 52,302 Zone 3—(Disposal): 10,581 **(MAP LAND 2: DEIS)**	27 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	33 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	33 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **MAP LAND 19)**
Rights-of-way (ROW) Authori-zations	New surface disturbing ROWs would not be allowed in lands with wilderness characteristics units if the action would diminish or eliminate the characteristics. New ROWs could be co-located within existing authorized	Continuation of existing management	76 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" ROWs, and commercial solar and wind development.	27 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.	33 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.	33 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Rights-of-way Authori-zations *(Cont.'d)*	ROWs with design features (for example, buried utilities) along boundaries of the unit. **Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 4,065,070 Exclusion Areas: 44,839 **(MAP LAND 3: DEIS)** *Minor Rights-of-way* Open: 1,584,022 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	**Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 4,065,070 Exclusion Areas: 44,839 **(MAP LAND 3: DEIS)** *Minor Rights-of-way* Open: 1,584,022 Existing Corridor Designation: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 391,287 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,875,699 Exclusion Areas: 1,279,492 **(MAP LAND 4: DEIS)** *Minor Rights-of-way* Open: 1,101,635 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,400,004 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way:* Open: 435,284 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,894,027 Exclusion Areas: 217,166 **(MAP LAND 5: DEIS)** *Minor Rights-of-way* Open: 1,499,019 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,002,619 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way*: Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349 **(MAP LAND 6: DEIS)** *Minor Rights-of-way* Open: 1,428,928 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way:* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349 **(MAP LAND 20)** *Minor Rights-of-way* Open: 1,428,928 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Rights-of-way Authori-zations *(Cont.'d)*	**(MAP LAND 7: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **(MAP LAND 11: DEIS)** *Commercial Wind Development* Open: 436,565 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021 **(MAP LAND 15: DEIS)**	**(MAP LAND 7: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **(MAP LAND 11: DEIS)** *Commercial Wind Development* Open: 436,565 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021 **(MAP LAND 15: DEIS)**	**(MAP LAND 8: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **(MAP LAND 12: DEIS)** *Commercial Wind Development* Open: 391,283 Existing designated ROW corridor: 94,967 Avoidance Areas: 1,406,133 Exclusion Areas: 2,749,062 **(MAP LAND 16: DEIS)**	**(MAP LAND 9: DEIS)** *Commercial Solar Development* Open: 435,284 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,939,802 Exclusion Areas: 1,171,392 **(MAP LAND 13: DEIS)** *Commercial Wind Development* Open: 435,281 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,107,428 Exclusion Areas: 2,003,769 **(MAP LAND 17: DEIS)**	**(MAP LAND 10: DEIS)** *Commercial Solar Development* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771 **(MAP LAND 14: DEIS)** *Commercial Wind Development* Open: 423,272 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148 **(MAP LAND 18: DEIS)**	**(MAP LAND 21)** *Commercial Solar Development* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771 **(MAP LAND 22)** *Commercial Wind Development* Open: 423,272 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148 **(MAP LAND 23)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Standards for Rangeland Health	Continuation of Existing Management Standards for Rangeland Health: the BLM shall take appropriate action in accordance with 43 CFR § 4180.2 upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines for livestock grazing management for public lands administered by the Bureau of Land Management in the states of Oregon and Washington.		Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the plan.	Same as the No Action Alternative and Alternative A.	Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the term permit (10 years) or until monitoring indicates significant progress toward meeting Standards for Rangeland Health.	Same as the No Action Alternative and Alternatives A and C with additional Management Direction incorporated to address both when Standards are not being achieved regardless of causal factor(s) and when a current Rangeland Health Assessment/Evaluation is not available.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Receipt of Voluntary Permit Relinquishment from Permittee	Continuation of Existing Management: Relinquishment by a permittee of any grazing permit within the planning area would be processed in accordance with WO IM 2013-184 (BLM 2013b) or subsequent IMs, handbooks, or manual guidance.		When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas (listed below), grazing use would not be re-allocated for the permitted portion of the affected pasture(s) and therefore not authorized for the duration of the plan. The permit would only be affected for pasture(s) overlapping the listed areas. Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments.	Same as No Action and Alternative A with the addition of further management direction that the permit relinquishment process uses an identified set of resource considerations as a baseline (see Table A-3, Appendix A) when evaluating the compatibility of continuing to permit livestock grazing if a grazing permit is relinquished.	When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas listed below, grazing use would not be re-allocated for the permitted part of the affected pasture(s) and therefore would not authorize for the duration of the plan. The permit would only be affected for pasture(s) overlapping of the listed area(s). Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments.	As with the No Action Alternative and Alternatives A and C, relinquishment by a permittee of any grazing permit within the planning area would be processed in accordance with WO IM 2013-184 (BLM 2013b) or subsequent IMs, handbooks, or manual guidance The PRMPA also incorporates specific resources and resource uses identified under Alternative C for consideration upon receipt of a relinquished permit. Further, upon receipt of a voluntary permit relinquishment, BLM would review compatibility of livestock grazing use with other existing resources in the permitted area. Based on competing resources or other opportunities (see Table 2-3 and resource list which follows), the BLM could wholly or partially: designate an area as unavailable to livestock grazing, create a reserve common allotment, and/or only allow livestock grazing for vegetation treatments (e.g., targeted, or prescriptive grazing). This management direction would apply across the entire planning area. The resource considerations in Table 2-3 would be evaluated in all cases where a voluntary relinquishment of a grazing permit is received by the BLM. National BLM guidance on processing permit relinquishments requires the BLM to consider “other resource uses”. See Appendix G, Figure G-4 for a summary of this process under the PRMPA.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Receipt of Voluntary Permit Relinquishment from Permittee *(Cont.'d)*			2010 Settlement Agreement-identified management areas: **National Conservation Lands:** - -Wild and Scenic Rivers --Wilderness Study Areas --National Historic Trails **Other Identified Areas:** --Areas of Critical Environmental Concern --Research Natural Areas --Designated Critical Habitat (*Endangered Species Act*, ESA) --Lands with wilderness characteristics		2010 Settlement Agreement-identified management areas: **National Conservation Lands**: --Wild and Scenic Rivers --Wilderness Study Areas --National Historic Trails	The resource considerations, and the degree to which grazing is compatible or in conflict with these resources, would be evaluated through a NEPA analysis. The BLM would provide the rationale for how these resource considerations were addressed in an allocation decision. This decision would establish the allocation of forage resources for the life of the plan; additional land use planning-level analysis would not be required. If livestock grazing is found to be incompatible, the forage allocation could be made to another resource. If grazing is found to be compatible with the other resource considerations, then the area would remain available to livestock grazing and/or be designated as a reserve common allotment.

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Southeastern Oregon
Proposed Resource Management Plan Amendment
and Final Environmental Impact Statement

Chapter 1
Introduction

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CHAPTER 1

1.1 Introduction

The Bureau of Land Management (BLM) is proposing to amend the Resource Management Plan (RMP) for public lands within the Southeastern Oregon (SEO) planning area (see Figure 1-1) within the Malheur Field Office of the Vale District. The *Federal Land Policy and Management Act (FLPMA) of 1976*, 43 USC 1701 *et seq.,* is the statutory authority that provides the primary direction to the BLM to develop, maintain, amend, and revise land use plans, which provide for the use of public lands. Furthermore, FLPMA provides that the BLM shall manage the public lands under the principles of multiple use and sustained yield (43 USC 1702: 103; 43 USC 1712: 202; and 43 USC 1732: 302).

An RMP is a set of comprehensive, long-term decisions directing the uses, restrictions, and overall management of resources administered by the BLM on public lands. In general, an RMP does two things: (1) provides a set of goals and management direction for each resource or use, and (2) resolves multiple use conflicts or issues, to the extent possible. To accomplish this, the BLM brings together a diverse set of resource skills into an interdisciplinary team (IDT) environment to analyze a comprehensive set of management options to address the issues.

With management direction, the BLM chartered an IDT of resource professionals to develop alternatives and to complete the analysis in an environmental impact statement (EIS). An IDT is composed of preparers from multiple disciplines (biologist, botanist, rangeland management specialist, hydrologist, and so on) who consult with all appropriate sources for the analysis of affected resources to provide a rational basis for decision-making. Appendix H provides a list of those contributing to the effort. According to the *National Environmental Protection Act* (NEPA) Handbook H-1790-1, the BLM, "must prepare NEPA analyses using an interdisciplinary approach, and the disciplines of the preparers must be appropriate to the scope of the analysis and to the issues identified in the scoping process in 40 Code of Federal Regulations (CFR) 1502.6. The requirement for an interdisciplinary approach is met when preparer(s) consult with all appropriate sources for the analysis of affected resources" (BLM 2008a).

In contrast to developing a new resource management plan (RMP), a plan amendment typically focuses on updating an existing RMP to deal with a limited set of specific issues or new information as is the case for this Southeastern Oregon Resource Management Plan Amendment (SEORMPA). This usually results in changes to some existing management decisions, while decisions for other issues, resources, uses, or geographic areas are not modified or amended.

This Southeastern Oregon Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (SEO PRMPA/FEIS) documents the selection of management direction based on the analysis of five management alternatives first presented in the Draft Resource Management Plan Amendment/Draft Environmental Impact Statement (DRMPA/DEIS). The DRMPA/DEIS may be reviewed online at: https://eplanning.blm.gov/eplanning-ui/project/87435/510 (BLM 2019a).

Developing the PRMPA/FEIS is one of the major steps in the planning process, leading ultimately to an Approved Plan Amendment.

Decisions to be Made

At the conclusion of the planning process, the BLM will approve an RMP amendment for the Southeastern Oregon planning area and issue a Record of Decision (ROD). The BLM planning regulations make clear that RMPs are a preliminary step in the overall process of managing public lands and are "designed to guide and control future management actions and the development of subsequent, more detailed and limited scope plans for resources and uses" (43 CFR 1601.0-2). The decisions made

through this process will meet the Purpose and Need for the planning effort (see page 4), as well as the BLM's legal and policy mandates.

The land use plan amendment decisions will guide the BLM's management for the next 15 to 20 years. After the plan amendment is completed, the BLM will develop and implement site-specific actions that meet the RMP's management objectives and direction. These site-specific actions are referred to as project- or implementation-level decisions.

2010 Settlement Agreement

The Vale District completed the Southeastern Oregon Resource Management Plan (SEORMP) and issued the final record of decision (ROD) in 2002 (BLM 2002). The Lakeview District issued the Lakeview RMP/ROD in 2003 (BLM 2003a). Environmental organizations filed separate lawsuits in the United States District Court for the District of Oregon challenging each RMP. Both RMPs were upheld at the District Court level but were subsequently appealed to the Ninth Circuit Court of Appeals. On July 14, 2008, the Ninth Circuit ruled on the SEORMP case in *Oregon Natural Desert Association v. Bureau of Land Management*, 531 F.3d 1114 (9th Cir. 2008). Soon thereafter, the BLM filed a petition for panel rehearing of the court's remedy and the matter was stayed during settlement negotiations. The Ninth Circuit also stayed litigation regarding similar challenges to the Lakeview RMP in *Oregon Natural Desert Association* v. *Gammon, No.* 07-35728 (9th Cir.), pending resolution of the SEORMP case, and to allow for settlement negotiations between the parties. The parties finalized the Settlement Agreement in June 2010 (Appendix R) and pursuant to the terms of the Settlement Agreement, the Vale and Lakeview Districts began their respective RMP amendment processes. Scoping for this SEORMP Amendment was completed in the fall of 2010.

Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment

In the fall of 2012, the Oregon State Director issued instruction memorandum (IM) OR-2013-009 (BLM 2013c), which put this SEORMP Amendment on hold pending completion of the Oregon Greater Sage-Grouse (GRSG) Resource Management Plan (RMP) Amendment. The record of decision for that GRSG Approved RMP Amendment (ARMPA) was signed in September 2015 (BLM 2015c). It amended all existing RMPs in eastern Oregon, including the SEORMP, and provided new management direction for Greater Sage-grouse and its habitat. This updated management direction is reflected in this RMP Amendment. The 2015 GRSG ARMPA designated 9,354 acres within 13 "Key" Research Natural Areas (RNA) in the SEO planning area as unavailable to livestock grazing (ARMPA p 2-18, Table 2-6). In March 2019, the BLM amended its 2015 Approved Resource Management Plan Amendments (ARMPA) for Greater Sage-grouse habitat management, issuing an additional Record of Decision (BLM 2019d). The March 2019 amendment retained the 2015 GRSG ARMPA allocations, objectives, and management direction, with the exception of allowing grazing to continue in the Key RNAs.

The March 2019 amendment was appealed (*Western Watersheds Project v. Schneider, Case No. 1:16-cv-00083-BLW* [D. Id. Oct. 16, 2019]) and in October 2019, the District Court of Idaho issued a preliminary injunction suspending implementation all of BLM's 2019 Sage-grouse ARMPAs (1:16-CV-00083-BLW). During this injunction, the 2015 GRSG ARMPA ROD remains in effect. In February 2020, the BLM released a Draft Supplemental Environmental Impact Statement (EIS) addressing four issues identified in the preliminary injunction. The Final Supplemental EIS was released on November 19, 2020, and the ROD was released on January 11, 2021(BLM 2021d). In late 2021, BLM began a process to consider updates to the ARMPA adopted in the 2015 and amended in 2019.

The 2015 GRSG ARMPA ROD (BLM 2015c) requires closing all or portions of Key RNAs to grazing. The BLM has begun the process required to close these Key RNAs and we have included this action as a

"Reasonably Foreseeable Future Actions" (RFFA, Table 3-1) that is considered in Chapter 3, in the cumulative effects sections of those resources where the action has a potential effect: 3.7.1 Lands with Wilderness Characteristics, 3.7.3 Livestock Grazing and Rangeland Management, 3.7.4 Soils, 3.7.6 General Vegetation, 3.7.7 Invasive Species, and 3.7.11 Fish and Wildlife, 3.7.16 Visual Resources, 3.7.17 Areas of Critical Environmental Concern and 3.7.19 Wilderness Study Areas.

Addressing the 2010 Settlement Agreement

This section details the requirements of the 2010 Settlement Agreement. Table 1.1 below provides a summary of the key provisions of the 2010 Settlement Agreement by alternative. See Appendix R for the full text of the Settlement Agreement.

Table 1-1. Summary of Specific Provisions required by the 2010 Settlement Agreement and the alternatives in which they are addressed.

Summary of Specific Provision	No Action	A	B	C	D	PRMPA
Provision 14b – "…consider information from the inventory updates in the "affected environment," "alternatives," and "analysis" sections" of the [EIS].						
Provision 14c and 26b – Develop a full range of allocation alternatives with respect to [OHV] use, travel, and transportation, that includes both effects on, and protection of, wilderness character; consider a full range of alternatives that varies amounts of areas falling within all three [OHV] allocation types (Open, Limited, and Closed) based on a balancing of resource uses and values.						
Provision 14(d) - "…develop…grazing management alternative(s) that provide for both voluntary grazing permit/lease relinquishment processes and the identification of areas no longer available for grazing use."						
Provision 21 – …"consider citizen-provided information regarding wilderness character…to determine whether such information warrants reassessing prior wilderness character inventories."						
Provision 26c – …"consider an alternative that would designate WSAs and non-WSA areas with BLM identified wilderness character as "closed" to [OHV] use."						
Provision 26c – "…consider an alternative designating existing WSAs and non-WSA areas with BLM-identified wilderness character" as limited to roads and trails existing either at the time the area became a WSA or when non-WSA lands were recognized as possessing wilderness character.						
Provision 27 – "…consider an alternative…that will close allotments or pastures…for the duration of the plan…where existing grazing management practices or levels of grazing use on public lands are significant factors in the allotment or pasture failing to achieve standards for rangeland health."						
Provision 27 – "…consider an alternative…that will close allotments or pastures…temporarily where existing grazing management practices or levels of grazing use on public lands are significant factors in the allotment or pasture failing to achieve the standards for rangeland health."						
Provision 28 – "…analyze, through at least two alternatives, a process that allows for and describes conditions under which, for the duration of each plan, the BLM would no longer authorize livestock grazing within a grazing allotment, or portions thereof, when either a grazing permit or lease is voluntarily relinquished."						

Summary of Specific Provision	No Action	A	B	C	D	PRMPA
Provision 29(2)a – Consider the voluntary relinquishment of permits or leases (or portions thereof) located on or within public lands within…the National Landscape Conservation System (NLCS) …in combination with public lands within Areas of Critical Environmental Concern, as that term is defined by the FLPMA, designated Research Natural Areas, as that term is referred to in BLM Manual 1613, Areas of Critical Environmental Concern (BLM, 1988) and BLM's planning handbook (H-1601-1, Appendix C, III.B.4; BLM, 2005c), areas that BLM has determined have wilderness character, and areas with designated critical habitat for a species listed under the Endangered Species Act.						
Provision 29(1) – "…consider the voluntary relinquishment of permits or leases (or portions thereof) located on or within public lands" in the (NLCS) alone.						
Provision 30(a) – The relinquishment structure that BLM will analyze in the alternatives outlined in paragraph [Provision 29] for allotments with one permittee per allotment will provide that once a permit or lease has been completely relinquished, the BLM shall terminate the permit… and will ensure an end to livestock grazing… for the duration of the plan."						
Provision 30(b) – For allotments with one permittee per allotment, the alternatives will provide that once a permit or lease has been partially relinquished, the BLM shall appropriately modify the permit or lease and ensure that livestock grazing is either eliminated or appropriately reduced… for the duration of the plan. With respect to partial relinquishments, BLM will not allow livestock grazing to exceed the permitted use established… for the duration of the plan."						
Provision 30(c) – "Due to the complexities inherent with relinquishments on common allotments, BLM will address the structure of such relinquishments for the alternatives during the alternatives development process under NEPA."						
Provision 31 – "Nothing in this agreement or the alternatives to be analyzed shall preclude the BLM from accepting the relinquishment of any valid existing permit or lease outside areas identified for closure, at the discretion of the relevant District Manager or Field Manager."						

Note: Shading indicates the alternative addresses the 2010 Settlement Agreement Provision.

[a] BLM policy direction as outlined in WO IM 2013-184 (BLM 2013b) requires the BLM to accept any grazing permit that is voluntarily relinquished. As required by the 2010 Settlement Agreement, Alternatives B and D analyze processes that would result in grazing closure following receipt of a permit relinquishment.

Completion of Updated Wilderness Characteristics Inventories and Development of Alternative Management Options for Lands Identified as Having Wilderness Characteristics

Section 102(2) of FLPMA of 1976 requires the Department of Interior to "periodically and systematically" inventory resources on public lands, including the wilderness characteristics resource. During the planning effort leading to the 2002 SEORMP/ROD, the BLM updated its wilderness characteristics inventory for some, but not all public lands in the planning area. The Ninth Circuit Court's Order and Amended Opinion require that the "BLM must address in some manner…whether, and to what extent, wilderness values are now present in the planning area outside of existing WSAs…" (*Or. Natural Desert Ass'n v. Bureau of Land Management*, 625 F.3d 1092, 1122, 9th Cir. 2010).

FLPMA required the BLM to identify lands under its administration possessing wilderness characteristics and to review and present recommendations for the management of these lands to the President within 15 years of October 21, 1976. The BLM completed its initial inventory of areas with wilderness characteristics in 1980 and provided its recommendations within the specified time frame. Presidents George H. W. Bush and William J. Clinton submitted wilderness recommendations to Congress, many of which are still pending. Areas identified as having wilderness characteristics through this inventory were designated as Wilderness Study Areas (WSAs) and must be managed so as not to impair their suitability for wilderness designation until Congress either designates them as wilderness or releases them from study. In 1991, the BLM published wilderness suitability determinations for each WSA and recommendations, transmitted by the Secretary of the Interior to Congress, on their manageability as wilderness (BLM 1991a).

In the *2010 Ninth Circuit Court's Order*, the court identified the need for a comprehensive inventory of public lands for wilderness values in the planning area, in accordance with the BLM's own policy for maintaining updated wilderness characteristics inventories. In the 2010 Settlement Agreement, the BLM committed to updating its lands with wilderness characteristics inventory.

The inventory of public lands for wilderness characteristics is guided by the BLM Manual 6310, Conducting Wilderness Characteristics Inventory on BLM Lands (BLM 2012d). To be identified as having wilderness characteristics, an inventory unit must possess: sufficient size (5,000 acres, or meet an exception), naturalness, and either outstanding opportunities for solitude or primitive and unconfined recreation.

Conducting a wilderness characteristics inventory or inventory update is an interdisciplinary process that uses existing information and field reconnaissance, and requires a complete set of documentation, maps, and BLM management determinations to ascertain if an area possesses wilderness characteristics. Between 2006 and 2012, the Vale District completed a comprehensive inventory update of wilderness characteristics of all public lands within the planning area, outside of Wilderness Study Areas (WSAs). As inventories of individual units were completed, the information was made available to the public, per Oregon BLM State Director Guidance (BLM 2010b). The BLM determined that 76 individual units (1.2 million acres) possess wilderness characteristics in the planning area, outside of WSAs.

Both the original inventory process and the 2012 wilderness characteristics inventory update process used the same criteria to determine if an area possesses wilderness characteristics. However, the policies that govern the way in which the inventoried lands are classified and managed have changed.

Oregon BLM's 1991 Wilderness Study Report was submitted to Secretary of Interior Lujan with recommendations on WSA designation, including 32 WSAs wholly or partially in the Southeastern Oregon planning area. Until Congress makes a decision on future management, these areas will continue to be managed according to BLM Manual 6330 (BLM 2012f) until Congress acts on Wilderness

designation. The BLM now has the discretion, through its land use planning process, to determine how to manage areas that are found to possess wilderness characteristics outside of WSAs.

A primary purpose of this amendment process is for the BLM to determine, after considering public input and the results of its effects analysis, how the areas found to possess wilderness characteristics in the 2012 inventory should be managed.

To ensure consistency between the Lakeview and Vale BLM wilderness characteristics inventory processes, in 2015 the Oregon BLM State Director requested an independent review of both districts' inventory processes and results. The results of that review led to recommendations to reassess and, if necessary, update individual wilderness characteristics unit findings. The principal recommendations affecting the Vale District inventory update included: broadening the application of the solitude criteria to include distance, unit configuration and screening; ensuring unit boundary determinations are verified and use accurate data; identifying and excluding non-natural areas within the overall unit; and providing clear rationale on BLM's conclusions regarding routes that may result in unit boundaries. With these recommendations, BLM undertook a reassessment of every inventory unit that had been determined to at least meet the size criteria. Unit by unit, BLM revisited the original findings, identifying for each criterion whether the determinations continue to be supported. Where necessary, additional field reconnaissance was conducted to confirm our information. That review was finished in 2017. The reassessment findings were documented (Internal Memo December 2017, BLM 2017c).

The reassessment included 116 wilderness characteristics inventory units; changes to the BLM's original findings were warranted in four units, bringing the total number of units found to possess wilderness characteristics in the planning area to 76. The four units were included in the analysis of the Alternatives in the DRMPA/DEIS and the PRMPA/FEIS. All changes resulting from the 2017 review have been completed, incorporated into the analysis, and are publicly available.

In accordance with the 2010 Settlement Agreement, this amendment considers the updated inventory information and the BLM's findings on wilderness characteristics in the affected environment, alternatives, and analysis sections. Different management scenarios for the areas identified as having wilderness characteristics are described in the alternatives and the environmental effects of those differing scenarios are analyzed. Also, in accordance with the 2010 Settlement Agreement, pending completion of an RMP amendment, the BLM will not implement any projects that could diminish the size of a lands with wilderness characteristics unit or cause a unit to no longer meet the criteria for wilderness characteristics. The No Action Alternative reflects this ongoing protection of the 76 units identified by BLM as having wilderness characteristics.

Off-highway Vehicle Area Designations

In the 2010 Settlement Agreement, the BLM committed to analyzing a broader array of alternatives for off-highway vehicle use than was analyzed in the 2002 SEORMP/ROD.

BLM Manual 1626, Travel and Transportation Management (BLM 2016f) and BLM Handbook H-8342, Travel and Transportation Handbook (BLM 2012b), provide direction and a process for evaluating appropriate motorized and mechanized vehicle use on public lands. All BLM-administered public lands are required to have an off-highway vehicle (OHV) area designation. These decisions are required to be made during the land use planning process pursuant to the regulations found in 43 CFR 1600 and 43 CFR 8342.1. The BLM must designate all public lands within the planning area as Open, Limited, or Closed to OHV use.

BLM travel management policy is driven by "the need to provide access to and across public lands for a wide variety of users (including authorized, administrative, commercial, recreational, traditional, and other travel purposes), while addressing the equally wide variety of uses…" (BLM 2016f, Section 1.6 Policy).

To address updated BLM OHV policy and the requirements of the 2010 Settlement Agreement, the OHV area designations of Open, Limited, and Closed vary across the alternatives in this proposed amendment. An OHV Open area is defined in 43 CFR 8340.0-5 as, "…an area where all types of vehicle use are permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in subparts 8341 and 8342 of this title." BLM Manual 1626, states, "… the designation or retention of large areas Open to unregulated cross-country OHV travel is not a viable landscape-wide management strategy (BLM, 2016f: Section 3.1.A)."

An OHV Limited area designation is defined in the Code of Federal Regulations at 43 CFR 8340.0-5 as "…an area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions." An OHV Closed area is defined in 43 CFR 8340.0-5 as "… an area where off-road vehicle use is prohibited. Use of off-road vehicles in OHV Closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer." BLM Manual 1626 states that, "areas should be designated as Closed when limitations on OHV use will not suffice to protect resources, promote visitor safety, or reduce use conflicts".

Management of Public Lands where the BLM has Determined Standards for Rangeland Health are not met due to Existing Livestock Grazing and Processing the Voluntary Relinquishment of Grazing Permits

The 2010 Settlement Agreement addresses two livestock grazing management policies that are analyzed in the alternatives.

The 2010 Settlement Agreement (Provision 27) requires that the BLM address an alternative in this amendment that would close, either temporarily or for the duration of the plan, allotments, or pastures where "existing grazing management practices or levels of grazing use on public lands are significant factors in the allotment or pasture failing to achieve the Standards for Rangeland Health." This requirement is analyzed under two alternatives: Alternatives B and D. The PRMPA proposes that BLM will consider taking appropriate action to address circumstances where Standards for Rangeland Health are not being achieved, regardless of causal factor. Actions could include changes to livestock grazing management. The PRMPA also proposes to consider not increasing Animal Unit Months (AUM) in areas where an Rangeland Health Assessment and Evaluation has either not been prepared or does not represent current conditions.

The Settlement Agreement (Provisions 14, 28, 29, and 30) also requires the BLM to develop two alternatives that address livestock grazing in cases where a permit is voluntarily relinquished. The BLM would need to identify conditions under which the BLM would no longer authorize livestock grazing and ensure an end to livestock grazing for the duration of the plan, along with the specific processes that would be employed. This requirement is defined and analyzed under Alternatives B and D.

The No Action Alternative and Alternatives A and C all require that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received, and grazing is found to be incompatible with other resources or resource uses. The PRMPA has the same NEPA analysis and subsequent decision requirement but, unlike these other alternatives, under the PRMPA, additional land use planning level analysis and amendment would not be required. Both Alternative C and the PRMPA identify a set of specific resources and resources uses (Table 2-3, Chapter 2) that would be considered if a grazing permit were relinquished.

All of the grazing direction proposed in the alternatives and the PRMPA is consistent with the livestock grazing direction in 43 CFR 4100 and with Washington Office Instruction Memorandum (WO IM) 2013-184 (BLM 2013b) that addresses voluntary relinquishment of a livestock grazing permit.

1.2 Purpose and Need of the Amendment

The Purpose and Need for this RMP amendment is to comply with the 2010 Settlement Agreement Provisions, which require the BLM to undertake an RMP amendment to address wilderness characteristics, off-highway vehicle[1] (OHV) use, and grazing management.

Lands with Wilderness Characteristics

- Address wilderness characteristics[2] by considering information from the wilderness characteristics inventory updates in the affected environment, alternatives, and analysis sections of this Proposed RMP Amendment (PRMPA) and Final Environmental Impact Statement (EIS).
- Address off-highway vehicle use by developing a full range of allocation alternatives with respect to off-highway vehicle use, travel, and transportation that includes both effects on and protection of wilderness characteristics.

Off-highway Vehicles

- Consider a full range of alternatives that varies amounts of areas falling within all three off-highway vehicle allocation types (Open, Limited, and Closed) based on a balancing of resource uses and values.
- Follow current BLM national guidance with respect to designating Open, Limited, and Closed areas, pursuant to 43 CFR§ 8342.1 and 8342.2(a).
- Consider an alternative designating existing Wilderness Study Areas (WSAs) and non-WSA areas with BLM-identified wilderness characteristics as Limited to roads and trails[3] existing either at the time the area became a WSA or when non-WSA lands were recognized as possessing wilderness characteristics.
- Consider an alternative that would designate WSAs and non-WSA areas with BLM-identified wilderness characteristics as Closed to off-highway vehicle[4] use.

[1]To be consistent with BLM Manuals, BLM uses the term off-highway vehicle, or OHV, hereafter (notwithstanding the fact that the 2010 Settlement Agreement (see Appendix R) uses the terms “off-road vehicle” and “ORV” which should not be confused with the “outstandingly remarkable value” acronym).

[2]The 2010 Settlement Agreement interchanges the term “wilderness character” and “wilderness characteristics.” Wilderness characteristics is used throughout this Final EIS and refers to areas where the BLM has completed an updated inventory (according to BLM Manual 6310 Conducting Wilderness Characteristics Inventory: BLM 2012d) of this resource and determined the area to possess the characteristics of size, naturalness, and either one or both outstanding opportunities for solitude or primitive recreation.

[3]The 2010 Settlement Agreement refers to "roads and trails" to refer to motorized travel routes. Current BLM guidance (BLM Manual 1626 - Travel and Transportation Management: BLM 2016f) defines “roads and primitive routes” as travel routes that are authorized for motorized vehicles. “Trails” are only used in this SEORMP Amendment to refer to non-motorized travel routes. "Roads and Primitive Routes" are used otherwise to indicate travel routes managed for motorized travel.

[4]All categories of OHV are defined in both the Glossary on p. 16 and in Chapter 3 section 3.2.8 Travel Management.

Livestock Grazing

- Consider an alternative that would close allotments or pasture either for the duration of the plan or temporarily where existing grazing management practices or levels of grazing use on public lands are significant factors in the allotment or pasture failing to achieve the Standards for Rangeland Health.
- Analyze, through at least two alternatives, a process that allows for and describes conditions under which, for the duration of the plan, the BLM would no longer authorize livestock grazing within a grazing allotment, or portions thereof, and ensure an end to livestock grazing for the duration of the plan when either a grazing permit or lease is voluntarily relinquished.
- Include at least two alternatives that require the BLM to accept the voluntary relinquishment of any valid existing permit or lease authorizing livestock grazing on public land. In particular, the alternatives analysis shall consider the voluntary relinquishment of permits or leases (or portions thereof) located on or within public lands within the:
    - National Landscape Conservation System (NLCS) alone, and
    - NLCS areas in combination with public lands within Areas of Critical Environmental Concern (ACECs), Research Natural Areas (RNAs), non-WSA areas that the BLM has determined to have wilderness characteristics, and areas with designated critical habitat for a species listed under the *Endangered Species Act* (ESA) of 1973.

1.3 Planning Area and Map

The Southeastern Oregon planning area encompasses public lands in the Malheur Field Office (previously the Malheur and Jordan Resource Areas, consolidated in 2015) within the BLM Vale District (see Figure 1-1, Table 2-1, and Figure 1-2).

The planning area encompasses 6.5 million acres, including nearly 4.6 million acres of BLM-administered land within Malheur, Harney, Grant, and Baker Counties of Oregon. Much of the public land in the planning area is contiguous, with multiple scattered or isolated public land parcels. The surrounding public land managing offices include:

- East: Idaho (BLM Boise District)
- North: BLM Vale District (Baker Field Office) and Wallowa Whitman National Forest
- South: Nevada (BLM Winnemucca District)
- West: BLM Burns District and Malheur National Forest

The planning area is located within three ecoregions (Wilken et al 2011): Northern Basin and Range, Blue Mountain, and Snake River Plain. Of these ecoregions, most of the planning area falls within the Northern Basin and Range Ecoregion.

The Sagebrush Steppe Ecosystem covers much of eastern Oregon, eastern Washington, southern Idaho, and portions of northern Nevada, California, and Utah. This ecosystem contains a broad diversity of landform and vegetation types, ranging from vast expanses of sagebrush covered plateaus to rugged mountains blanketed with western juniper woodland and grassland.

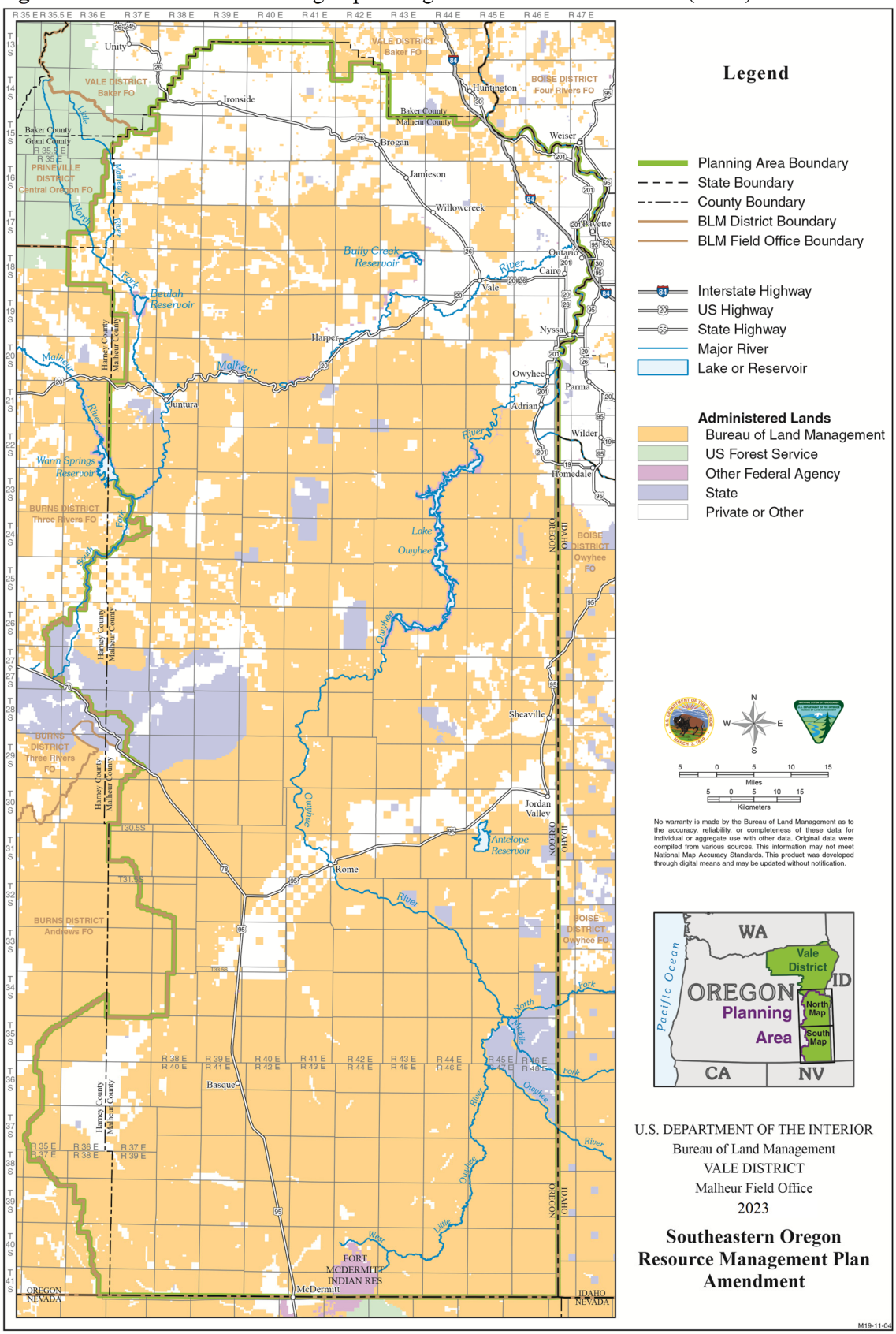
Figure 1-1. Overview of the Southeastern Oregon planning area.

Table 1-2. Acres by ownership within the Malheur Field Office, Vale District BLM.

Surface Jurisdiction	SEORMP Amendment Planning Area
BLM	
Malheur County	4,486,200
Harney County	145,967
Grant County	9,238
Baker County	40
Subtotal	**4,641,445**
Other Federal Agencies	
Malheur County	55,911
Harney County	0
Grant County	0
Baker County	0
Subtotal	**55,911**
State of Oregon	
Malheur County	277,539
Harney County	31,198
Grant County	0
Baker County	0
Subtotal	**308,737**
Private	
Malheur County	1,355,323
Harney County	74,377
Grant County	12,394
Baker County	119
Subtotal	**1,442,213**
Submerged Lands	
Malheur County	8,478
Harney County	0
Grant County	0
Baker County	0
Subtotal	**8,478**
Total	**6,456,785**

Note: Other federal agencies include the Bureau of Indian Affairs, Bureau of Reclamation, Department of Energy, Federal Aviation Administration, US Fish and Wildlife Service, and the US Forest Service. Acreages in this table are approximate.

Figure 1-1. The Southeastern Oregon planning area/Malheur Field Office (MFO).



1.4 Issues to be Addressed

Issues are "disputes or controversies about existing and potential land and resource allocations, levels of resource use, production, or related management practices" (BLM 2005c, 19).

The Vale District initiated internal and public scoping on the proposed SEORMP Amendment in 2010. Through scoping, a number of issues were identified and documented in a 2012 Scoping Report (BLM 2012i).

The following issues were identified through internal and external scoping:

- **Issue 1:** *How would the resource or resource use be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?*
- **Issue 2:** *How would the resource or resource use be affected by BLM management actions that would change off-highway vehicle (OHV) area designations (Open, Limited and Closed) across the planning area?*
- **Issue 3[5]:** *How would the resource or resource use be affected by BLM management actions that would reduce livestock grazing due to: (a) Standards for Rangeland Health not being met where the BLM determines that existing livestock grazing management is a significant causal factor, and (b) the permitted area becoming not available[6] to grazing upon receipt of a voluntarily relinquished grazing permit?*

These issue questions are analyzed in the context of each resource listed below and are described in Section 3.7 of Chapter 3, if they are applicable to that resource. Not all the issue questions apply to each of the resources because not all the actions proposed have an effect on all resources analyzed in this EIS. Please see Appendix D, Table D-1, which describes issues that were considered but not analyzed in detail in this EIS.

[5]The analysis of impacts to resources in Chapter 3, Section 3.7 may differ by the policy: implementing actions associated with Standards for Rangeland Health, and associated with voluntary relinquishment of a grazing permit. Where this is the case, Issue 3 is addressed as Issue 3a and 3b.

[6]Land use plans are to identify lands available or not available for livestock grazing. Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans (43 CFR 4130.2(a)) in addition to requirements set forth in 43 CFR 4100.0-8 and the BLM Land Use Planning Handbook H-1601-1 (BLM 2005c).

The following are the resources that are addressed in the effects section of this EIS (see Section 3.7, Chapter 3):

- 3.7.1 Lands with Wilderness Characteristics
- 3.7.2 Travel Management
- 3.7.3 Livestock Grazing and Rangeland Management
- 3.7.4 Soils
- 3.7.5 Water Resources and Riparian/Wetlands
- 3.7.6 General Vegetation
- 3.7.7 Invasive Species
- 3.7.8 Forest and Woodlands
- 3.7.9 Fire and Fuels Management
- 3.7.10 Special Status Plant Species
- 3.7.11 Fish and Wildlife
- 3.7.12 Wild Horses
- 3.7.13 Cultural and Paleontological Resources
- 3.7.14 Social and Economic Values
- 3.7.15 Recreation
- 3.7.16 Visual Resources
- 3.7.17 Areas of Critical Environmental Concern
- 3.7.18 Wild and Scenic Rivers
- 3.7.19 Wilderness Study Areas
- 3.7.20 Mineral Resources
- 3.7.21 Lands and Realty
- 3.7.22 Climate Change

1.5 Planning Criteria

Planning criteria guide the development of the SEORMP Amendment by providing general sideboards for the planning effort. These criteria include three major elements:

- legal and policy framework for the RMP Amendment;
- a national and state BLM office guidance on the development of preliminary alternatives; and
- a description of the analytical methodology to be used in the analysis of alternatives.

1.6 Relationship of Land Use Planning to Laws, Policies, Plans, and Programs

Land use planning is bound by law, regulation, policy, and other existing plans. These all play a role in this amendment and influence the alternatives. The two most important laws governing the resource management planning process are the *Federal Land Policy and Management Act* (FLPMA) of 1976, which established the BLM's multiple use mandate and clarified the BLM's mission, and the *National Environmental Policy Act* (NEPA) of 1969, which requires federal agencies to consider the effect of management decisions on the human environment.

Through consideration of existing laws, policies, and planning criteria, along with the Purpose and Need for the planning effort, the BLM developed a range of alternatives (Chapter 2 of the DRMPA/DEIS, updated and reproduced in this PRMPA/FEIS, Appendix A), each of which is then analyzed (Chapter 3). All the alternatives in this Southeastern Oregon Proposed RMP Amendment and Final EIS conform to the requirement of analyzing a range of management options while meeting the objectives of multiple use and sustained yield.

The BLM planning regulations also require that plans be consistent with officially approved or adopted land-use plans of other federal, state, local, and tribal governments to the extent those plans are consistent with federal laws and regulations applicable to public lands.

Laws, planning and guidance documents, manuals, handbooks, reports, and state and county plans that are pertinent to this planning effort are listed in Appendix N. These documents are also referenced, as appropriate and where applicable, in the resource sections of Chapter 3, Section 3.7.

1.7 Consultation

Tribal Governments

Tribal consultation was initiated in April 2010 with letters to the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, and the Burns Paiute Tribe. The letters described the proposed SEORMP Amendment, announced the beginning of scoping, and invited participation through government-to-government consultation for the SEORMP process.

Because the project was on hold between 2012–2016, the BLM reinitiated tribal consultation in February 2018 with letters to the Confederated Tribes of the Umatilla Indian Reservation, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, Shoshone-Bannock Tribes of the Fort Hall Indian Reservation, the Burns Paiute Tribe, and the Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation. The letters described the three key issues addressed in the proposed SEORMP Amendment and invited participation through government-to-government consultation. The Burns Paiute Tribe

responded with a request for government-to-government consultation regarding their interest in Section 106 compliance under the *National Historic Preservation Act*. The BLM consulted, per BLM Handbook 1780 (BLM 2016c), and sent copies of the Scoping Report and the DRMPA/DEIS to tribal officials for review and comment. BLM will continue to consult with the Tribes on this Proposed RMP Amendment/Final EIS (See Chapter 4 and Appendix H for additional details).

US Fish and Wildlife Service

The US Fish and Wildlife Service (USFWS) administers the *Endangered Species Act (ESA) of 1973* (as amended). Section 7(a)(2) of the ESA requires the BLM to consult with the USFWS on the effects of the PRMPA on species listed as threatened or endangered. The BLM prepared a biological evaluation regarding three species and conducted informal consultation with the USFWS. In the biological evaluation, the BLM found that the PRMPA may affect, but is not likely to adversely affect, the Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*), because the effects of this action are insignificant, discountable, or wholly beneficial. The BLM also determined that implementation of the PRMPA will have no effect on bull trout (*Salvelinus confluentus*) and yellow-billed cuckoos (*Coccyzus americanus*), or their critical habitat. The USFWS concurred with the BLM determination on December 2, 2022, thereby completing Section 7 Consultation (see Appendix H, Section H.3 for additional details).

State Historic Preservation Office Consultation

The BLM consults with the Oregon State Historic Preservation Office (SHPO) on proposed undertakings that may affect historic properties. The BLM also invites the SHPO to participate in broader BLM management processes such as planning efforts per the 2015 BLM-SHPO State Protocol. Consultation for the RMP Amendment effort follows Section III.A of the State Protocol. To date, the BLM has provided the SHPO a copy of the DRMPA/DEIS for their review and comment and will also provide SHPO with the PRMPA/FEIS.

State of Oregon Governor's Consistency Review

BLM planning regulations (43 CFR 1610.3-2) provide a State Governor 60 days to identify inconsistencies between a proposed RMP or RMP Amendment and approved state or local plans, policies, or programs and to provide written recommendations to the BLM State Director. The Governor's consistency review is initiated with the release of the Notice of Availability for the PRMPA/Final EIS and coincides with the 30-day BLM protest period (see protest instructions in the "Dear Reader Letter" in the Executive Summary). If the State Director does not accept the Governor's recommendations, the Governor will be notified and provided 30 days to submit a written appeal to the BLM Director. The BLM will continue consultation with the State of Oregon Governor's Office per federal consistency review requirements.

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Southeastern Oregon
Proposed Resource Management Plan Amendment
and Final Environmental Impact Statement

Chapter 2

Proposed RMP Amendment

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Chapter 2
Proposed RMP Amendment

2.1 Introduction

The Bureau of Land Management (BLM) developed the Southeastern Oregon Proposed Resource Management Plan Amendment (SEO PRMPA) and Final Environmental Impact Statement (FEIS) with input from the public, cooperating agencies, other federal partners, Tribes, the Southeast Oregon Resource Advisory Committee (SEORAC), and BLM staff and management.

The Southeastern Oregon Draft RMPA/Draft EIS (DRMPA/DEIS) was released May 29, 2019, followed by a 90-day comment period (BLM 2019a). The BLM received over 4,000 submissions from individuals, non-governmental organizations, federal and state agencies, county governments, and tribes with interest in future management of the SEO Planning Area. These comments resulted in changes to the alternatives and the development of the PRMPA. The PRMPA/FEIS draws from several DRMPA/DEIS alternatives in developing management direction for: **lands with wilderness characteristics; off-highway vehicles (OHV[1]) area allocations**; livestock grazing when the BLM's Standards for Rangeland Health are not being achieved; and processing the voluntary relinquishment of a grazing permit. The allowable uses (allocations) and management actions under the existing 2002 SEORMP and Record of Decision (ROD) as amended, that are not addressed by this Amendment, remain valid.

Once the PRMPA is approved through the issuance of a Record of Decision (ROD), the BLM will implement, in consultation with the public and in compliance with the *National Environmental Protection Act* (NEPA), actions in accordance with the Approved RMP Amendment. All future actions must conform to the Approved RMP Amendment and ROD.

Following is a summary of the proposed management direction in the PRMPA.

Protection of Lands with Wilderness Characteristics

- **The PRMPA proposes to protect** 33 lands with wilderness characteristic units totaling 417,190 acres excluding 9,247 acres in boundary road setbacks (see Appendix M, Map WC 6). Protecting these 33 units is responsive to feedback and input the BLM received on the DRMPA/DEIS from Tribal governments, the Southeast Oregon Resource Advisory Council (SEORAC), cooperating agencies (US Fish and Wildlife Service and the Oregon Department of Fish and Wildlife), and the public. The DRMPA/DEIS presented five alternative options (see Appendix C for methodologies) for the management of wilderness characteristics. Protection of the 33 units proposed in the PRMPA was analyzed under Alternative D in the DRMPA/DEIS.
- A new management objective (see Section 2.2) would be established under the PRMPA for the 33 protected lands with wilderness characteristics units.
- The PRMPA/FEIS balances the BLM's priorities for different resources by protecting 33 wilderness characteristics units, while emphasizing other multiple use objectives in the other 43 wilderness characteristic units in the planning area. The 33 units proposed for protection were identified using evaluation criteria that emphasized vegetative condition, hydrologic function, and the proximity of the units to other protected areas (such as Wilderness Study

[1] To be consistent with BLM Manuals on this topic, the BLM uses the term "off-highway vehicle" or "OHV" hereafter in this chapter and all chapters and sections of this PRMPA/FEIS, although it is referred to as "off-road vehicle" or "ORV" in the 2010 Settlement Agreement (see Appendix A).

Areas). See Appendix C for more information on the evaluation criteria and methodology utilized in identifying the 33 units for protection).

Off Highway Vehicle Area Designations

- The DRMPA/DEIS alternatives considered a broad range of options for OHV management. The PRMPA reflects a high level of public interest in minimizing conflicts and negative impacts caused by cross-country motorized vehicle use. In this PRMPA, all but 40,368 acres of currently designated OHV Open areas are proposed for designation as OHV Limited (motorized vehicles are limited to existing routes).
- The PRMPA proposes to limit off-highway vehicle (OHV, see Map OHV 5) use to existing routes on 359,869 acres that are currently open to cross-country OHV use. This brings the total of OHV Limited acres in the planning area to 4.5 million. The entirety of the 33 protected lands with wilderness characteristics units are within this OHV Limited designation. Two areas, totaling 40,368 acres, would remain designated as open to OHV use. The 15,829 acres that are currently closed to motorized use would remain closed. These changes in OHV allocations respond to comments received in support of limiting OHV Open areas.

Livestock Grazing Management

- **The alternatives considered a range of management responses when Rangeland Health Standards were not being achieved and the BLM's processes upon receipt of a voluntary grazing permit relinquishment.**
- The PRMPA would provide additional guidance and clarifications regarding addressing areas that do not meet Standards for Rangeland Health and the processing of voluntarily relinquished grazing permits.

Appendix A displays the full range of alternatives considered in this planning process. Appendix A brings forward the alternatives from the DRMPA/DEIS (Chapter 2, The Alternatives) and incorporates changes made to the alternatives to address public comments and provide clarification. Appendix Q provides an overview of all changes made between the DRMPA/DEIS and this PRMPA/FEIS, including changes to the alternatives.

The following sections detail the specific management objectives and management direction that would be implemented under the PRMPA.

2.2 Lands with Wilderness Characteristics

Management Objective

Prioritize the protection of wilderness characteristics in the 33 lands with wilderness characteristics units that are identified for protection in this Southeastern Oregon PRMPA.

Management Direction

Management of the 33 wilderness characteristics units (417,190 acres composed of 55 individual subunits or "parcels"), where the protection of wilderness characteristics is prioritized, would emphasize the maintenance and/or enhancement of the wilderness resource: roadless size of the unit, naturalness, and outstanding opportunities for solitude and primitive and unconfined recreation. Management in these units would be limited to actions and project designs that maintain and/or enhance wilderness characteristics. See Appendix B: Map WC 1 which displays all lands with wilderness characteristics, and Appendix M: Map WC 6 which shows units protected under the PRMPA.

Table 2-1 provides a summary of acres protected under each alternative and the PRMPA.

Table 2-1. Acres/number of units protected for wilderness characteristics by alternative.

Alternative	Acres to Emphasize Protection of Wilderness Characteristics	Acres in Boundary Road Setbacks	Number of Units Prioritized to Protect Wilderness Characteristics
No Action	1,236,907	No setbacks established	76
Alternative A	0	0	0
Alternative B[a]	1,206,780	30,127	76
Alternative C	167,709	5,784	27
Alternative D	417,196	9,247	33
PRMPA	417,190[b]	9247	33

Note: Lands with wilderness characteristics are described individually as "units." Some units are composed of more than one, non-contiguous geographic area; these sub-units are referred to as "parcels" of public land.

[a] The acreage difference between the No Action Alternative and Alternative B results from excluding setbacks in the latter.

[b] The acreage difference between Alternative D and the PRMPA is a result of data updates made between DRMPA and this PRMPA.

Travel Management

Manage protected wilderness characteristics units as OHV Limited to existing primitive routes, including within the boundary road setback, unless currently closed to OHV use (see Travel Management section 2.3, below, Chapter 3 Section 3.7.2 Travel Management, and the Appendix I: Glossary for definitions).

Visual Resource Management

Manage protected wilderness characteristics units as Visual Resource Management (VRM) Class II, unless currently managed as VRM Class I (see Appendix M, Map VRM 5).

- The goal of VRM Class II management direction is to preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

- VRM management of protected units—or areas within a unit—which are currently designated as VRM I would be unchanged.
- VRM management in boundary road setbacks remain as designated under the 2002 SEORMP, as amended.

Minerals Management

Leasable Minerals

Unleased Fluid Minerals

Protected wilderness characteristics units would be managed as No Surface Occupancy (NSO) unless current management is otherwise more restrictive (closed to leasing). No waivers, exceptions, or modifications to a fluid mineral lease NSO stipulation would be granted. Leasable minerals management in boundary road setbacks remain as designated under the 2002 SEORMP, as amended.

Leased Fluid Minerals

Where leasable minerals are currently leased, management would apply the following stipulations:

- Apply reasonable conservation measures consistent with management of wilderness characteristics
- Require Master Development Plans for fluid minerals processing
- Require unitization (see Glossary) for fluid minerals when necessary for proper development
- Identify areas where land acquisitions, including nonfederal mineral rights, may benefit management of wilderness characteristics by consolidating the surface and subsurface rights
- There would be a continuation of existing minerals management (2002 SEORMP and ROD as amended, BLM 2002) within boundary road setbacks.
- Appendix M, Map MIN 17 displays leasable mineral restrictions under the PRMPA across the planning area.

Saleable Minerals

- Protected wilderness characteristics units would be closed to new mineral material sales (see Appendix M, Map MIN 18).
- Expiring mineral material authorizations—including free-use permits[2] and mineral material sales—may be renewed after environmental review and a determination that the action would be substantially unnoticeable.
- There would be a continuation of existing saleable minerals management (2002 SEORMP and ROD as amended, BLM 2002) within boundary road setbacks.

[2] BLM regulations provide for the exploration, development, and disposal of mineral material resources on the public lands to any Federal, State, or territorial agency, unit, or subdivision, including municipalities, or any non-profit organization that is appropriately permitted, and in so doing provides for the protection of the resources and the environment.

Lands and Realty

Land Tenure Zone Category[3]

Protected wilderness characteristics units would be managed as Land Tenure Zone 1 (retention in public ownership). The land tenure zone designation in boundary road setbacks would remain as designated under the 2002 SEORMP, as amended. See Section 3.7.21 Lands and Realty for details on each of the three land tenure zones, and Appendix M, Map Land 19.

Rights-of-way (ROW)

- Protected wilderness characteristics units—and their associated boundary road setbacks—would be managed as exclusion areas for major ROWs (see Appendix M, Map Land 20). A ROW exclusion area is not available for ROW location under any condition.

  Major ROWs are defined as: projects with a large footprint (either linear or site), large diameter (24 inches or greater) oil or gas pipelines, high voltage transmission lines (115 kV or above), roads, ROWs involving multiple federal jurisdictions, or proposals which have a substantial level of environmental controversy of the action.

- Protected units—and their associated boundary road setbacks—would be managed as exclusion areas for commercial renewable energy projects (see Appendix M, Maps LAND 22 [Solar] and LAND 23 [Wind]).

  Commercial renewable energy projects are defined as solar, wind, and biomass projects with surface disturbance that would cause a reduction or elimination of wilderness characteristics.

- Protected units would be managed as avoidance areas—unless currently designated as exclusion areas— for communication sites and other minor ROWs. A ROW avoidance area is an area to be avoided but may be available for ROW location with special management stipulations that ensure the protection of the area's wilderness characteristics.

  Minor ROWs are those which take less time to process[4] and have few resource concerns. Minor ROWs would be allowed only where they are consistent with the protection of wilderness characteristics.

  Boundary road setbacks would continue to be managed as avoidance areas or exclusion areas for communication sites and other minor ROWs as designated under the 2002 SEORMP, as amended.

  Appendix M, LAND 21 displays the minor ROW designations.

- Management emphasis in protected wilderness characteristics units would be placed on co-location of new, minor ROWs in existing designated corridors where feasible or in existing authorized ROWs. Co-location would also be a management emphasis for communication sites, where technically feasible. This includes installing new towers within existing

[3] The 2002 SEORMP and ROD (BLM 2002) designated three Land Tenure Zones (Appendix L): Zone 1—retention in public ownership, Zone 2—limited retention and land ownership consolidation through exchange, and Zone 3—BLM land available for disposal by authorized method.

[4] There are six ROW Processing Categories. Categories 1–4 are based on the number of federal work hours involved to process an application, ranging from 1–50 hours. Category 5 is for Master Agreements. A ROW that requires more than 50 hours to process is a Category 6. Minor ROWs may fall within Categories 1–4 (43 CFR 2804.14, 2805.16, 2884.12 and 2885.24; also see WO IM-2021-001 (BLM 2021b) which establishes the annual cost recovery and monitoring schedule).

communication sites. Co-location would be allowed only where consistent with the protection of wilderness characteristics.

Existing designated ROW corridors are displayed in Appendix M, on all (Land 20-23) ROW maps.

Boundary Road Setbacks

Where roads form the boundary of a protected wilderness characteristic unit, a 250-foot management setback would be established. The setback would not be considered part of the protected wilderness characteristic unit; therefore, the protected unit would begin 250 feet inward from the centerline of the boundary road, where present.

The setbacks are intended to provide the BLM flexibility to adapt to resource needs, threats, and opportunities along the boundary roads, including protection of the values within the protected wilderness characteristics unit. Selection of the 250-foot boundary distance is based on Interdisciplinary Team (IDT) consideration of: common widths of existing and potential linear (roads and utilities) Rights-of-way corridors; current management allowances under the 2002 SEORMP/ROD in OHV Limited areas[5]; consideration of management restrictions in support of Greater Sage-grouse habitat; fire suppression and support needs, and transportation management and maintenance. The 250-foot setback was selected to provide management flexibility while being compatible with the protected units.

The PRMPA would not establish setbacks for wilderness characteristics unit boundaries formed by a change in land ownership or by the edge of an existing authorized right of way.

The area in boundary road setbacks totals 9,247 acres (see Table 3-4 in Chapter 3). Appendix M, Map WC 6 displays the locations of lands with wilderness characteristics units, and the relevant setbacks that are proposed.

Unless otherwise noted, there would be a continuation of management under the 2002 SEORMP/ROD as amended, within the road boundary setbacks.

BLM would not authorize actions in boundary road setbacks that would have the potential to eliminate the wilderness characteristics in the adjacent protected unit. Activities that are highly visible due to their potential for dominating the visual landscape from within the adjacent protected unit would be excluded, including:

- Any project that would have impacts that are pervasive and omnipresent, as seen from within the protected unit, and would thus potentially eliminate the adjacent wilderness characteristics.
- Commercial or industrial renewable energy projects (see Lands and Realty section above).
- Major Rights-of-way (see Lands and Realty section above and Glossary).

General Management

The BLM may authorize future management actions within protected units including, but not limited to: vegetation and habitat restoration, fuels treatments, installation of signage and rangeland management infrastructure and improvements The BLM would only authorize management actions in protected units if, after environmental review, it determines that the actions would meet the management objective and management direction for protected units. Project proposals will be evaluated on a case-by-case basis to ensure wilderness characteristics are maintained and/or enhanced. Actions within the protected units would be subject to NEPA compliance.

[5]The 2002 SEORMP/ROD (BLM 2002) authorized motorized vehicle-supported camping, unless otherwise posted to meet other objectives, up to 150 feet off existing motorized routes (p. 66).

Monitoring of protected wilderness characteristics units would be based on conformance with the management objective and management direction established by this Amendment. Because many wilderness characteristics units proposed for protection are contiguous with, or adjacent to, Wilderness Study Areas (WSAs), opportunities to connect monitoring of protected units while monitoring WSAs would be integrated where possible. Identification of unauthorized resource impacts (for example, unauthorized user-created impacts) would be documented, and the appropriate management response implemented. Monitoring would be performed when any ground disturbing action occurs in a protected wilderness characteristic unit. Periodic monitoring will be performed to ensure that identified wilderness characteristics are being maintained.

Protected Wilderness Characteristic Units Contiguous to Wilderness Study Areas

If Congress releases a Wilderness Study Area (WSA) from further consideration as wilderness, these lands would no longer be managed according to Manual 6330, Management of Wilderness Study Areas (BLM 2012f), but instead according to the underlying land use planning allocations and management direction for the area (for example, OHV Limited due to Sage-grouse protections, designated Wild and Scenic River or Area of Critical Environmental Concern status). If a protected wilderness characteristics unit(s) —or one or more of the associated parcels—is contiguous to a WSA that is congressionally released from wilderness designation, and that unit (or parcel) depends on being contiguous with the WSA to meet the criteria of possessing wilderness characteristics, the unit (or parcel) would no longer be prioritized for protection. Of the 33 protected units, 23 include one or more area that are contiguous with WSAs (see Glossary) and are dependent on this contiguous association to meet the criteria of possessing wilderness characteristics (see Appendix B, Table B-2 for a listing of contiguous units/parcels and their acreages).

Should Congress designate a WSA(s) for wilderness protection, the contiguous lands with wilderness characteristics unit(s) would continue to be managed in accordance with this PRMPA unless their management is otherwise addressed by Congress.

Wilderness Characteristics Units Not Prioritized for Protection

Wilderness characteristics units which are not prioritized for protection would not receive land use planning level protections. The potential effects of actions to the unit's wilderness characteristics would be considered and BLM would analyze the potential effects of the action in the applicable NEPA analysis, should BLM determine it is an issue requiring analysis. See Chapter 3, Section 3.7.1 Lands with Wilderness Characteristics for details.

2.3 Travel Management

Land use planning level travel management decisions allocate appropriate motorized off-highway vehicle (OHV) use.

Management Objectives

The PRMPA proposes no change in Travel Management objectives from those identified in the 2002 SEORMP, as amended. The existing Travel Management (OHV) objectives are carried forward, as described below.

2002 SEORMP/ROD

Off-Highway Vehicles: Manage off-highway vehicle (OHV) use to protect resource values, promote public safety, provide OHV use opportunities where appropriate, and minimize conflicts among various users (BLM 2002, 65).

Greater Sage-grouse Approved RMP Amendment (GRSG ARMPA)

- Objective 1 (Travel and Transportation Management Objective [TTM 1]: Manage OHV designations (Open, Limited[6], and Closed) to conserve Greater Sage-grouse habitat and populations by taking actions that create neutral or positive responses (BLM 2015d, 2:30).
- Objective 2 (TTM 2): Reduce disturbance to Greater Sage-grouse by evaluating or modifying OHV designations and route selection in accordance with minimization criteria (BLM 2015e, 2: 30).

Management Direction

The PRMPA would change the acres of land managed as OHV Open and Limited. The acres of OHV Closed would remain unchanged from the 2002 SEORMP, as amended. OHV designations are provided in Table 2-2 below and displayed on Map OHV 5 in Appendix M.

- Two areas, totaling approximately 40,368 acres, would be managed as open to cross-country recreational motorized and non-motorized use.
- Approximately 319,501 acres that are currently open to OHV use would be designated as OHV Limited. This brings the total of OHV Limited acres in the planning area to 4,585,249. This includes: 2,017,038 acres designated as Limited under the 2002 SEORMP/ROD (see distinction of Limited to Designated and Limited to Existing[6], BLM 2002); 2,248,711 acres

[6] For this RMP Amendment/EIS, use of the off-highway vehicle area designation term "Limited" applies to both areas designated as Limited under the 2002 RMP, and limited OHV area designations under the ARMPA. The 2002 RMP identified 1,481,605 acres where OHV use is Limited to Designated routes and 535,417 acres as Limited to Existing routes. Designated routes were identified in the 2002 SEORMP as routes that: were in existence as of the issuance of the SEORMP ROD in 2002 (BLM 2002); are located in special management areas including WSAs, certain ACECs, WSRs, and special habitat areas; and were specifically identified for continued public use. These routes are on file at the Vale District Office. An existing route is one that existed on the issuance date of the 2002 SEORMP ROD and are located in special management areas and sensitive habitat that otherwise were not designated as Limited to Designated routes (Ibid., 65–67) or Closed. In 2016, the BLM updated its 1626 Travel and Transportation Management Manual (BLM 2016f) and no longer identifies areas as Limited to Designated routes in RMPs or RMP Amendments. The 2015 Greater Sage-grouse Amendment to the 2002 RMP Amendment (BLM 2015d), designated an additional 2,248,711 acres as OHV Limited to existing routes. In this RMP Amendment/EIS, the BLM is using the term "Limited".

designated as Limited under the 2015 Greater Sage-grouse ARMPA; and an additional 319,501 acres of OHV Limited area designations under this PRMPA.

- The current 15,829 acres that are closed to motorized use under the 2002 SEORMP/ROD would remain Closed.

Table 2-2. Proposed Resource Management Plan Amendment OHV allocations.

OHV Category	Acres
Open	40,368
Limited[a]	4,585,249
Closed[b]	15,829

[a] The 2015 Greater Sage-Grouse ARMPA (BLM 2015e) designated all Sage-grouse habitat as OHV Limited, if not already closed to OHV. That decision shifted approximately 2.3 million acres of public land in the SEO planning area from OHV Open to OHV Limited to existing roads and primitive routes.

[b] Areas closed to OHV use (OHV Closed) remain as designated under the 2002 SEORMP (BLM 2002), as amended.

The two OHV Open areas are: located near populated areas; accessible along existing, developed travel routes; presently being used for motorized activities, primarily along existing routes that are known to be popular with hunters, OHV users, and other backcountry motorized vehicle users. OHV activities in these two areas can also be successfully managed thereby minimizing impacts to other resources and uses.

2.4 Livestock Grazing

The PRMPA proposes additional guidance and clarification for "Standards for Rangeland Health and Guidelines for Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington" (BLM 1997) management direction and expands and clarifies the process BLM would follow upon receipt of a voluntary permit relinquishment. Figure G-1 in Appendix G displays the existing process when a livestock grazing permit is voluntarily relinquished.

Management Objectives

Livestock management objectives under the 2002 SEORMP/ROD as amended, would be carried forward.

SEORMP 2002

Provide for a sustained level of livestock grazing consistent with other resource objectives and public land use allocations (BLM 2002, 56).

Greater Sage-grouse Approved RMP Amendment (ARMPA: BLM,2015e)

- Objective 1 (Livestock Grazing, LG 1): Manage livestock grazing to maintain or improve Greater Sage-grouse habitat by achieving Standards for Rangeland Health (BLM 2015d, 2:17).
- Objective 2 (LG 2): The 2015 ARMPA identified public land acres across eastern Oregon that will continue to be available for livestock grazing in Greater Sage-grouse habitat (BLM 2015d, 2-18). On public lands within the SEO planning area (4,641,445 acres), there are approximately 4,091,925 acres of Sage-grouse habitat, of which 4,036,441 acres are currently available for livestock grazing.[7]
- Objective 3 (LG 3): Complete rangeland health evaluations for grazing permits/leases that have not been renewed and prioritized by Allotment (Selective Management) Categories[8] I (Improve), M (Maintain), and C (Custodial). A priority order for completing rangeland health evaluations in Greater Sage-grouse habitat was established in the 2015 ARMPA (BLM 2015d, 2-18).

[7] The 2015 GRSG ARMPA (BLM 2015d) designated 9,354 acres within "Key" Research Natural Areas (RNA) in the SEO planning area as unavailable to livestock grazing (ARMPA p 2-18, Table 2-6). In March 2019, BLM issued a Record of Decision (ROD) to amend the 2015 GRSG ARMPA to reverse the 2015 closure of all or parts of Key RNAs to grazing (BLM 2019d); the 2019 ROD was subsequently appealed. On October 16, 2019, the U.S. District Court for Idaho (1:16-CV-00083-BLW) enjoined implementation of the March 2019 ROD. During this preliminary injunction, the 2015 RMPA remains in effect. BLM has begun the process of making all or portions of the Key RNAs identified in the 2015 ARMPA/ROD (BLM 2015d) unavailable to grazing.

[8] Priority setting for assessing Standards for Rangeland Health has been superseded by WO IM 2018-024 (BLM 2018a).

Management Direction

Standards for Rangeland Health

BLM would continue to follow livestock grazing administration regulations found in 43 CFR § 4180 and manage in accordance with "Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington" (BLM 1997). The BLM would continue to implement the 2002 SEORMP/ROD management direction that states, "Where livestock grazing is found not to be consistent with meeting objectives, actions that control the intensity, duration, and timing of grazing and/or provide for periodic deferment and/or rest will be required to meet the physiological requirements of key plant species and to meet other resource management objectives. Upon determining through the adaptive management process that existing grazing management practices or levels of grazing on public land are significant factors in failing to achieve resource objectives, appropriate actions will be implemented."[9]

In accordance with 43 CFR § 4180.2, if existing livestock grazing management is determined to be a significant causal factor for non-attainment of Standard(s), then the authorized officer must meet regulatory requirements to make changes by the next grazing season that will result in significant progress towards meeting applicable Standards.

In addition, the PRMPA would add the following management direction:

> If a Standards for Rangeland Health Assessment and Evaluation is completed and indicates that one or more Standard is not met in an allotment or pasture due to factors that are subject to BLM control, then the authorized officer shall consider taking action to make progress toward land health standards and land use plan objectives, even if existing livestock grazing is not determined to be a significant causal factor for non-attainment of Standard(s). Actions available to the authorized officer could include, but are not limited to, changes in livestock grazing management.
>
> If a Standards for Rangeland Health Assessment and Evaluation has not been completed for an allotment or pasture, or if the existing evaluation no longer represents resource conditions previously assessed and evaluated, then the BLM would not permit increases to AUMs that, based on analysis, are determined to cause negative impacts to other resources over the term of the renewed permit until the rangeland health assessment and evaluation is completed or revised. The other resources being considered are those identified in the OR/WA Standards and those identified in the 2002 SEORMP and 2015 ARMPA.

BLM would also continue to prioritize completion of OR/WA Standards for Rangeland Health assessment and evaluations as identified through the Oregon Greater Sage-Grouse RMP Amendment (BLM 2015d).

[9] Appropriate action means implementing actions pursuant to applicable regulatory authorities that will result in significant progress toward fulfillment of the Standards for Rangeland Health and significant progress toward conformance with the guidelines (43 CFR 4180.2(C). These actions may include development of grazing-related portions of activity plans and changes to terms and conditions such as either addressing seasons or intensities of livestock use (or both), rangeland project construction and maintenance, temporary livestock exclusion at pasture or allotment-scale (i.e., closure to livestock grazing), or cancellation or suspension of the grazing permit and associated land use plan amendment to change land use allocations to not include livestock grazing. These actions would require NEPA analysis as well as a Proposed and Final Grazing Decisions as described under 43 CFR 4160.

Voluntary Relinquishment of Grazing Permits

BLM would continue to follow WO IM 2013-184 (BLM 2013b) when BLM received a voluntary permit relinquishment. Under this guidance, BLM would continue to be required to accept all voluntary relinquishments of grazing permits. The voluntarily relinquished grazing permit would result in ending the relinquishing party's permitted use and preference. The voluntary relinquishment would not, in and of itself, result in that forage allocation becoming unavailable for use by livestock.

The PRMPA would also incorporate the following processes for a voluntarily relinquished permit:

> Upon receipt of a voluntary permit relinquishment, BLM would review compatibility of livestock grazing use with other existing resources in the permitted area. Based on competing resources or other opportunities (see Table 2-3 and resource list which follows), the BLM could wholly or partially: designate an area as unavailable to livestock grazing, create a reserve common allotment, and/or only allow livestock grazing for vegetation treatments (e.g., targeted, or prescriptive grazing). This management direction would apply across the entire planning area.
>
> The resource considerations in Table 2-3 would be evaluated in all cases where a voluntary relinquishment of a grazing permit is received by the BLM. National BLM guidance on processing permit relinquishments requires the BLM to consider "other resource uses". See Appendix G, Figure G-4 for a summary of this process under the PRMPA.

The resource considerations, and the degree to which grazing is compatible or in conflict with these resources, would be evaluated through a NEPA analysis. The BLM would provide the rationale for how these resource considerations were addressed in an allocation decision. This decision would establish the allocation of forage resources for the life of the plan; additional land use planning-level analysis would not be required. If livestock grazing is found to be incompatible, the forage allocation could be made to another resource. If grazing is found to be compatible with the other resource considerations, then the area would remain available to livestock grazing and/or be designated as a reserve common allotment.

Table 2-3. Resource use considerations in evaluating permit relinquishment under the PRMPA.

Resource or Use	Resource Considerations
Wildlife, Fish, and Plant Habitat	Big game winter range Bighorn sheep habitat, T&E[a], and other bureau sensitive species Priority Sage-grouse habitat
Special Management Areas (SMA)	Single SMA[b] Multiple SMAs
Fire and Fuels	Fire return interval Resistance and resilience (H, M, L)[c]
Realty, Energy, and Minerals	Private inholdings High level of extractive resource potential Existing/potential development (mining, communication sites, Rights-of-way)
Vegetation and Ecology	Existing invasive species concerns Species or habitat at risk of loss due to presence of invasive species (Category 5) Extensive presence of invasive species (Category 6) Unique ecology (plant, animal, and soils)
Grazing Management	Presence of grazing infrastructure Grazing restrictions by season Meeting Standards for Rangeland Health Standards for Rangeland Health not meeting due to grazing (historic and/or existing) Forage (AUMs) Common Allotments Custodial Allotment
Recreation, Land Use, and Public Impacts	Proximity to urban areas and/or neighboring areas of high use Existing and potential recreation use or demands Lands with wilderness characteristics
Tribal, Social, and Community	Traditional use areas, community, and economic concerns Tribal concerns and sensitive areas
Physical Characteristics and Water	Topography/relief Riparian, wetlands, and hydrology Water Developments (existing)

[a] Threatened and Endangered.
[b] Designated Special Management Areas include Wilderness Study Areas, Areas of Critical Environmental Concern, Research Natural Areas, National Historic Trails, and Wild and Scenic Rivers. These are areas with approved management decisions for designation of special management under policy, regulation, or by congressional action.
[c] High (H), Moderate (M), or Low (L) Resistance or Resilience indicates whether a landscape is likely to recover naturally after disturbance or would require active introduction of rehabilitation or restoration efforts.

Additional clarification for each Resource and Resource Use found in Table 2-3 is provided in the list below:

Wildlife, Fish, and Plants: The BLM would consider important wildlife habitat management concerns, including disease transmission, management priorities, forage demands, and grazing impacts to other species.

Special Management Areas: **(SMAs):** Designated SMAs are managed according to BLM regulations and manuals, allowable uses, and to what degree they are defined.

Fire: More areas at risk from fire, historic impacts of fire, geography and ecology conditions influence the relationship with grazing use and systems.

Realty, Energy, and Minerals: Existing and potential mining operations, Rights-of-way, land tenure, mineral resources, and demand influences activities that may be authorized in a permitted livestock grazing allotment.

Vegetation and Ecology: Ecologic condition and potential of landscapes drive opportunities for grazing and other uses. Functioning systems may increase opportunities, while nonfunctioning systems may require treatments or other actions which support reduced, deferred, or rested areas. Areas of invasive species (Category 6) or at risk of conversion (Category 5) may suggest certain types of treatment or restoration needs.

Grazing Management: Alternative grazing systems that adhere to existing land use plan objectives and policies would be considered, as well as the establishment of reserve common allotments, and/or targeted grazing treatments. Existing and future evaluations of Standards of Rangeland Health form the basis for future grazing management decisions to address issues. Custodial allotments are typically small areas of public lands within larger privately owned areas and may suggest opportunities for other uses. Whether a permitted area is a common (multiple permittees) or an individual allotment influences both the impacts to the relinquished permit allocation and related permits in the allotment.

Recreation and Land Use: Exiting recreational activities, adjacency to other land ownerships (including inholdings within the permitted area), opportunities for land acquisitions or exchange may be considered in the decision for allocating resources.

Social, Tribal and Community: Historic and current communities depend on public land resources. Changes in grazing have direct and indirect impacts to local communities socially and economically. Traditional tribal uses would be recognized in making future allocation decisions. Social interests are integral to recognize how changes in management may be balanced among protection or restoration efforts and other allowable uses in the future.

Physical Characteristics and Water: Topography, water quality, riparian condition, and ecological site potential would be used to recommend future management.

2.5 Summary

The PRMPA described above would guide management in the planning area. The environmental and social impacts of the PRMPA and alternatives are analyzed in Chapter 3. Table 2-4 summarizes the Management Direction for the PRMPA and provides a comparison of the land use planning allocations by alternative. Table 3-2 in Chapter 3 provides a comparison of the environmental impacts of the alternatives.

Table 2-4. Land Use Planning Allocations by alternative[10].

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Summary	Continuation of existing management under the 2002 SEORMP and ROD, as amended, and as required by the 2010 Settlement Agreement. All proposed actions are analyzed to avoid diminishing or eliminating wilderness characteristics.	Reflects management under the 2002 SEORMP and ROD, as amended. The 2002 ROD did not provide specific management or protection of lands with wilderness characteristics. Alternative A would not propose additional land use planning-level resource protection for the wilderness characteristics resources. OHV Area Designations and Grazing Management are not amended.	Emphasize protection of all 76 wilderness characteristics units (excluding road boundary setbacks). All 76 wilderness characteristics units and all WSAs would be managed as Closed to OHV use.	Emphasize protection of twenty-seven (27) identified lands with wilderness characteristics (excluding boundary road setbacks)) units). See Appendix C Alternatives C and D Methodologies for details on identifying units for protection under Alternative C. The twenty-seven (27) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes for OHV.	Emphasize protection of thirty-three (33) identified lands with wilderness characteristics (excluding road boundary setbacks) units. See Appendix C - Alternatives C and D Methodologies for details on identifying units for protection under Alternative D. The thirty-three (33) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes for OHV.	Emphasize protection of the thirty-three (33) identified lands with wilderness characteristics (excluding road boundary setbacks) units. The 33 units analyzed under Alternative D would be managed to emphasize protection of wilderness characteristics under this PRMPA. The thirty-three (33) wilderness characteristics units would be managed as OHV Limited to existing roads and primitive routes. Two areas near the city of Vale, Oregon would be retained as OHV Open.

[10] Unless otherwise specified, numbers refer to acres by land use allocation.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Summary (*Cont.'d*)		Livestock management would be carried forward as identified under the 2002 SEORMP/ROD, as amended.	Where the BLM determines existing livestock grazing practices are a significant causal factor in not meeting Standards for Rangeland Health, the BLM would suspend the grazing permit for the life of the RMP. When a grazing permit is voluntarily relinquished and pastures are within 2010 Settlement Agreement-specified management areas (Appendix A, Table A-2), the BLM would not re-allocate use to livestock grazing for the life of the RMP.	Permit renewal regarding existing livestock grazing practices as a significant causal factor would be managed as under the 2002 SEORMP/ROD. Processing voluntary relinquishment of a grazing permit same as the No Action Alternative. The BLM has clarified this process in this Alternative.	Where the BLM determines livestock grazing practices are a significant causal factor in not meeting Standards for Rangeland Health, the BLM would suspend the grazing permit until monitoring identifies the area is making significant progress toward meeting the standard. When a permit is voluntarily relinquished, and pastures overlap 2010 Settlement Agreement-specified management areas (Appendix A, Table A-4), the BLM would not re-allocate use to livestock grazing for the life of the RMP.	Permit renewal regarding existing livestock grazing practices as a significant causal factor would be managed as under the 2002 SEORMP/ROD. Processing voluntary relinquishment of a grazing permit and implementation of Oregon/Washington BLM implementation of Standards for Rangeland Health remain the same as the No Action Alternative.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Units Identified to Prioritize Protection of Lands with Wilderness Character-istics[11] *(See Appendix B DEIS for protected unit summaries and maps)*	Management under the 2010 Settlement Agreement would continue: all 76 units found to possess wilderness characteristics are managed to not permit any actions that would, "diminish the size or cause the entire BLM inventory unit to no longer meet the criteria for wilderness characteristics." Boundary Road Setbacks: None Seventy-six (76) units protected for wilderness characteristics: 1,236,907 acres **(Map WC 2: DEIS)**	Management would not establish new land use planning-level direction to prioritize protection of wilderness characteristics. Boundary Road Setbacks: None No additional land use planning protections for wilderness characteristics **(Map WC 1: DEIS)**	All 76 units (excluding setbacks) determined by the BLM to possess wilderness characteristics would be managed to prioritize protection of those characteristics. Alternative A prioritizes all units with wilderness characteristics. Boundary Road Setbacks:30,127 acres Seventy-six (76) units protected for wilderness characteristics: 1,206,780 acres **(Map WC 3: DEIS)**	27 identified units determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Protection of units identified by applying BLM's 2017 analysis methodology (see Appendix C Methodology). Boundary Road Setbacks: 5,714 acres Twenty-seven (27) units protected for wilderness characteristics: 167,709 acres **(Map WC 4: DEIS)**	33 units identified areas determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Protection of units identified based on recommendations of the SEORAC (see Appendix C Methodology). Boundary Road Setbacks: 9,247 acres Thirty-three (33) units protected for wilderness characteristics: 417,196 acres **(Map WC 5: DEIS)**	33 units identified areas determined by the BLM to possess wilderness characteristics would be managed for those characteristics. Units analyzed for prioritized protection under Alternative D carried forward into the PRMPA. Boundary Road Setbacks: 9,247 acres Thirty-three (33) units protected for wilderness characteristics: 417,190 acres **(Map WC 6)**

[11]Appendix B in this RMPA/DEIS provides unit summaries for each protected unit.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Off-highway Vehicle (OHV) Motorized Use	Continuation of existing management.		All wilderness characteristics units, including setbacks, and all WSAs, including Lands Adjacent (2002 SEORMP and ROD) would be assigned an OHV area designation of Closed to motorized vehicles. All existing primitive routes in these areas would be Closed to OHV use. Motorized access for authorized and administrative uses would be allowed.	Protected wilderness characteristics units, excluding setbacks, would be managed as Limited to existing routes, unless already managed as Closed to motorized vehicles. Existing OHV management under the 2002 SEORMP/ROD in setbacks would continue. Eight discrete areas in the northern portion of the planning area which are currently Open to OHV use would be retained as Open.	Protected wilderness characteristics units, including setbacks, would be managed as Limited to existing primitive routes, unless already managed as Closed to motorized vehicles. OHV area designations in WSAs are unchanged (currently Limited in the 2002 SEORMP/ROD).	Except as noted below, all currently OHV Open areas would be designated as OHV Limited, including protected wilderness characteristics units and their respective setbacks, unless already managed as Closed to motorized vehicles.
			All other areas currently managed as Open (cross-country motorized travel allowed) to OHV use would be managed as OHV Limited to existing roads and primitive routes.	All other areas currently managed as Open (cross-country motorized travel allowed) to OHV use would be managed as OHV Limited to existing roads and primitive routes.	All other public lands in the planning area would retain their current OHV designation as identified in the 2002 SEORMP, as amended.	40,368 acres would continue to be managed as OHV Open as identified in the 2002 SEORMP, as amended.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Off-highway Vehicle Motorized Use (Cont.'d)	**OHV Area Allocations (acres)** *Open:* 359,869 *Limited:* 4,265,748 *Closed to motorized vehicles:* 15,829 **Map OHV 1: DEIS)**		**OHV Area Allocations (acres)** *Open:* 0 *Limited:* 2,127,604 *Closed to motorized vehicles:* 2,513,842 **Map OHV 2: DEIS)**	**OHV Area Allocations (acres)** *Open:* 107,075 *Limited:* 4,518,539 *Closed to motorized vehicles:* 15,829 **Map OHV 3: DEIS)**	**OHV Area Allocations (acres)** *Open:* 325,686 *Limited:* 4,299,928 *Closed to motorized vehicles:* 15,829 **Map OHV 4: DEIS)**	**OHV Area Allocations (acres)** *Open*: 40,368 *Limited*: 4,585,249 *Closed to motorized vehicles*: 15,829 **Map OHV 5)**
Visual Resource Management (VRM) Classification	Continuation of existing management[12] **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 219,040 VRM Class III: 639,284		All lands with wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I). **Acres of Visual Resource Manage-ment by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 1,291,381 VRM Class III: 490,445	Identified lands for prioritized protection of wilderness charac-teristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Manage-ment by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 350,315 VRM Class III: 617,779	Identified lands for prioritized protection of wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543	Identified lands for prioritized protection of wilderness characteristics units (excluding setback areas) would be designated as Visual Resource Management Class II (unless currently managed as VRM Class I) **Acres of Visual Resource Management by Classification (acres)** VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543

[12] VRM Class II objectives are defined as, "Retain the existing character of the landscape. Allow a low level of change that should not attract the attention of a casual observer." All VRM class objectives are presented in the Visual Resource Management Section 3.7.16 of Chapter 3.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
VRM Class *(Cont.,d)*	VRM Class IV: 2,472,520 **(Map VRM 1: DEIS)**		VRM Class IV: 1,549, 018 **(Map VRM 2: DEIS)**	VRM Class IV: 2,362,750 **(Map VRM 3: DEIS)**	VRM Class IV: 2,151,940 **(Map VRM 4: DEIS)**	VRM Class IV: 2,151,940 **(Map VRM 5)**
Minerals **-Leasable Minerals** ***CSU: Controlled Surface Use*** ***NSO: No Surface Occupancy***	*Unleased Minerals* Until the Amendment is completed, proposals for new leasable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics. *Leased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended.	*Unleased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended. *Leased Minerals* Continuation of existing management under the 2002 SEORMP and ROD as amended.	*Unleased Minerals* Where leasable minerals are currently unleased, identified areas managed to protect wilderness characteristics would have no surface occupancy (NSO) unless otherwise more restrictive (Closed to leasing). Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. *Leased Minerals* Where leasable minerals are currently leased, apply the following stipulations to all areas protected for wilderness characteristics: Apply reasonable conservation measures consistent with management of wilderness characteristics. Implement design features for management of wilderness characteristics to meet VRM Class II objectives. Require Master Development Plans for fluid minerals processing within areas managed for wilderness characteristics. Require unitization for fluid minerals when necessary for proper development.			*Unleased Minerals* Same as Alternatives B, C and D for the 33 protected wilderness characteristics units proposed for protection under the PRMPA would be designated as NSO unless otherwise more restrictive (Closed to leasing). Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. Approximately 148,420 additional acres in the planning area would be NSO above NA and A. *Leased Minerals* Same as Alternatives B, C and D in areas protected for wilderness characteristics under the PRMPA. The same stipulations would apply in these areas.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Leasable Minerals ***CSU: Controlled Surface Use*** ***NSO: No Surface Occupancy*** *(Cont.'d)*	Geophysical Exploration Until the Amendment is completed, proposals for new leasable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics.	Geophysical Exploration Continuation of existing management under the 2002 SEORMP and ROD as amended.	Identify areas where land acquisitions, including nonfederal mineral rights, may benefit management of wilderness characteristics. If such acquisition is determined to provide a benefit, proceed with acquisition process where appropriate. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks. Geophysical Exploration The BLM would allow geophysical exploration in units managed to emphasize protection of their wilderness characteristics, with appropriate design features to meet VRM Class II objectives and in a manner consistent with the new objective for wilderness characteristics. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks.			Geophysical Exploration Same as Alternatives B, C, and D in areas protected for wilderness characteristics under the PRMPA/FEIS.
	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,767,976 CSU: 1,800,450 Open: 145,411 **(MAP MIN 7: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,767,976 CSU: 1,800,450 Open: 145,411 **(MAP MIN 7: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 2,246,378 CSU: 1,339,355 Open: 128,104 **(MAP MIN 12: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,853,091 CSU: 1,715,378 Open: 145,368 **(MAP MIN 8: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288,440 NSO: 1,916,396 CSU: 1,662,995 Open: 134,446 **(MAP MIN 13: DEIS)**	Leasable Mineral Allocations (acres) No Lease: 1,288, 440 NSO: 1,916,396 CSU: 1,662,995 Open: 134,446 **(MAP MIN 17)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Saleable Minerals ***CSU: Controlled Surface Use***	Until the Amendment is completed, proposals for new saleable mineral development will not be implemented if the proposed action is deemed by the BLM to diminish the size or cause an entire BLM inventory unit to no longer meet the criteria for wilderness characteristics. If visual impairment criteria are met, these areas would remain open to free use permits and sales in existing designated pits and common use areas.	Continuation of existing management under the 2002 SEORMP and ROD as amended.	All identified units managed to prioritize protection of their wilderness characteristics would be Closed to new mineral material sales. If visual impairment criteria are met, these areas would remain open to free use permits as well as sales in existing designated pits and common use areas. Continuation of existing management (2002 SEORMP and ROD as amended) within the setbacks.			
	Saleable Mineral Allocations (acres): Closed: 3,033,405 Open, CSU: 1,399,733 Open: 540,739 **(MAP MIN 9: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,033,405 Open CSU: 1,399,733 Open: 540,739 **(MAP MIN 9: DEIS)**	Saleable Mineral Allocations (acres) Closed: 3,511,664 Open CSU: 962,901 Open: 499,312 **(MAP MIN 14: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,120,353 Open CSU: 1,314,045 Open: 539,480 **(MAP MIN 10: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,183,104 Open CSU: 1,262,725 Open: 528,048 **(MAP MIN 15: DEIS)**	Saleable Mineral Allocations (acres): Closed: 3,183,104 Open CSU: 1,262,725 Open: 528,048 **(MAP MIN 18)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Land Tenure Zone Category	Continuation of existing management Land Tenure Zone (acres) Zone 1—(Retention/ Acquisition): 4,578,352 Zone 2—(Exchange): 52,302 Zone 3—(Disposal): 10,785 **(MAP LAND 1: DEIS)**	Continuation of existing management Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	76 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Zone 1—(Retention/ Acquisition): 4,578,556 Zone 2—(Exchange): 52,302 Zone 3—(Disposal): 10,581 **(MAP LAND 2: DEIS)**	27 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	33 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **(MAP LAND 1: DEIS)**	33 units prioritized for protection of wilderness characteristics would be categorized as Land Tenure Zone 1 (Retention in Public Ownership) Land Tenure Zone (acres) Same as No Action **MAP LAND 19)**
Rights-of-way (ROW) Authori-zations	New surface disturbing ROWs would not be allowed in lands with wilderness characteristics units if the action would diminish or eliminate the characteristics. New ROWs could be co-located within existing authorized	Continuation of existing management	76 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" ROWs, and commercial solar and wind development.	27 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.	33 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.	33 units managed to prioritize protection of wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" (as defined by the 2015 GRSG ARMPA) ROWs, and commercial solar and wind development.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Rights-of-way Authori-zations *(Cont.'d)*	ROWs with design features (for example, buried utilities) along boundaries of the unit. **Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 4,065,070 Exclusion Areas: 44,839 **(MAP LAND 3: DEIS)** *Minor Rights-of-way* Open: 1,584,022 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	**Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 4,065,070 Exclusion Areas: 44,839 **(MAP LAND 3: DEIS)** *Minor Rights-of-way* Open: 1,584,022 Existing Corridor Designation: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way* Open: 391,287 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,875,699 Exclusion Areas: 1,279,492 **(MAP LAND 4: DEIS)** *Minor Rights-of-way* Open: 1,101,635 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,400,004 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way:* Open: 435,284 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,894,027 Exclusion Areas: 217,166 **(MAP LAND 5: DEIS)** *Minor Rights-of-way* Open: 1,499,019 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,002,619 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way*: Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349 **(MAP LAND 6: DEIS)** *Minor Rights-of-way* Open: 1,428,928 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839	Designate these units as Avoidance Areas for "minor" ROWs and communication sites. **Rights-of-way Allocations (acres)** *Major Rights-of-way:* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349 **(MAP LAND 20)** *Minor Rights-of-way* Open: 1,428,928 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Rights-of-way Authori-zations *(Cont.'d)*	**(MAP LAND 7: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642	**(MAP LAND 7: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642	**(MAP LAND 8: DEIS)** *Commercial Solar Development* Open: 436,569 Existing designated ROW corridor: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642	**(MAP LAND 9: DEIS)** *Commercial Solar Development* Open: 435,284 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,939,802 Exclusion Areas: 1,171,392	**(MAP LAND 10: DEIS)** *Commercial Solar Development* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771	**(MAP LAND 21)** *Commercial Solar Development* Open: 423,275 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771
	(MAP LAND 11: DEIS) *Commercial Wind Development* Open: 436,565 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021	**(MAP LAND 11: DEIS)** *Commercial Wind Development* Open: 436,565 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021	**(MAP LAND 12: DEIS)** *Commercial Wind Development* Open: 391,283 Existing designated ROW corridor: 94,967 Avoidance Areas: 1,406,133 Exclusion Areas: 2,749,062	**(MAP LAND 13: DEIS)** *Commercial Wind Development* Open: 435,281 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,107,428 Exclusion Areas: 2,003,769	**(MAP LAND 14: DEIS)** *Commercial Wind Development* Open: 423,272 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148	**(MAP LAND 22)** *Commercial Wind Development* Open: 423,272 Existing designated ROW corridor: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148
	(MAP LAND 15: DEIS)	**(MAP LAND 15: DEIS)**	**(MAP LAND 16: DEIS)**	**(MAP LAND 17: DEIS)**	**(MAP LAND 18: DEIS)**	**(MAP LAND 23)**

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Standards for Rangeland Health	Continuation of Existing Management Standards for Rangeland Health: the BLM shall take appropriate action in accordance with 43 CFR § 4180.2 upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines for livestock grazing management for public lands administered by the Bureau of Land Management in the states of Oregon and Washington.		Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the plan.	Same as the No Action Alternative and Alternative A.	Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the term permit (10 years) or until monitoring indicates significant progress toward meeting Standards for Rangeland Health.	Same as the No Action Alternative and Alternatives A and C with additional Management Direction incorporated to address both when Standards are not being achieved regardless of causal factor(s) and when a current Rangeland Health Assessment/Evaluation is not available.

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Receipt of Voluntary Permit Relinquishment from Permittee	Continuation of Existing Management: Relinquishment by a permittee of any grazing permit within the planning area would be processed in accordance with WO IM 2013-184 (BLM 2013b) or subsequent IMs, handbooks, or manual guidance.		When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas (listed below), grazing use would not be re-allocated for the permitted portion of the affected pasture(s) and therefore not authorized for the duration of the plan. The permit would only be affected for pasture(s) overlapping the listed areas. Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments.	Same as No Action and Alternative A with the addition of further management direction that the permit relinquishment process uses an identified set of resource considerations as a baseline (see Table A-3, Appendix A) when evaluating the compatibility of continuing to permit livestock grazing if a grazing permit is relinquished.	When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas listed below, grazing use would not be re-allocated for the permitted part of the affected pasture(s) and therefore would not authorize for the duration of the plan. The permit would only be affected for pasture(s) overlapping of the listed area(s). Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments.	As with the No Action Alternative and Alternatives A and C, relinquishment by a permittee of any grazing permit within the planning area would be processed in accordance with WO IM 2013-184 (BLM 2013b) or subsequent IMs, handbooks, or manual guidance The PRMPA also incorporates specific resources and resource uses identified under Alternative C for consideration upon receipt of a relinquished permit. Further, upon receipt of a voluntary permit relinquishment, BLM would review compatibility of livestock grazing use with other existing resources in the permitted area. Based on competing resources or other opportunities (see Table 2-3 and resource list which follows), the BLM could wholly or partially: designate an area as unavailable to livestock grazing, create a reserve common allotment, and/or only allow livestock grazing for vegetation treatments (e.g., targeted, or prescriptive grazing). This management direction would apply across the entire planning area. The resource considerations in Table 2-3 would be evaluated in all cases where a voluntary relinquishment of a grazing permit is received by the BLM. National BLM guidance on processing permit relinquishments requires the BLM to consider “other resource uses”. See

Land Use Allocation or Management Action	No Action Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Proposed Resource Management Plan Amendment
Receipt of Voluntary Permit Relinquishment from Permittee *(Cont.'d)*			2010 Settlement Agreement-identified management areas: **National Conservation Lands:** - -Wild and Scenic Rivers --Wilderness Study Areas --National Historic Trails **Other Identified Areas:** --Areas of Critical Environmental Concern --Research Natural Areas --Designated Critical Habitat (*Endangered Species Act*, ESA) --Lands with wilderness characteristics		2010 Settlement Agreement-identified management areas: **National Conservation Lands**: --Wild and Scenic Rivers --Wilderness Study Areas --National Historic Trails	Appendix G, Figure G-4 for a summary of this process under the PRMPA. The resource considerations, and the degree to which grazing is compatible or in conflict with these resources, would be evaluated through a NEPA analysis. The BLM would provide the rationale for how these resource considerations were addressed in an allocation decision. This decision would establish the allocation of forage resources for the life of the plan; additional land use planning-level analysis would not be required. If livestock grazing is found to be incompatible, the forage allocation could be made to another resource. If grazing is found to be compatible with the other resource considerations, then the area would remain available to livestock grazing and/or be designated as a reserve common allotment.

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Southeastern Oregon
Proposed Resource Management Plan Amendment
and Final Environmental Impact Statement

Chapter 3

Affected Environment and Environmental Consequences

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CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Chapter 3 provides the Bureau of Land Management's (BLM) summary of the physical and social setting of the Southeastern Oregon (SEO) planning area (referred to as "planning area" throughout this document), and a description of the Affected Environment and Environmental Consequences resulting from alternative management actions considered in this Southeastern Oregon Proposed Resource Management Plan Amendment (PRMPA) and Final Environmental Impact Statement (FEIS).

The planning area encompasses 4.6 million acres of public surface ownership in Malheur County and portions of Harney, Grant, and Baker counties. There is an additional 561,021 acres of split estate land where surface ownership is nonfederal, but the federal minerals are in federal ownership. Elevation within the planning area ranges from about 2,100 feet along the Snake River to about 8,200 feet in the Trout Creek Mountains. The climate is semiarid with most precipitation falling in winter and early spring; summers are very warm and dry. Lightning starts most wildfires during the summer; from 1980 through 2017, an average of 37 fires burned approximately 82,190 acres annually. Snowpack in the scattered mountains provides much of the water through summer and fall. There are two major river systems: the Malheur and the Owyhee. Natural flows to the Malheur and Owyhee Rivers are modified by six major reservoirs, the largest of which is Owyhee Reservoir.

The planning area occupies the northern extent of the Great Basin division of the Intermountain Region. Physiographic provinces include much of the Basin and Range, the Owyhee Uplands, Blue Mountain, and Western Snake. The regional area and general vegetation classification are known as the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem. The Sagebrush Steppe Ecosystem covers much of eastern Oregon and Washington, southern Idaho, and portions of northern Nevada, California, and Utah. This ecosystem contains a broad diversity of landform and vegetation types, ranging from vast expanses of sagebrush covered plateaus to rugged mountains blanketed with western juniper woodland and grassland.

The planning area is the aboriginal territory of several Native American Tribes. Two of these tribes (the Fort McDermitt Shoshone-Paiute Tribe (Nevada and Oregon) and Burns Paiute Tribe (Oregon) own land or have treaty rights associated with the planning area.

Although riparian and wetland areas cover less than one percent of the public land in the planning area, they contribute substantially to ecosystem productivity and structural and biological diversity. Critically important to fish, birds, and other wildlife species, these areas also affect the quantity and quality of water available for irrigation, livestock watering, recreation, and other human uses.

Much of the area is dominated by sagebrush and native bunchgrass. A number of vegetation communities are the result of past improper livestock grazing, fire, and rehabilitation efforts, in many areas resulting in converted understories dominated by invasive annual grasses. Cooler and moister sites at higher elevations support forest and woodland communities with an overstory of fir, pine, western juniper, quaking aspen, and mountain mahogany. Mixed conifer forest is restricted to the northwestern part of the planning area, while aspen, juniper, and mountain mahogany forests and woodlands occur across the planning area. The distribution and density of western juniper has increased markedly over the past 100 years (Miller and Rose 1995, Miller et al. 2005).

Forty-two known either county or state-listed noxious plant species, or both, occupy —in varying densities—over 200,000 documented acres. There are no federally listed threatened or endangered plant species known to occur in the planning area.

Public land within the planning area provides habitat for approximately 291 species of permanent or seasonally resident fish and wildlife. Thomas et al. (1984) lists fish and wildlife species and describes habitat relationships. Greater Sage-grouse and other species dependent on sagebrush communities are found throughout the planning area. Several other special status species (SSS), such as Lahontan cutthroat trout and spotted frog are present as well.

There are 28 existing Areas of Critical Environmental Concern (ACECs) or ACEC/Research Natural Areas (RNAs) designated to protect and preserve special features or values. The Main Owyhee, West Little Owyhee, and North Fork Owyhee Rivers are designated National Wild and Scenic Rivers (WSR). While the planning area does not contain any designated Wilderness areas, it does include parts or all of 32 designated Wilderness Study Areas (WSA) covering approximately 1.3 million acres. Designated wilderness does not exist in the planning area but can be found nearby in the adjacent Boise BLM District in Idaho. Due to the remote, vast and undeveloped geography of the area, the BLM found that 1,236,907 acres possess wilderness characteristics in the district's recent wilderness characteristics inventory update.

Public lands in the planning area and in neighboring public lands are largely undeveloped by intensive uses or industrial infrastructure. Most infrastructure is rangeland (livestock) management related. Developed and undeveloped motorized travel routes are sparse within the planning area (approximately 0.30 miles per square mile of maintained routes and 1.51 miles per square mile of primitive routes).

In 2016, the population of Malheur County was about 30,474 and Harney County was 7,214, both about two percent lower than the populations in 2010. Per capita income in 2016 was higher in Harney County than in Malheur County, but both were substantially lower than the State average. Employment in travel and tourism-related sector makes up about 17% of jobs in Malheur County and agriculture provides about 11% of jobs.

A high percentage of agricultural activity in Malheur County, exclusively on non-federal lands, is based on labor-intensive food crops and food processing, in addition to ranching and hay production. BLM-administered land provides a substantial amount of forage (423,672 Animal Unit Months) for local livestock, with about 218 permittees grazing livestock on these lands. Recreational opportunities, such as rafting and boating on the major rivers, hunting, fishing, hiking, off-road vehicle travel occur throughout the planning area with most use in spring and fall.

3.2 Analytical Methodologies and Assumptions

The spatial and temporal scale of analysis (Section 3.7) varies by resource and by issue. Consistent with the BLM's *National Environmental Policy Act* (NEPA) Handbook(BLM 2008a), the spatial and temporal scale of analysis should be bounded by the extent and duration of the direct and indirect effects of the proposed action. In other words, the alternatives consider impacts resulting from different management actions across the broader landscape and over time.

For some resources analyzed in this EIS, the spatial scale is broader than the planning area. For other issues, the spatial scale is highly limited because of the nature of the resource and the potential effects of the proposed action on the resource. The individual resource sections of this chapter include descriptions of the spatial scales of analysis that are specific to that resource or program.

Specifying the temporal scale of analysis for an RMP Amendment/EIS is more challenging than for a discrete, site-specific action. Analysis of the effects of an RMP includes projecting future implementation actions. The individual resource sections of this chapter include descriptions to define the temporal scales of analysis that are specific to that resource or program.

Short-term impacts are defined as those that persist for less than five years. Long-term or permanent impacts are defined for this analysis as lasting at least five years.

3.3 Data and Methodologies Used in this Analysis

Data from the BLM's geographic information system (GIS) database has been used in developing acreage calculations, statistics, and modeling, and figures in this FEIS. Calculations in the FEIS are rounded and are dependent on the quality and availability of data. Data were collected from a variety of sources, including the BLM, federal and county resources, collaborative partners, and cooperating agencies. The figures are for illustrative purposes and subject to the limitations of the data.

3.4 Past, Present, and Reasonably Foreseeable Future Actions Considered in Assessing Cumulative Effects

Naturally occurring and human activities on public lands in the Southeastern Oregon planning area over the last century have influenced what is now the existing condition—or, Affected Environment—of public land resources and resource uses. These are described in Section 3.7 for each resource and resource use that may be affected by the alternatives. The Affected Environment provides a baseline for evaluating the Environmental Consequences of potential management actions and allocations in the alternatives.

Across the planning area, past and ongoing actions that have affected the human environment on public lands include:

- Recent (last 40 years) environmental impacts as a result of climate change will continue or increase, including: trends of increasing frequency of drought (and related changes to precipitation patterns) and average temperatures, reduced annual snowpack, changes in vegetative communities, and more severe and larger wildfires.
- Small- and large-scale mining activities, including material site development. Mining projects include Teague Minerals (Succor Creek); Mormon Basin (gold mining); EP Minerals (diatomite); and mineral exploration (gold, silver, lithium, among others).
- Road construction and maintenance (both annual and for safety/access purposes).
- Protection of culturally and traditionally sensitive and important areas.
- Livestock grazing and rangeland management, and the infrastructure development and maintenance necessary to implement appropriate public land grazing. Livestock grazing permit renewals may—in part—be developed and analyzed based on Oregon/Washington Standards for Rangeland Health and Guidelines for Livestock Management, and on land use plan objectives identified in the 2002 Southeastern Oregon Resource Management Plan and 2015 Oregon Greater Sage Grouse Approved Resource Management Plan Amendment.
- Ongoing vegetative and grazing research, including the Three Fingers project under Oregon State University.
- Vegetation manipulation to meet land health objectives, including landscape restoration and resource protection activities to shift vegetation communities toward more naturally functioning systems. Vegetation treatments include habitat restoration and enhancement, fuels reduction, and invasive species treatments. Projects include the Northwest Malheur County Greater Sage-grouse Habitat Restoration and Mormon Basin Restoration.

- Wildfire suppression and post-fire rehabilitation activities. Emergency Stabilization and Rehabilitation (ESR) projects include suppression action rehabilitation, temporary fencing, riparian/stream stabilization, seeding and herbicide treatments and up to 10 years of effectiveness monitoring.
- Wildland Urban Interface (WUI) fuels treatments along existing routes adjacent to population centers.
- Invasive species inventory, monitoring and treatment, including manual, mechanical, biological, and chemical treatments to address the expansion of noxious weeds and other invasive species.
- Energy projects and utility line project maintenance and development and transmission, including renewable energy projects such as small scale solar (renewable) energy projects.
- Natural gas and other leasable mineral exploration and development.
- Operation and maintenance of the US Geothermal Neal Hot Springs energy production facility.
- Communication site development and maintenance (including access).
- Designation and management of: rights-of-way, special management areas, important or limited resources, historic and pre-historic sensitive areas, visual and recreation resources, and habitat for Special Status Species.
- Condition and treatment-effectiveness monitoring to identify trends and potential management responses as a result of approved projects/actions.
- Urban growth, invasive weed treatments, fuels reduction, renewable energy development and agricultural activities on adjacent nonfederal lands.
- Increased public interest in, and improved ability to access, use, and enjoy the expansive landscapes in the planning area, including via land acquisitions from willing sellers.
- Recreation use continues across the planning area, with expected growth and changes of types and modes of activities.
- Wild horse management to meet appropriate management levels (AML) —including planned and emergency gathers.
- Juniper reduction and prescribed fire.
- In accordance with the 2019 preliminary injunction issued by the District Court of Idaho (1:16-cv-00083-BLW), continued implementation of the 2015 Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment as amended (BLM 2015d). Adjustments to this management are potentially made annually based on new disturbance and meeting objectives (including management responses to disturbance cap analyses and population/habitat impacts).

To fully describe impacts to the human environment of resources and resource uses on public lands in the planning area, the BLM also incorporates reasonably foreseeable future actions (RFFAs) as a part of the cumulative impact analysis. The reasonably foreseeable future actions known to the BLM are listed in Table 3-1. Not every ongoing action or reasonably foreseeable future action identified is applicable to each resource analyzed in this chapter. Only those ongoing actions and reasonably foreseeable actions with a potential impact on a specific resource are addressed in that resource section. Each resource and resource use subsection in Section 3.7 concludes with a cumulative effects analysis where past, present, and reasonably foreseeable future actions are integrated to ensure that the decision-makers consider the full set of consequences from the BLM's actions.

BLM published a Programmatic Environmental Impact Statement (PEIS) for Fuel Breaks in the Great Basin Record of Decision (DOI-BLM-ID-0000-2017-0001-EIS, BLM 2020c) in March 2020. The PEIS analyzed a broad set of alternatives for the configuration and location of linear fuel breaks that could be implemented to compartmentalize areas, bounded by reductions in fuels along existing travel routes to enhance operational safety, facilitate fire suppression activities, and limit the growth of future wildfire. Within the Vale District, many of the fuel breaks in the PEIS were identical to those analyzed by the Vale BLM in two local projects. The joint Idaho and Oregon BLM Tri-state Fuel Breaks FEIS (DOI-BLM-ID-B000-2015-0001-EIS, BLM 2020d) was published in 2020 and identified approximately 552 miles of existing routes in Oregon under the Preferred Alternative that proposed approximately 26,583 acres of fuel reduction; most of the Tri-state fuel breaks were included in the PEIS. The ROD for the Oregon component of the Tri-state Fuel Breaks FEIS project has not been published.

The second project with proposed fuel breaks that overlap those analyzed in the PEIS for the Great Basin project is the 2017 Northwest Malheur County Greater Sage-grouse Habitat Restoration project (DOI-BLM-ORWA-V040-2015-0001-EA, BLM 2017d) where approximately 150 miles of existing road-side fuel reduction projects were identified in the Field Manager's decision; again, most of the Northwest Malheur fuel breaks were incorporated into the PEIS.

At this time, the Vale BLM is not proposing fuel break projects that would consider additional routes approved under the PEIS for Great Basin. Consequently, the BLM has not identified the Great Basin PEIS as a RFFA in Table 3-1 because it would be speculative. The Vale BLM's current fuel reduction and protection strategy is not contemplating additional fuel breaks; should additional fuel breaks authorized under the PEIS for the Great Basin be considered in the future, the BLM will determine if additional site specific NEPA analysis is necessary.

Similarly, a Record of Decision for a PEIS for Fuels Reduction and Rangeland Restoration in the Great Basin (DOI-BLM-ID-0000-2017-0003-EIS, BLM 2021c) was issued on January 20, 2021. This PEIS proposes the use of manual, mechanical, and chemical treatments, targeted grazing, and prescribed fire to carry out fuels reduction and rangeland restoration projects on the BLM-administered lands in the Great Basin. At this time, the Vale BLM is not proposing any projects associated with this PEIS. Due to this, the BLM has not identified the PEIS as a RFFA in Table 3-1 because it would be speculative to do so.

Exploration for lithium in the McDermitt caldera portion of the planning area has been ongoing since 2018. The McDermitt caldera is a geologic formation in northern Nevada and southeastern Oregon that is approximately 300 square miles (200,000 acres) in size (Coyan et al., 2017). Approximately 13% of the caldera is within the Southeastern Oregon planning area. The caldera has historically been mined for multiple locatable minerals; notably mercury in the middle of the 20th century. The area is a known source of uranium and continues to be popular for rock-hounding. The caldera has been identified as having a high potential for lithium mineral development (USGS 2022). With the recent national focus on renewable energy, there has been an increase in interest in the exploration and development of the element for use in battery storage and production. In January 2021, Nevada BLM issued a Record of Decision (BLM, 2021d) on the Thacker Pass lithium mine project on public lands within the Nevada portion of the caldera. The Record of Decision was challenged in federal court and on February 6, 2023, the District Court of Nevada remanded the Record of Decision to BLM without vacatur of the ROD and with instruction to the BLM to properly determine whether there is a valuable mineral deposit *(Bartell Ranch LLC* et al. *v. Ester M. McCullough et al. (*D. Nev., *3:21-CV-00080-MMD-CLB)).*The proposed Thacker Pass lithium mine is approximately 20 miles south of the Southeastern Oregon planning area.

The BLM is analyzing three lithium exploration efforts in the caldera within the planning area as reasonably foreseeable actions. Two of them are Notice-level lithium exploratory actions that are currently ongoing. These two Notice-level actions cannot exceed five acres of disturbance and include the drilling of exploratory bore holes, vehicle and equipment access (road modification, vegetation clearing), and water and equipment staging. In addition to the five-acre disturbance limit, these Notice-level exploration-only

actions are restricted to a maximum extraction of 1,000 tons of bulk tested ore. The locations of these Notice-level actions are in the north-central and east portions of the caldera in Oregon. Reclamation of the disturbance from these exploratory actions to original condition is required. The other exploratory action the BLM is analyzing as a reasonably foreseeable action is a Plan of Operations to examine the potential lithium deposit that proposes: the drilling of approximately 260 bore holes with associated surface water storage sumps, creation of equipment staging and water management areas, and approximately 29 miles of temporary access routes within a 9,160 acre project area. This area is in the western portion of the caldera. The Plan of Operations estimates a total of approximately 76.3 acres of surface disturbance from these actions. Reclamation of disturbed areas to the original condition is required. The BLM has determined that the Plan of Operations for this exploration is complete in accordance with 43 CFR 3809 Surface Management (BLM 2012a). The BLM will initiate an environmental impact statement (EIS) for the proposed exploration project in 2023. The proponent that is proposing this exploration Plan of Operations previously conducted Notice-level lithium exploration within the overall 9,160 acre project area identified in their current Plan of Operations for exploration. The ongoing and proposed lithium exploration actions are identified in Table 3-1 as reasonably foreseeable future actions (RFFA) and are analyzed as appropriate in Section 3.7.

BLM does not consider the development (as compared to exploration) of a lithium mine within the analysis area to be a reasonably foreseeable future action because such development is speculative and has not been formally proposed. However, BLM does recognize: the known potential of the lithium deposit in the caldera; the known level of interest in lithium exploration in the area; Nevada BLM's decision to authorize the nearby Thacker Pass lithium mine in Nevada; and lithium's status as a "critical mineral" (USGS 2022). If the development of a lithium mine were proposed, the BLM would evaluate it through a separate, site-specific NEPA analysis and decision-making process. Because BLM has not received any proposal to develop a lithium mine and such development is speculative, BLM is not analyzing it as a reasonably foreseeable action in this EIS.

Table 3-1. Reasonably foreseeable future actions.

Name of Action	Lead Agency or Proponent	Location	Project Status	Disturbance Area
Tri-state Fuels Management Project	BLM Boise and Vale Districts	Southeast Malheur County, OR Southwest Owyhee County, ID	Idaho Decision (ROD) 2020 (BLM 2020e); Oregon ROD Expected 2021	Approximately 550 miles (26,000 acres in up to 200') fuel breaks; approximately 500 miles of road maintenance (in-route vegetation removal)
Boardman to Hemingway 500-kV transmission line	Idaho Power Company	North Malheur County	Implementation between 2021–2025	73 miles of powerline within 2,234 acres of ROW Corridor in the planning area. 236 poles/towers proposed with permanent structures, access routes and buildings approximately 100 acres.
Northwest Malheur County Greater Sage-grouse Habitat Restoration	BLM Vale District	Northwest Malheur County	Implementation underway since 2017	Restoration projects vary across the project area[1]
Northwest Malheur Mineral Material Site Project	BLM Vale District	Northwest Malheur County near Castle Rock	Environmental Assessment in Development	The BLM is proposing to develop up to seven material sites (average 40 acres or less) in the project area to facilitate implementation of the 2017 NW Malheur County Greater Sage-grouse Restoration Project (see above, this table). Material sites will be developed to create gravel sources which will be transported and placed along up to 150 miles of existing linear travel routes. Development of material sites and use of gravel on routes will support restoration objectives of the NW Malheur County Greater Sage-grouse Restoration project.

[1] Project implementation of NW Malheur Restoration began in 2018, following BLM's final decision. Juniper treatments, including piling and burning have begun; remaining treatments to follow, including:
Notes:
Fuel Breaks:150 miles (or 3200 acres) (up to 150' on either side)
Aerial/Ground Herbicide: 80,000 acres
Seedings: 40,000 acres
Sagebrush stock planting: 30,000 acres
Broadcast burning: 3,000 acres
Jackpot Burning: 20,000 acres
Underburning: 10,000 acres
Machine Pile: 45,000 acres
Hand Pile: 25,000 acres
Commercial Thinning: 1,053 acres
Conifer Cutting (no burning): 5,000 acres

Name of Action	Lead Agency or Proponent	Location	Project Status	Disturbance Area
Louse Canyon Geographic Management Area (LCGMA) Permit Renewal and Restoration Treatments	BLM Vale District	Southeast Malheur Field Office (MFO)	Scoping Completed; Draft EIS under development (Draft EIS expected to be released Summer,2023)	Alternatives, which will be subject to public input and review, will analyze management actions that are in conformance with OR/WA Standards for Rangeland Health and Livestock Guidelines. Actions include renewal of livestock grazing permits and restoration activities within the project's approximately 536,434-acre project area.[2]
Grassy Mountain Gold Mine	Private Enterprise	North Central Malheur County	Plan of Operation Complete 2022; NEPA to begin 2023	Approximately 500-acre site development and 25 miles access route widening, maintenance and realignment.
Residential Trespass Resolution	BLM Vale District	Northwest Malheur County	Environmental Analysis 2023-2024	Under 10-acre potential land disposal.
Owyhee Pump Storage Energy Development (Proposal 09/4/2019)	rPlus Energies, LLC	Project footprint within six miles of Owyhee Dam, Northeast Malheur County	Initial proposal	Approximately 40-acre footprint from Owyhee Reservoir up to plateau above.
Agency Valley Free Use Saleable Mineral Pit Development	BLM Vale District	NW Malheur Near Beulah Reservoir	Ten-year life	Five-acre material site development for five years/50,000 cubic yards.

[2]The alternatives in the LCGMA EIS, which will be subject to public review and comment, will address OR/WA Standards for Rangeland Health and Guidelines for Livestock Management. Management actions to be analyzed include livestock grazing management and restoration of upland and riparian communities across approximately 536,000 acres of public land within the project area. The alternatives will vary in the way they address livestock grazing and will propose habitat restoration treatments. The livestock grazing alternatives will have components of season of use, animal unit months (AUM) levels, the use of temporary closures of pastures to livestock grazing, and the construction of range improvements such as exclosures and water sources. The alternatives will, at a minimum include a no livestock grazing alternative and an alternative that maintains the existing number of AUMs and season of use. The other alternatives will vary these livestock grazing management components in order to: achieve Oregon/Washington Standards for Rangeland Health and Guidelines for Livestock Grazing (BLM 1997), renewal of grazing permits that provide for a level of livestock grazing consistent with other resource objectives through the identification of AUMs and season of use, comply with 2015 Oregon Greater Sage-Grouse Resource Management Plan Amendment (BLM 2015d) objectives, comply with the statutory and regulatory requirement of the *Federal Land Policy and Management Act* of 1976 and the *Taylor Grazing Act*, and restore and enhance the ecological condition of riparian and upland areas. The restoration treatments could include such actions as invasive plant treatments, seedings, plantings, conifer and sagebrush thinning, prescribed fire, water developments and the relocation of troughs, fencing along riparian areas to protect key resources, and the placement of instream structures.
This Southeastern Oregon RMP analysis acknowledges the potential range of livestock grazing management actions and restoration treatments being proposed in the LCGMA DEIS while recognizing the analysis has not yet received public input or review.

Name of Action	Lead Agency or Proponent	Location	Project Status	Disturbance Area
Vale to Drewsey Transmission Line ROW Modification and Renewal	Idaho Power Company	Hwy 20 between Vale and Drewsey Oregon	ROW Proposed; NEPA underway	Approximately 60 miles along Hwy 20 between Vale and Drewsey, OR
2015 Oregon Greater Sage Approved RMP Amendment (ARMPA, BLM 2015d)	OR/WA BLM	Various locations within Planning Area	Under the 2015 ARMPA, the BLM has begun the process to make all or portions of nine "Key" RNAs unavailable to livestock grazing and anticipates completing the regulatory processes to implement removal of livestock grazing in 2023. An estimated 27.2 miles of new fencing would be necessary to exclude livestock from the key RNAs	Approximately 9,354[3] acres located in the nine Key RNAs.
2019 Oregon Greater Sage-Grouse Approved RMP Amendment and Supplemental EIS (BLM 2019a)	OR/WA BLM	Planning Area Wide	This analysis is currently under review (see Section 3.7.3 Livestock Grazing and Rangeland Management) but would reverse the 2015 ARMPA to make all or portions of the nine Key RNAs unavailable to grazing.	The 9,354 acres in the nine Key RNAs would continue to be available to grazing.
Malheur Queen Gold Mine	Vale District BLM	T. 13 S., R. 40 E. T. 13 S., R. 41 E. Approx 180 ac project area.	Plan of Operation Complete; NEPA Approved 2005.	Approximately 180 acres project area. Disturbance/small scale mining operation would proceed in small (5-10 acre) annual increments with ongoing reclamation. Little progress made on mining; continues to be in testing phase

[3] This number only reflects acres in Key RNAs included in Table 2-6 of the 2015 OR Greater Sage-Grouse ARMPA Table 2-6 (BLM 2015d). Acres and affected AUMs may change as implementation occurs; new exclosure fencing would be designed to tie to nearby existing topography and infrastructure.

Name of Action	Lead Agency or Proponent	Location	Project Status	Disturbance Area
Octagon Gold Mine	Vale District BLM	T. 13 S., R. 40 E.	Plan of Operation Complete; NEPA initiation pending	Limited (5 acre) disturbance area initially identified of historically mined area.
Lithium exploration	Private Enterprise	McDermitt Caldera	Two ongoing Notice-level and a Plan of Operation level exploration actions are occurring.	The two ongoing Notice-level explorations are in the central and eastern portions of the caldera and will not exceed five acres of disturbance. This disturbance includes vehicle and equipment access, road modification, bore hole drilling, and water and equipment staging. Reclamation of the disturbed areas to the original condition is required. The Plan of Operations for a pending exploration was determined by BLM to be complete. The project area is approximately 9,160 acres in the western portion of the caldera. Proposed actions include: 29 miles (55 acres) of access routes, the development of access routes to an average of 14', approximately 262 bore holes (14.28 acres) for a total of 76.3 acres of total disturbance. Surface water storage (e.g., sumps) excavated at each drill site are estimated to be 10'x20'x6'. Water would be transported via water tenders. Each bore hole would be between 4 ½ and 6" diameter. Hole depth varies, but the proponent estimates economic deposits to be between 400'-600'. The disturbance also includes equipment staging. Reclamation of the disturbed areas to the original condition is required.

Irreversible and Irretrievable Commitment of Resources

The Council on Environmental Quality's regulations for implementing the NEPA require that an Environmental Impact Statement (EIS) discussion of environmental consequences include "any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the

proposal should it be implemented" (40 CFR 1502.16). Irreversible or irretrievable commitments of resources are those that cannot be reversed or that are lost for a long period. Examples include the extraction of minerals or the commitment of land to permanent roads. Although not specifically labeled, adverse environmental effects, the relationship between short-term uses and long-term productivity, and the irreversible and irretrievable commitment of resources are described, by resource, throughout the discussion of environmental consequences in this chapter.

3.5 Design Features Considered

Design features and best management practices that are both described and required under the 2002 SEORMP ROD (BLM 2002), as amended by the 2015 Greater Sage-grouse ARMPA (BLM 2015d), are unchanged and will continue to apply to future projects (See Appendices C and F of the 2015 Greater Sage-grouse ARMPA). In conducting the effects analysis in this chapter, the Bureau of Land Management (BLM) assumed that the implementation of those design features and best management practices would continue to occur. Of the 1,236,907 acres with wilderness characteristics in the planning area, 1,186,056 acres (96%) are located within Priority or General Sage-grouse habitat management areas (PHMA/GHMA). All measures and designs to protect, maintain, or enhance Sage-grouse habitat from the 2015 Greater Sage-grouse ARMPA would be carried forward in all alternatives in this PRMPA/FEIS.

3.6 Summary of Environmental Consequences

Table 3-2 provides a summary of environmental consequences for each of the alternatives and the proposed resource management plan Amendment. The detailed environmental consequences by resource program are provided in Section 3.7.

Table 3-2. Summary of environmental consequences for the proposed resource management plan Amendment by alternatives.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Units Identified to Prioritize Protection of Lands with Wilderness Characteristics	All 76 wilderness characteristics units (1,236,907 acres) protected under Settlement Agreement (see Appendix R), but no land use planning level protections. No actions are allowed that would diminish or eliminate wilderness characteristics Setbacks: zero acres	No (zero acres) land use planning-level protections for wilderness characteristics. Lowest level of protections specific to wilderness characteristics Setbacks: zero acres	All 76 units (1,206,780 acres, excluding 250' boundary road setbacks, 30,127 acres) protected as a management priority. Future proposed actions would be required to meet the management objective to prioritize protection. Most units protected under	27 units (167,709 acres excluding 5,714 acres in setbacks) protected as a management priority. Management objective and allowable uses in protected units same as those identified in B More (27) units protected than A	33 units (417,196 acres excluding 9,247 acres in setbacks) protected as a management priority. Management objective and allowable uses in protected units same as those identified in B More (33) units protected than A and C	33 units (417,190[4] acres excluding 9,247 acres in setbacks) protected as a management priority. Management objective and allowable uses in protected units same as those identified in B More (33) units protected than A and C

[4] The 33 units proposed for protection under the PRMPA are identical to those that are proposed for protection in the No Action Alternative and Alternatives B, C and D; the six acre difference is a result of a boundary correction—between publication of the DRMPA/DEIS and PRMPA/FEIS—to the West Fork Bendire (OR-034-007) unit which confirmed that the size of the unit proposed for protection in the PRMPA is six acres fewer than originally understood. The correction resolves an error in interpreting the accurate boundary between public and private land; this error led to the inclusion of six acres that contain human developments that are non-natural, were present at the time of the inventory, and should have been excluded from the analysis. This change is not reflected in the acreage numbers for Alternatives B, C and D, but does apply to those alternatives.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Units Identified to Prioritize Protection of Lands with Wilderness Characteristics (Cont.'d)	OHV designations remain unchanged	OHV designations remain unchanged	land use plan among alternatives All 76 units would be closed to OHV use (including primitive routes). Highest level of OHV Closed designation	Protected units would be limited to existing routes, unless currently closed for OHV use. Eight areas (107,075 acres) proposed for continued OHV Open designation.	All 76 wilderness characteristics units would be limited to existing routes for OHV. More OHV related land use planning level protections than A and C. More OHV Open areas than B, C and PRMPA	Existing OHV designations remain unchanged, except for the following: all currently designated OHV Open areas (except two areas near City of Vale, 40,368 acres) would be designated as OHV Limited
Off-Highway Vehicle Motorized Use Designation (Acres)	OHV Open: 359,869 OHV Limited: 4,265,748 Closed to motorized vehicles: 15,829		OHV Open: Zero OHV Limited: 2,127,604 Closed to motorized vehicles: 2,513,842	OHV Open: 107,075 OHV Limited: 4,518,542 Closed to motorized vehicles: 15,829	OHV Open: 325,686 OHV Limited: 4,299,928 Closed to motorized vehicles: 15,829	OHV Open: 40,368 OHV Limited: 4,585,249 Closed to motorized vehicles: 15,829
OHV Recreation Opportunities—Recreational Motorized Vehicle-based activities	No reduction in motorized access, but highest level of cross-country travel (OHV Open) allowed which could impact pursuits like hunting opportunities	Same as the NA	Greatest negative effect to motorized access due to OHV area closures, as a result of reductions in miles of primitive routes available for cross-country motorized travel. Motorized routes in the OHV Closed and Limited	Access would be restricted under an OHV Limited to existing routes designation. Smallest acreage remaining in OHV Open after PRMPA	Similar to the NA and A where similar negative impacts may occur for some activities, while benefitting others. Greatest acreage of OHV Open after NA and A	Retains smallest OHV Open area (40,368 acres) after B, which would negatively impact cross country motorized activities. Greatest acreage of OHV Limited among the alternatives. Cross country motorized use would have the greatest limitations after B.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
			areas could benefit pursuits like hunting opportunities			Benefits would be highest after B for non-motorized uses
Visual Resource Management Classification[5] Acres	No change to Visual Resource Management Direction VRM Class I: 1,310,702 VRM Class II: 219,040 VRM Class III: 639,284 VRM Class IV: 2,472,520		VRM Class I acreage unchanged. Greatest level of management under VRM class II for all 76 wilderness characteristics (excluding setbacks) VRM Class I: 1,310,702 VRM Class II: 1,291,381 VRM Class III: 490,445 VRM Class IV: 1,549,018	VRM I acreage unchanged. Increased area managed under VRM Class II in 27 wilderness characteristics units (excluding setbacks). Greater than NA and A VRM Class I: 1,310,702 VRM Class II: 350,315 VRM Class III: 617,779 VRM Class IV: 2,362,750	VRM I acreage unchanged. Increased area managed under VRM Class II in 33 units (excluding setbacks). Greater than NA, A, C and same as PRMPA VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543 VRM Class IV: 2,151,940	VRM I acreage unchanged. Increased area managed under VRM Class II in 33 units (excluding setbacks). Greater than NA, A and C VRM Class I: 1,310,702 VRM Class II: 578,361 VRM Class III: 600,543 VRM Class IV: 2,151,940[5]
Leasable Minerals[6] Acres CSU: Controlled Surface Use	No change to leasable mineral management.		All 76 wilderness characteristics units would be designated as NSO (unless currently leased or closed to	The 27 protected wilderness characteristics units would be designated as NSO (unless currently	The 33 protected wilderness characteristics units would be designated as NSO (unless leased or	The 33 protected wilderness characteristics units would be designated as NSO (unless currently leased or closed to

[5] The definition of the different visual resource management classes can be found in Chapter 3, Section 3.7.16 – Visual Resources and Appendix I – Glossary.
[6] Acres shown across the alternatives apply to where the surface ownership or the subsurface mineral estate is partially or wholly under federal jurisdiction.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
NSO: No Surface Occupancy	No Lease: 1,288,440 Open: 145,411 CSU: 1,800,450 NSO: 1,767,976		leasing). Setbacks remain unchanged. Highest level of leasing restrictions No Lease: 1,288,440 Open: 128,104 CSU: 1,339,355 NSO: 2,246,378	leased or closed to leasing). Setbacks remain unchanged. After B and D, highest level of leasing restrictions No Lease: 1,288,440 Open: 145,368 CSU: 1,715,378 NSO: 1,853,091	closed to leasing). Setbacks remain unchanged. After B, highest level of leasing restrictions No Lease: 1,288,440 Open: 134,446 CSU: 1,662,995 NSO: 1,916,396	leasing). Setbacks remain unchanged. After B, highest level of leasing restrictions No Lease: 1,288,440 Open: 134,446 CSU: 1,662,995 NSO: 1,916,396
Saleable Minerals[7] Acres CSU: Controlled Surface Use	No change from existing Saleable Minerals Management Open: 540,739 Open CSU: 1,399,733		All 76 wilderness characteristics units would be designated as Closed to Saleable Minerals. Setbacks remain unchanged. Existing pits continue to be available. Highest level of saleable mineral material restrictions Open: 499,312 Open CSU: 962,901	The 27 protected wilderness characteristics units would be designated as Closed to Saleable Minerals. Setbacks remain unchanged. Existing pits continue to be available. More mineral material restrictions than NA and A, but less than B, D and PRMPA Open: 539,480	The 33 protected wilderness characteristics units would be designated as Closed to Saleable Minerals. Setbacks remain unchanged. Existing pits continue to be available. After B, highest level of mineral material restrictions Open: 528,048	The 33 protected wilderness characteristics units would be designated as Closed to Saleable Minerals. Setbacks remain unchanged. Existing pits continue to be available. After B, highest level of mineral material restrictions. Same as D Open: 528,048

[7] Acres shown across the alternatives apply to where the surface ownership or the subsurface mineral estate is partially or wholly under federal jurisdiction.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
	Closed: 3,033,405		Closed: 3,511,664	Open CSU: 1,314,045 Closed: 3,120,353	Open CSU: 1,262,725 Closed: 3,183,104	Open CSU: 1,262,725 Closed: 3,183,104
Land Tenure Zone (LTZ) Category (Acres)	Zone 1—(Retention/ Acquisition): 4,578,352 acres Zone 2—(Exchange): 52,302 acres Zone 3—(Disposal): 10,785 acres	Same as No Action	Approximately 200 acres of wilderness characteristics units that are prioritized for protection are currently other than Zone 1 (retention in public ownership); all units would be managed to retain federal management Zone 1: 4,578,556 ac Zone 2: 52,302 ac Zone 3: 10,581 ac	Same as No Action. All wilderness characteristics units in these alternatives which are prioritized for protection are currently Land Tenure Zone 1 (including the setbacks).		
Rights-of-way Authorizations (Acres)	All Rights-of-way authorizations would continue under current management direction, provided no diminishment of wilderness characteristics	All Rights-of-way authorizations would continue under current management direction. No additional restrictions would be implemented	Highest level of restrictions on Rights-of-way development among the alternatives: Major ROWs and Commercial Renewable energy projects would be	Restrictions on Rights-of-way development applied to 27 protected units: Major ROWs and commercial renewable energy projects would be excluded. Fewer	Restrictions on Rights-of-way development applied to 33 protected units: Major ROWs and commercial renewable energy projects would be excluded. Same as	Restrictions on Rights-of-way development applied to 33 protected units: Major ROWs and commercial renewable energy projects would be excluded. Same as D, but more acres excluded than NA, A and C and fewer than B

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
			excluded in all wilderness characteristics units. Applied to all 76 units	acres restricted than B, D and PRMPA, but more than NA and A	PRMPA, but more acres excluded than NA, A and C and fewer than B	
Rights-of-way Authorizations (Cont.'d)	**Major Rights-of-way** Open: 436,569 Existing Corridor Designation: 94,967 Avoidance Areas: 4,065,070 Exclusion Areas: 44,839	**Major Rights-of-way** Same as No Action	**Major Rights-of-way** Open: 391,287 Existing Corridor Designation: 94,967 Avoidance Areas: 2,875,699 Exclusion Areas: 1,279,492	**Major Rights-of-way** Open: 435,284 Existing Corridor Designation: 94,967 Avoidance Areas: 3,894,027 Exclusion Areas: 217,166	**Major Rights-of-way:** Open: 423,275 Existing Corridor Designation: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349	**Major Rights-of-way:** Open: 423,275 Existing Corridor Designation: 94,967 Avoidance Areas: 3,652,854 Exclusion Areas: 470,349
	Minor Rights-of-way Open: 1,584,022 Existing Corridor Designation: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	**Minor Rights-of-way** Open: 1,584,022 Existing Corridor Designation: 94,967 Avoidance Areas: 2,917,617 Exclusion Areas: 44,839	**Minor Rights-of-way** Open: 1,101,635 Existing Corridor Designation: 94,967 Avoidance Areas: 3,400,004 Exclusion Areas: 44,839	**Minor Rights-of-way** Open: 1,499,019 Existing Corridor Designation: 94,967 Avoidance Areas: 3,002,619 Exclusion Areas: 44,839	**Minor Rights-of-way** Open: 1,428,928 Existing Corridor Designation: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839	**Minor Rights-of-way** Open: 1,428,928 Existing Corridor Designation: 94,967 Avoidance Areas: 3,072,711 Exclusion Areas: 44,839
	Commercial Solar Development Open: 436,569	**Commercial Solar Development** Open: 436,569	**Commercial Solar Development** Open: 436,569	**Commercial Solar Development** Open: 435,284	**Commercial Solar Development** Open: 423,275	**Commercial Solar Development** Open: 423,275

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
	Existing Corridor Designation: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **Commercial Wind Development** Open: 436,565 Existing Corridor Designation: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021	Existing Corridor Designation: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **Commercial Wind Development** Open: 436,565 Existing Corridor Designation: 94,967 Avoidance Areas: 2,240,892 Exclusion Areas: 1,869,021	Existing Corridor Designation: 94,967 Avoidance Areas: 3,073,267 Exclusion Areas: 1,036,642 **Commercial Wind Development** Open: 391,283 Existing Corridor Designation: 94,967 Avoidance Areas: 1,406,133 Exclusion Areas: 2,749,062	Existing Corridor Designation: 94,967 Avoidance Areas: 2,939,802 Exclusion Areas: 1,171,392 **Commercial Wind Development** Open: 435,281 Existing Corridor Designation: 94,967 Avoidance Areas: 2,107,428 Exclusion Areas: 2,003,769	Existing Corridor Designation: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771 **Commercial Wind Development** Open: 423,272 Existing Corridor Designation: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148	Existing Corridor Designation: 94,967 Avoidance Areas: 2,852,432 Exclusion Areas: 1,270,771 **Commercial Wind Development** Open: 423,272 Existing Corridor Designation: 94,967 Avoidance Areas: 2,020,059 Exclusion Areas: 2,103,148
Livestock Grazing and Rangeland Management						
Standards for Rangeland Health[8]	Continuation of Existing Management: There are 206 allotments, authorizing 423,672 AUMs, permitted in the planning area and administered by the BLM. The BLM continues to inventory and evaluate standards according to District priorities and analyze alternatives for permit		Greatest potential for reduction in available AUMs. The range of AUMs that could be affected is between four and 14,160	Same as the No Action Alternative and Alternative A.	Same potential for a reduction in available AUMs as B, but over a shorter duration	Same as the No Action and Alternatives A and C but with additional management direction. BLM would consider taking action to make progress toward land

[8] Under all alternatives and the PRMPA, continuation of Existing Management Standards for Rangeland Health: the BLM shall take appropriate action in accordance with 43 CFR § 4180.2 upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the Standards for Rangeland Health and conform with the guidelines for livestock grazing management for public lands administered by the Bureau of Land Management in the states of Oregon and Washington.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Standards for Rangeland Health (Cont.'d)	renewal. Upon expiration of a grazing permit, the BLM would reevaluate range conditions prior to renewing the permit for another 10 years		AUMs (smallest to largest individual permit). Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the OR/WA Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the plan		Where existing grazing practices are determined by the BLM to be a significant causal factor for nonattainment of the OR/WA Standards for Rangeland Health, the BLM would suspend term grazing permits, either at the allotment or pasture scale, for the duration of the term permit (10 years) or until monitoring indicates significant progress toward meeting Standards for Rangeland Health	health standards and land use plan objectives, even if existing livestock grazing is not determined to be a significant causal factor for non-attainment of Standard(s). In areas where a Rangeland Health Assessment and Evaluation has not been completed or no longer represents resource conditions, BLM would not permit increases to AUMs that, based on analysis, are determined to cause negative impacts to other resources. The PRMPA would provide more flexibility in management responses to Standards not being achieved than the NA, A, and C
Receipt of Voluntary Permit Relinquishment from Permittee	Continuation of Existing Management: There are 206 allotments, authorizing 423,672 AUMs, permitted in the planning area and administered by the BLM.		Greatest potential to increase area not available to grazing. Maximum public land acres that may become unavailable	Same as No Action and Alternative A with the addition of management direction that the BLM will use an	After B, greatest potential to increase area not available to grazing. Maximum public land acres that may become	Same as the No Action and Alternative A and the same additional management direction identified in Alternative C, except

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics	Alternative B: Emphasize Protection of Wilderness Characteristics	Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas	Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics	PRMPA
Receipt of Voluntary Permit Relinquishment from Permittee (Cont.'d)	Relinquishment by a permittee of any grazing permit within the planning area would be processed in accordance with WO IM 2013-184 (BLM 2013b) or subsequent IMs, handbooks, or manual guidance.		to grazing upon voluntary relinquishment of a grazing permit is 1,206,780, effecting a range of zero and 94 (zero and 152,034 AUMs) permits could be suspended under this management: When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas (listed below), forage for livestock grazing would be allocated to a different purpose for the permitted portion of the affected pasture(s) and therefore not authorized for the	identified set of resource considerations (Table 2-3) when evaluating the compatibility of continuing to permit livestock grazing if a grazing permit is voluntarily relinquished. If livestock grazing was determined, through analysis, to be incompatible with one or more of these other resources or uses, the permitted area could become unavailable to livestock grazing pending land use planning-level analysis and decision.	unavailable to grazing upon voluntary relinquishment of a grazing permit is 417,196 acres, effecting a range of zero and 65 allotments (zero and 69,929 AUMs) could be reduced under this management When a grazing permit is voluntarily relinquished and any part of the permitted area overlaps one or more 2010 Settlement Agreement-identified management areas listed below, forage for livestock grazing use would be allocated to a different purpose for the permitted part of the affected pasture(s) and	that under the PRMPA, the permitted area could become unavailable to grazing through project-level NEPA analysis and subsequent decision. No additional land use planning-level analysis or decision would be required in order to make the permitted area unavailable to livestock grazing.

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Receipt of Voluntary Permit Relinquishment from Permittee (Cont.'d)			duration of the plan. The forage allocation to other purposes than grazing would only be affected by pasture(s) overlapping the listed areas. Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments 2010 Settlement Agreement-identified management areas: National Conservation Lands plus additional specified lands (see Appendix A, Table A-2)		therefore would not authorized for the duration of the plan. The forage allocation to other purposes than grazing would only be affected for pasture(s) overlapping of the listed area(s). Grazing would be reduced by the total AUMs of the affected pasture(s) in the relinquished permit(s) when such actions occur in common allotments 2010 Settlement Agreement-identified management areas: NCL (see Appendix A, Table A-4)	
Summary Comparison of Resource Impacts						
Soils	Greatest beneficial effect to soils as a result of restrictions on surface	No additional beneficial effects to soils	Similar to the NA. Beneficial effect to soils as a result of restrictions on	Beneficial effect to soils greater than A as a result of restrictions on	Beneficial effect to soils greater than A and C as a result of restrictions on	Beneficial effect to soils greater than A and C as a result of

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Soils (Cont'd)	disturbing activities to protect wilderness characteristics in all 76 units (1,236,907 acres)		surface disturbing activities on 76 protected units (excluding setbacks, 1,206,780 acres)	surface disturbing activities on 27 protected units (excluding setbacks, 167,709 acres)	surface disturbing activities on 33 protected units (excluding setbacks, 417,196 acres). Same effect as PRMPA	restrictions on surface disturbing activities on 33 protected units (excluding setbacks, 417,196 acres). Same effect as D
	Impacts to soils from OHV use unchanged. Highest level of OHV Open acres (359,869)	Same as the NA	Greatest beneficial effect to soils due to all wilderness characteristics units and WSAs designated as OHV Closed (2,513,842 acres) to cross-country motorized travel and the remaining currently OHV Open areas would be designated as OHV Limited (2,127,604) to existing routes	Beneficial effects to soils greater than the NA and A, where OHV use is limited (4,518,539 acres) to existing routes Negative impacts to soils in remaining OHV Open areas (107,075 acres), where effects would be the same as the NA and A	Beneficial effects to soils greater than the NA, A, and C where OHV use is limited (4,299,931 acres) to existing routes in 33 protected units Negative impacts to soils in remaining OHV Open areas (325,686 acres), where effects would be the same as the NA, A and C.	Beneficial effects to soils greater than the NA, A, C, and D where OHV use is limited (4,585,249 acres) to existing routes Negative impacts to soils in remaining OHV Open areas (40,368 acres), where effects would be the same as in NA, A, C and D.
Water and Riparian	Greatest beneficial effects to water resources as a result of restrictions on surface disturbing activities in all 76 units (1,236,907 acres)	Beneficial effects—as a result of protection of wilderness characteristics—would no longer be provided to water resources	Similar to the NA. Beneficial effect to water resources as a result of restrictions on surface disturbing activities in all 76 units (excluding set-backs, 1,206,780 ac)	Beneficial effect to water resources as a result of restrictions on surface disturbing activities in 27 protected units (167,709 acres)	Beneficial effect to water resources as a result of restrictions on surface disturbing activities in 33 protected units (417,196 acres)	Beneficial effect to water resources as a result of restrictions on surface disturbing activities in 33 protected units (417,190

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Water and Riparian (Cont.'d)	Less beneficial than B due to no additional OHV management designations limiting use	No change to OHV management; Same as the NA	Greatest beneficial effect to water resources due to areas closed (2,513,842 acres) to cross-country motorized travel or limited (2,127,604) to existing routes	Beneficial effects to water resources greater than the NA and A, where OHV use is limited to existing routes. Negative impacts to water resources in OHV Open areas (107,075 acres) unchanged but beneficial in an additional 252,790 acres that would be designated OHV Limited	Beneficial effects to water resources greater than PRMPA, NA, A, and C. where OHV use would be limited to existing routes on 4,299,931 ac. Negative impacts to water resources in OHV Open areas (325,686 ac) unchanged but beneficial in an additional 34,180 ac that would be designated OHV Limited	Beneficial effects greater than NA, A, C and D as a result of 319,501 acres, currently designated as OHV Open, that will be designated as OHV Limited to existing routes. Negative impacts to water resources would be the same as NA in 40,368 acres that continue to be designated as OHV Open
Vegetation	Lowest level of beneficial effects to Vegetation (restoration activities would be restricted to limit surface disturbing activities that would impact wilderness characteristics) on all 76 units (1,236,907 acres)	Greatest beneficial impacts to vegetation (no additional restrictions on ground disturbing restoration activities) in any of the 76 wilderness characteristics units	Similar to the NA. Restoration activities would require consideration of design features in 76 units (excluding setbacks, 1,206,780 acres)	Smallest area benefitted by restrictions after A. Restoration activities would require consideration of design features in 27 protected units (167,709 acres)	Smaller area benefitted by restrictions than the NA and B, but higher than A and C. Restoration activities would require consideration of design features in 33 protected units (417,196 acres)	Same beneficial impacts as D as a result of protecting 33 wilderness characteristics units. Restoration activities would require consideration of design features in 33 protected units (417,190 acres)

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Vegetation (Cont.'d)	Lowest level of beneficial impacts to vegetation from OHV management. Highest level of OHV Open acres (359,869)	Same as the NA	Greatest beneficial effect to vegetation resulting from OHV limitations (zero acres OHV Open and 2,513,842 acres to OHV Closed)	Beneficial effects to vegetation from OHV limitations but not as beneficial as B, PRMPA, or D. Benefits are greater than those found under the NA and A. Impacts to vegetation in OHV Open areas would be the same as the NA, A, and D but on fewer acres (107,075 acres)	Beneficial effects to vegetation from OHV limitations but not as beneficial as B or PRMPA. Benefits are greater than those found under the NA, A, and C due to areas designated as OHV Limited (4,299,931 acres). Impacts to vegetation in OHV Open areas (325,686 ac) similar to the NA and A	Beneficial effects to vegetation from OHV limitations but not as beneficial as B. Benefits are greater than those found under NA, A, C, and D. Impacts in the remaining 40,368 acres of Open OHV would continue. Highest level (4,585,249 acres) of OHV Limited. 15,289 acres would continue to be OHV Closed
Fuels Management	High cost for fuels management and restoration efforts due to added design features to protect wilderness characteristics	Least cost (layout planning, staffing and funding) for fuels management and restoration efforts	Similar to, but less costly than the NA. High cost for fuels management and restoration efforts in all 76 units (excluding setbacks)	More costly for fuels management and restoration efforts than A and PRMPA. High cost for restoration efforts in the 27 protected units (excluding setbacks)	Less costly than the NA or B. Same as B and C in the 33 protected units (excluding setbacks)	Same as D. Less costly than the NA or B. Same as B and C in the 33 protected units (excluding setbacks)
Fire Suppression and Rehabilitation	Fire suppression: unchanged across the alternatives due to emergency management policy	Fire suppression: same as the NA	Fire suppression: same as the NA	Fire suppression: same as the NA	Fire suppression: same as the NA	Fire suppression: same as the NA

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Fire Suppression and Rehabilitation (*Cont.'d*)	Highest cost for post-fire rehabilitation in 76 units	Lowest cost for post-fire rehabilitation	Similar costs to the NA for post-fire rehabilitation in all 76 units	High cost for post-fire rehabilitation in 27 protected units	High cost for post-fire rehabilitation in 33 protected units	High cost for post-fire rehabilitation in 33 protected units
Cultural and Paleontological Resources	Greatest beneficial effect as a result of restrictions to maintain wilderness characteristics	Least beneficial effect	Greatest beneficial effect after the NA due to management actions to protect wilderness characteristics in 76 units	Beneficial effects due to protection of wilderness characteristics, but to a lesser degree than the NA, B, or D. Protections would be applied to 27 units	Beneficial effects due to protection of wilderness characteristics, to a lesser degree than the NA or B, but more than A or C. Protections would be applied to 33 units	Same as D. Beneficial effects due to protection of wilderness characteristics, to a lesser degree than the NA or B, but more than A or C. Protections would be applied to 33 units
	Least amount of beneficial effects due to the lack of additional OHV limitations	Same as the NA	Greatest beneficial effect due to OHV limitations: 2,513,842 acres OHV Closed, 2,127,604 acres OHV Limited, and zero acres OHV Open	Beneficial effects due to OHV limitations but to a lesser degree than B, D, or PRMPA. Impacts to cultural and paleontological resources same as the NA and A in the remaining 107,075 acres OHV Open	Beneficial effects due to OHV limitations, but to a lesser degree than B, C or PRMPA. Impacts to cultural and paleontological resources same as the NA and A in the remaining 325,686 acres OHV Open	Beneficial effects greater than NA, A, C and D but less than B due to reduction of OHV Open to 40,368 acres. OHV Limited area would increase to a total of 4,585,249 acres
Fish and Wildlife	Greatest beneficial effect resulting from lands with wilderness characteristics	Least beneficial effect resulting from zero protections for	Similar to the NA on lands with wilderness characteristics protections in 76	Beneficial effects greater than A in 27 protected units, but 60% fewer acres than B	Beneficial effects greater than A and C in 33 protected units (same as PRMPA), but 66%	Same as D. Beneficial effects greater than A and C in 33 protected units, but 66% fewer

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Fish and Wildlife (*Cont.'d*)	protections in all 76 units	wilderness characteristic	units (excluding setbacks)		fewer acres than the NA and B	acres than the NA and B
	Least beneficial effect as a result of a continuation of existing OHV Open allocations	Same as the NA	Greatest beneficial effect due to OHV Closed and Limited designations No OHV Open designations would remain in planning area.	Beneficial effects less than B and PRMPA, but greater than NA, A and D due to OHV designations. Lower level (2% of the planning area) of OHV Open after B, PRMPA, then D.	Beneficial effects greater than NA and A, but less than B, PRMPA and C. Lower level (7% of the planning area) of OHV Open after B, then PRMPA.	Beneficial effects greater than NA, A, C and D but less than B. Lowest level (1% of the planning area) of OHV Open, after B.
Wild and Scenic Rivers (ORVs[9]) in Designated and Suitable WSRs	Beneficial effects to ORVs resulting from protection of wilderness characteristic	No beneficial impact as a result of additional protection of wilderness characteristics	Similar to the NA in wilderness characteristics (excluding setbacks) for 76 units	Beneficial effects to a greater number of acres than A and D for Designated WSRs, but less than for the NA and B, in the 27 protected wilderness characteristics units.[11]	Beneficial effects greater than A and C, but less than the NA and B in 33 protected units.	Same as D: beneficial effects greater than A and C, but less than the NA and B in 33 protected units.

[9] "Outstandingly Remarkable Values (ORVs) include scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values."

[11] Alternatives C and D identify different sets of units with wilderness characteristics for protection; acres can be higher even though the number of protected units is lower.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	**Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics**	**Alternative B: Emphasize Protection of Wilderness Characteristics**	**Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas**	**Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics**	**PRMPA**
Wild and Scenic Rivers (ORVs) in Designated and Suitable WSRs (Cont.'d)	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated[10]: 4,443 acres Suitable: 2,035 ac	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated: zero acres Suitable: zero acres	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated: 4,253 acres Suitable: 2,010 acres	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated: 3,885 acres Suitable: 12 acres	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated: 2,477 acres Suitable: 1,994 acres	Overlap of WSRs with protected wilderness characteristics would provide supplemental protections to WSRs as follows: Designated: 2,477 acres Suitable: 1,994 acres
	No beneficial effect due to no changes to OHV designations. All Designated and Suitable WSRs are currently OHV Limited	Impacts from OHV designations same as the NA	Beneficial effects from OHV closures where Designated or Suitable WSRs overlap WSAs or lands with wilderness characteristics. 46,243 acres of WSRs would become OHV Closed	Same as the NA	Same as the NA	No beneficial effect due to no change to OHV designations. All Designated and Suitable WSRs are currently OHV Limited and would be unchanged
Wilderness Study Areas (WSAs) with contiguous wilderness characteristics units	Beneficial effects to WSAs resulting from protection of 67 contiguous wilderness	No beneficial effects to WSAs resulting from a lack of additional protections for	Beneficial effects to WSAs resulting from protection of 66 contiguous wilderness	Beneficial effects to WSAs resulting from protection of 43 contiguous wilderness	Beneficial effects to WSAs resulting from protection of 46 contiguous wilderness	Same as D. Beneficial effects to WSAs resulting from protection of 46 contiguous wilderness

[10] Designated WSRs are those currently designated by Congress. Suitable WSRs are those found to be suitable for designation in the 2002 SEORMP. Acres shown are acres of Designated or Suitable WSRs in the planning area which overlap protected wilderness characteristics units, by alternative.

	No Action (NA) Alternative: Continuation of the Current Situation under 2010 Settlement Agreement	Alternative A: Emphasize Management of Resources Other than Wilderness Characteristics	Alternative B: Emphasize Protection of Wilderness Characteristics	Alternative C: Emphasize Protection of Lands with Wilderness Characteristics in Identified Areas	Alternative D: Externally Developed Criteria to Identify Areas for Management of Wilderness Characteristics	PRMPA
	characteristics parcels (33 units, 289,746 acres)	contiguous wilderness characteristics parcels	characteristics parcels (33 units, 283,199 acres)	characteristics parcels (20 units, 100,540 acres)	characteristics parcels (24 units, 208,154 acres)	characteristics parcels (24 units, 208,154 acres)
Special Status Plants	Least beneficial effects resulting from the lack of additional OHV limitations (8% fewer acres than B in OHV Limited or OHV Closed areas). 359,869 acres Open OHV	Same as the NA.	Greatest beneficial effect resulting from OHV limitations: 2,513,842 acres OHV Closed, 2,127,604 acres OHV Limited, and zero acres OHV Open)	Beneficial effects resulting from OHV limitations but less beneficial (two % fewer acres of OHV Limited or Closed). than B 107,075 acres remain OHV Open	Beneficial effects resulting from OHV limitations. More than NA, A and C but less than B (7% fewer acres than B of OHV Limited or Closed). Impacts to Special Status Plants similar to the NA and A in the remaining 325,686 acres OHV Open	Beneficial effects resulting from OHV limitations. More than NA, A, C and D but less than B (0.8% fewer acres of Limited and Closed). 40,368 acres remain OHV Open; a total of 4,585,249 acres allocated to OHV Limited
Areas of Critical Environmental Concern	Least beneficial effect. All ACECs continue to be designated as OHV Limited (191,192 acres) or Closed (15,544 acres)	Same as the NA	Greatest beneficial effect resulting from additional OHV limitations in ACECs: OHV Closed (163,843 acres) and OHV Limited (42,893 acres)	Same as the NA		

3.7 Affected Environment and Environmental Consequences

Use the hyperlinks below to navigate to the Affected Environment and Environmental Consequences sections of each of the analyzed resources.

3.7.1 Lands with Wilderness Characteristics
3.7.2 Travel Management
3.7.3 Livestock Grazing and Rangeland Management
3.7.4 Soils
3.7.5 Water Resources and Riparian/Wetland Areas
3.7.6 General Vegetation
3.7.7 Invasive Species
3.7.8 Forest and Woodlands
3.7.9 Fire and Fuels Management
3.7.10 Special Status Plant Species
3.7.11 Fish and Wildlife
3.7.12 Wild Horses
3.7.13 Cultural and Paleontological Resources
3.7.14 Social and Economic Values
3.7.15 Recreation
3.7.16 Visual Resources
3.7.17 Areas of Critical Environmental Concern
3.7.18 Wild and Scenic Rivers
3.7.19 Wilderness Study Areas
3.7.20 Mineral Resources
3.7.21 Lands and Realty
3.7.22 Climate Change

3.7.1 Lands with Wilderness Characteristics

Key Points

- The Proposed Resource Management Plan Amendment (PRMPA) would protect 34% of public lands found to possess wilderness characteristics. The No Action Alternative would continue protection of 100% of lands with wilderness characteristics, as required by the 2010 Settlement Agreement (Appendix R). Alternative A would protect no lands with wilderness characteristics, Alternative B would protect 98% of the lands with wilderness characteristics, Alternative C would protect 14%, and Alternative D would protect 34% of the lands that the BLM has determined to possess wilderness characteristics.
- Aspects of the range of alternatives that would enhance the ecological function of an area with wilderness characteristics would benefit that area's naturalness.

Background

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the Bureau of Land Management (BLM) to maintain an inventory of its lands for all resource and their values, including lands possessing the resource of wilderness, as identified by the characteristics described in the *Wilderness Act* of 1964. The following criteria must all be present in order for an area to possess wilderness characteristics: size, naturalness, and outstanding opportunities for either solitude or a primitive and unconfined recreation:

- Size—Roadless areas with over 5,000 acres of contiguous BLM lands, or smaller areas of sufficient size to make practicable the preservation of an unimpaired condition. Smaller areas include areas adjacent to other federal lands formally determined to have wilderness characteristics and protected by the administering agency. The word "roadless" refers to the absence of roads that have been improved and maintained by mechanical means to insure relatively regular and continuous use.
- Naturalness—Areas which appear to have been affected primarily by the forces of nature, and where any work of human beings is substantially unnoticeable.
- Outstanding Opportunities for Solitude or a Primitive Unconfined Type of Recreation—Areas that have outstanding opportunities for solitude or a primitive and unconfined type of recreation. The word "or" means that the area has to possess one or the other but does not have to possess opportunities for both elements.

The BLM's process of inventorying and identifying lands with wilderness characteristics and determining whether to protect such lands for their wilderness values through its land use planning process, is one of three aspects of the BLM's wilderness resource. The BLM also manages wilderness areas designated by Congress and managed under the *Wilderness Act* of 1964 and Wilderness Study Areas (WSAs). The BLM identified WSAs through a Congressionally mandated planning process concluding in 1991 and must manage these areas to maintain their suitability for designation as Wilderness until Congress either designates them or releases them from study. Although all three of these categories of lands possess the resource of wilderness, as identified by the characteristics described in the *Wilderness Act* of 1964, there are differences in their management. First, designated Wilderness is managed pursuant to the *Wilderness Act*, which provides specific direction as to the types of activities that can take place within these areas and states that they shall be administered to "preserve wilderness character." There is no designated Wilderness in the SEORMP planning area. Second, for WSAs, the FLPMA mandates that the BLM "not impair the suitability" of areas identified as having wilderness characteristics; BLM policy in Manual

6330 specifies how proposed activities in WSAs should be evaluated to determine whether they meet this standard.

The wilderness resource that is focal to this Amendment are those areas that were inventoried and identified to possess wilderness characteristics after 1991. Such areas are now known as "Lands with Wilderness Characteristics." Section 201 of the FLPMA requires the BLM to maintain on a continuing basis an inventory of all public lands and their resources and other values, which includes wilderness characteristics. The Vale District completed its inventory update of lands with wilderness characteristics in 2012 and completed a subsequent reassessment of the inventory between 2015 and 2017. For areas identified after 1991 as having wilderness characteristics, protective management required under Section 603(c) of the FLPMA does not apply. The BLM has discretion, through resource management plans and plan amendments to determine how such areas will be managed.

Affected Environment

The SEORMP planning area includes 76 distinct units (composed of 111 parcels; in some instances, the BLM grouped smaller areas under a single unit identifier when more than one area was contiguous to a single WSA) that were found to possess wilderness characteristics, totaling 1,236,907 acres. Of the 76 units, 32 units (66 parcels) are contiguous to WSAs. The inventories through which the BLM determined that these areas possess wilderness characteristics are available here: https://www.blm.gov/programs/planning-and-nepa/plans-in-development/oregon-washington/vale-wci.

The units vary topographically and include dissected lava plains, rolling hills, alluvial fans, valleys, river canyons and scattered long linear north-south trending mountain ranges. Most of the planning area falls within the Northern Basin and Range Ecoregion. Vegetation is diverse consisting of sagebrush, native bunch grasses, and juniper woodlands, in higher elevations you will find aspen, mountain mahogany and mixed conifer forests. Units in the south end of the planning area are recognized as part of the Owyhee Uplands Physiographic Province, a region incorporating rangeland in Oregon, Idaho, and Nevada which supports some of the largest contiguous blocks of intact sagebrush steppe remaining west of the Continental Divide. While all were found by the BLM to have apparent naturalness as defined in BLM Manual 6310, some units have been highly disturbed due to the combined effects of improper historical grazing use, loss of biological crust integrity, invasive plant establishment, and catastrophic wildfire impacts over the last few decades.

A majority of the 76 units contain primitive routes and range improvement infrastructure such as fencelines, stock ponds and spring developments; however, the BLM found that these human imprints were substantially unnoticeable. The BLM considered the presence of motorized routes and infrastructure when updating its wilderness characteristics inventories. Table 3-9 identifies the miles of primitive routes located in lands with wilderness characteristics units and the miles that would be closed under the alternatives. There are approximately 1,580 miles of primitive routes located in wilderness characteristics units.

When it was determined that a route met the definition of a road, these roads either became the new boundary for the land with wilderness characteristics unit, or, when the remaining area was too small to fit the criteria, the area was determined not to have wilderness characteristics. Motorized primitive routes that were determined not to meet the road definition exist in lands with wilderness characteristics where the BLM determined that they were substantially unnoticeable, and that the area possessed naturalness despite their presence.

Appendix B provides summaries of each of the 33 lands with wilderness characteristics units that would be protected under the PRMPA/FEIS, and serves as a quick reference of inventory results, fire history, Sage-grouse habitat, and ratings for each unit using the methodologies (see Appendix C) for identifying proposed protection of units in Alternatives C and D. Appendix B in the SEO Draft RMP

Amendment/Draft EIS (DRMPA/DEIS), which is available on the BLM's ePlanning website for this project, provided this same summary for all 76 units; minor revisions have been made where necessary.

Since completion of the wilderness characteristics inventory update in 2012 and subsequent reassessment, the Vale District has maintained and protected all areas found to have wilderness characteristics by critically reviewing all proposed actions to ensure that implementation would not diminish or eliminate wilderness characteristics, as required by the 2010 Settlement Agreement (Appendix R). In developing project proposals for lands with wilderness characteristics units, the BLM interdisciplinary team incorporated applicable design features as components of all alternatives to protect these characteristics. Projects analyzed and implemented since completion of the inventory update include ESR treatments following wildfire and restoration activities to reduce invasive species or improve vegetative composition and conditions. Project records, *National Environmental Policy Act* (NEPA) analysis, and decision documents for all BLM actions since 2017 are available on the BLM's ePlanning website (older NEPA decisions are available through the Vale BLM District Office).

To calibrate the BLM's analysis of potential treatment methods that may be proposed in protected wilderness characteristics units under the 2010 Settlement Agreement the BLM conducts effectiveness monitoring post treatment. In the DRMPA/DEIS Appendix D, the BLM provided examples of the monitoring and review process and visual conditions of the actions after implementation. The BLM evaluated a subset of completed projects (fire rehabilitation and other restoration) in six units with wilderness characteristics. The evaluation included field reconnaissance and photos to document the impact on naturalness after the treatment.

Over the last several decades, trends have generally been positive for lands with wilderness characteristics: since the original wilderness inventory was conducted from 1978 to 1981 (BLM 1979a, 1979b, 1979c, 1980a, and 1981), the areas that the BLM identified as possessing wilderness characteristics have nearly doubled in size, increasing by about 1.2 million acres. This has occurred under standard BLM stewardship, and, in most cases in the absence of special protections. Many actions that had been implemented prior to the initial inventory and were determined to be non-natural, have become less apparent due to the passage of time. Many areas originally inventoried had more recent road/route development or rangeland treatments (e.g., seedings) that were obvious at the time the original 1978–1981 wilderness inventory was conducted, but have visually diminished over the years. All wilderness characteristics units were found to possess wilderness characteristics with existing management of grazing in place.

Environmental Consequences

Analytical Methods

In this Section, the BLM evaluates the extent to which the Proposed RMP Amendment (PRMPA) and each alternative would affect lands with wilderness characteristics (i.e., size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation or both). The analysis of impacts to naturalness considers both the area's appearance and its ecological function.

This analysis includes a comparison of the number of units and acres that the BLM would manage to protect wilderness characteristics under each alternative.

Indicators

- Acres and number of units managed for their wilderness characteristics
- Changes to size and geographical extent of a unit (acres)
- Substantially noticeable structures or disturbance (impacts to naturalness)

- Changes in areas (acres) grazed by livestock
- Changes in the levels of people or noise, vegetative and topographic screening, and primitive, unconfined recreation

Assumptions associated with changes in areas (acres) grazed by livestock

An impact that persists more than five years is evaluated as a long-term effect. A short-term effect would not persist more than five years.

The BLM assumes that continuation of, or reductions in grazing (Issue 3 below) would not, by themselves, cause the removal or preservation of wilderness characteristics (size, naturalness, or opportunities for solitude or primitive and unconfined recreation). However, grazing, or its reduction or elimination, and the activities associated with its management, may affect the condition of wilderness characteristics by impacting the ecological function of an area and, therefore, its naturalness.

Under Alternatives A, C, D, and the PRMPA it is assumed that due to the lack of protections for any of the units not prioritized for protection those units will lose some or all of their wilderness characteristics over the lifetime of the RMP Amendment. In the wilderness characteristics units that are not protected, the BLM will prioritize management of other multiple uses. Therefore, future project actions may be substantially noticeable on the landscape, or the presence of an action may become pervasive and omnipresent and would impair wilderness characteristics. These developments in unprotected units may include, but are not limited to, ground disturbing restoration actions that leave a more visible or persistent visual impact, temporary and permanent roads, Rights-of-way, mining operations, and solar and wind energy projects.

Issue 1

How would the BLM management direction for lands with wilderness characteristics affect wilderness characteristics?

This FEIS analyzes a range of alternatives to either protect or not protect lands (outside of WSAs) that the BLM has identified as possessing wilderness characteristics.

The difference among the alternatives is the acreage identified for protection; the objectives and management direction for protecting wilderness characteristics do not vary among alternatives. The PRMPA would protects 417,190 (33 units) acres, the No Action alternative would protect 1,236,907 acres, Alternative A would protect zero acres, Alternative B would protect 1,206,780 acres, Alternative C would protect 167,709 acres, and Alternative D would protect 417,196[12] acres (see Table 3-3). The Visual Resource Management Class for units proposed for protection of wilderness characteristics will change to VRM Class II, unless already VRM Class I, which will provide greater protection to naturalness than VRM Classes III and IV (see Section 3.7.16 Visual Resources, Issue 1).

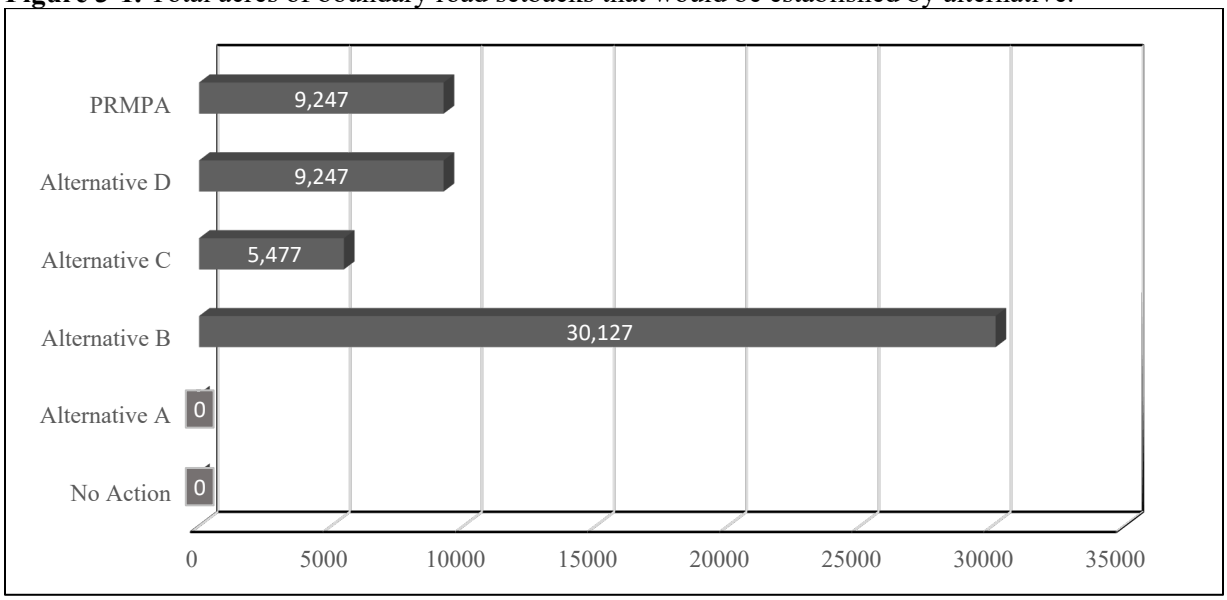
[12]. The 33 units proposed for protection under the PRMPA are identical to those that are proposed for protection in the No Action Alternative and Alternatives B, C and D; the six acre difference is a result of a boundary correction—between publication of the DRMPA/DEIS and PRMPA/FEIS—to the West Fork Bendire (OR-034-007) unit which confirmed that the size of the unit proposed for protection in the PRMPA is six acres less than originally understood. The correction resolves an error in interpreting the accurate boundary between public and private land and included six acres that contain human developments that are non-natural, were present at the time of the inventory, and should have been excluded from the analysis. This change is not reflected in the acreage numbers for Alternatives B, C and D, but does apply to those alternatives.

Table 3-3. Number, acres, and percentage of wilderness characteristics units protected by alternative.

Wilderness Characteristics	No Action	A	B	C	D	PRMPA
Number of Units Protected	76	0	76	27	33	33
Acres	1,236,907	0	1,206,780	167,709	417,196	417,190
Percentage of total acres of lands with wilderness characteristics that would be protected	100%	0%	98%	14%	34%	34%
Percentage of total acres of lands with wilderness characteristics where the BLM assumes the loss of characteristics due to the prioritization of other uses	0%	100%	2%	86%	66%	66%

Chapter 2 describes management direction for wilderness characteristics units prioritized for protection under the PRMPA (Appendix A provides the same for the No Action and Alternatives). Any future project proposals in units prioritized for protecting their wilderness characteristics, would be designed to either maintain or enhance the wilderness resource. Projects that would not maintain or enhance the wilderness characteristics of the unit would not be authorized. For units identified for protection under the PRMPA and Alternatives B, C, and D, a 250-foot setback from unit boundary road centerlines (see Chapter 2, Section 2.3 for more details about the setbacks) would be established. Under all action alternatives, these setbacks would not be protected for their wilderness characteristics and would allow greater management flexibility near roads, though they do have additional, specific management direction. Figure 3-1 displays the acreage of boundary road setbacks by alternatives.

Figure 3-1. Total acres of boundary road setbacks that would be established by alternative.



Areas not protected for their wilderness characteristics will have no management direction to protect such characteristics and the level of change to the landscape may be moderate to high. The BLM assumes these units will lose some or all of their wilderness characteristics over the life of the RMP Amendment. Actions occurring in these areas could create substantially noticeable effects to naturalness. Future management activities in areas not protected for their wilderness characteristics may attract attention or dominate the view and be the major focus of visitor attention.

The No Action Alternative offers the most protection, protecting 100% of lands with wilderness characteristics. Of the other alternatives, Alternative B protects 98%, Alternative D protects 34%, Alternative C protects 14%, and Alternative A protects 0% of acreage in wilderness characteristics units. The PRMPA protects 34% and is: more protective than Alternatives A and C, but less protective than the No Action and Alternative B. The PRMPA carries forward the same protection as analyzed under Alternative D and prioritizes other resources/actions in 66% of the remaining acres with wilderness characteristics. Table 3-4 summarizes acres that would be protected for wilderness characteristics, by alternative, and acres of boundary road setbacks that would be established.

Table 3-4. Total acres protected for wilderness characteristics and acres of setbacks by alternative.

No Action	Alternative A	Alternative B		Alternative C		Alternative D		PRMPA	
Acres Protected	Setbacks	Acres Protected	Setbacks	Acres Protected	Setbacks	Acres Protected	Setbacks	Acres Protected	Setbacks
1,236,907 (No Setbacks)	Zero	1,206,780	30,127 (2.5%)[a]	167,709	5,714 (3.4%)	417,196	9,247 (2.2%)	417,190	9,247 (2.2%)

[a] Percentages shown are acres which would be managed as setbacks as a percentage of the total lands with wilderness characteristics protected in each alternative.

Three wilderness characteristics "parcels" (smaller areas grouped under a single unit identifier) that are reliant on being contiguous to WSAs to meet the minimum size criterion would be substantially reduced in size or eliminated from protection as a result of implementing the setbacks. Under the PRMPA and in Alternatives B, C, and D, parcels Willow Creek Contiguous B and C are reduced to less than two acres and Lower Cow Lakes Contiguous B would not be protected as a result of the setback due to the parcel's small size (denoted as "E" in Table 3-5). In these parcels, the area prioritized for protection would be eliminated or reduced in size with the establishment of the setback.

In Table 3-5, a shaded cell identifies whether the wilderness characteristics unit would be protected under that alternative. For example, in Table 3-5 Alcorta Rim would be protected in the No Action Alternative (in its entirety, i.e., no setback would be established), and in Alternatives B and D and the PRMPA (excluding the setbacks in each). Off-highway vehicle (OHV) area designations are included in Table 3-5 to show how a unit's OHV management may vary by alternative. Current and proposed OHV area designations for motorized use are identified by the following: O = Open, L = Limited, C = Closed. These designations are defined in Section 3.7.2, Travel Management. See analytical Issue 2 below for more information on how OHV designations would affect wilderness characteristics.

Table 3-5. Wilderness characteristics units protected and OHV designations by alternative.

Unit Number	**Wilderness Characteristics Unit Name**	**Alternatives**					
		No Action	**A**	**B**	**C**	**D**	**PRMPA**
OR-036-030	Alcorta Rim	L	L	C	L	L	L
OR-036-093	Alvord Desert Contiguous A	L	L	C	L	L	L
OR-036-093	Alvord Desert Contiguous B	L	L	C	L	L	L

Unit Number	Wilderness Characteristics Unit Name	Alternatives					
		No Action	A	B	C	D	PRMPA
OR-034-018	Antelope Creek	L	L	C	L	L	L
OR-034-095	Bannock Ridge	L	L	C	L	L	L
OR-036-069	Big Grassey	L/O	L/O	C	L	L	L
OR-036-008	Black Butte	L	L	C	L	L	L
OR-034-113	Blue Canyon Contiguous A	L	L	C	L	L	L
OR-034-113	Blue Canyon Contiguous B	L	L	C	L	L	L
OR-034-113	Blue Canyon Contiguous D	L	L	C	L	L	L
OR-034-113	Blue Canyon Contiguous E	L	L	C	L	L	L
OR-036-039	Blue Mountain	L/O	L/O	C	L	L	L
OR-034-016	Board Corral Mountain	L	L	C	L	L	L
OR-034-015	Board Corral Spring	L	L	C	L	L	L
OR-034-027	Broken Rim	L/O	L/O	C	L/O	L	L
OR-034-024	Burnt Mountain	L/O	L/O	C	L	L	L
OR-036-003	Cairn “C”	L	L	C	L	L	L
OR-036-032	Cherry Well A	L	L	C	L	L	L
OR-036-032	Cherry Well B	L/O	L/O	C	L	L	L
OR-036-032	Cherry Well C	L	L	C	L	L	L
OR-034-060	Clark Ranch	L	L	C	L	L	L
OR-036-057	Clarks Butte Contiguous A	L	L	C	L	L	L
OR-036-057	Clarks Butte Contiguous B	L	L	C	L	L	L
OR-034-061	Cold Spring	L	L	C	L	L	L
OR-036-015	Coyote Wells	L	L	C	L	L	L
OR-036-029	Deadhorse	L/O	L/O	C	L	L	L
OR-034-071	Deadman Creek	L	L	C	L	L	L
OR-036-005	Deer Flat	L	L	C	L	L	L
OR-036-094	Disaster Peak Contiguous	L	L	C	L	L	L
OR-034-040	Double Mountain	L/O	L/O	C	L	L	L
OR-034-117	Dry Creek Buttes Contiguous	L	L	C	L	L	L
OR-034-075	Granite Creek	L	L	C	L	L	L
OR-036-068	Grassey	L	L	C	L	L	L
OR-036-016	Hanson Canyon	L	L	C	L	L	L
OR-034-063	Hog Creek	L/O	L/O	C	L/O	L	L
OR-034-116	Honeycomb Contiguous	L	L	C	L	L	L
OR-034-044	Hunter Creek	L	L	C	L	L	L
OR-034-039	Hunter Spring	L/O	L/O	C	L/O	L	L
OR-034-036	Indian Creek	L	L	C	L	L	L
OR-036-092	Jordan Craters Contiguous A	L	L	C	L	L	L
OR-036-092	Jordan Craters Contiguous B	L	L	C	L	L	L
OR-034-047	Juniper Creek	L	L	C	L	L	L
OR-034-035	Keeney Creek	L	L	C	L	L	L

Unit Number	Wilderness Characteristics Unit Name	Alternatives					
		No Action	A	B	C	D	PRMPA
OR-036-095	Little Groundhog Reservoir	L	L	C	L	L	L
OR-036-052	Lower Cow Lake A	L	L	C	L	L	L
OR-036-052	Lower Cow Lake B	L	L	E	E	E	E
OR-036-052	Lower Cow Lake C	L/O	L/O	C	L	L	L
OR-036-052	Lower Cow Lake D	L/O	L/O	C	L	L	L
OR-036-052	Lower Cow Lake E	L	L	C	L	L	L
OR-036-052	Lower Cow Lake F	L	L	C	L	L	L
OR-036-052	Lower Cow Lake G (G1, G2)	L/O	L/O	C	L	L	L
OR-034-115	Lower Owyhee Canyon Contiguous A	L	L	C	L	L	L
OR-034-115	Lower Owyhee Canyon Contiguous D	L	L	C	L	L	L
OR-034-115	Lower Owyhee Canyon Contiguous E	L	L	C	L	L	L
OR-036-077	Lower Owyhee Contiguous	L/O	L/O	C	L	L	L
OR-034-014	McIntyre Ridge	L	L	C	L	L	L
OR-034-053	McNulty	L	L	C	L	L	L
OR-034-069	Monuments	L	L	C	L	L	L
OR-036-004	Oregon Butte	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous A	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous B	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous C	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous D	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous E	L	L	C	L	L	L
OR-036-035	Oregon Canyon Contiguous F	L	L	C	L	L	L
OR-036-050	Oregon Canyon Mountain	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous A	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous B	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous C	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous D	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous E	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous F	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous G	L	L	C	L	L	L
OR-036-091	Owyhee River Contiguous H	L	L	C	L	L	L
OR-034-042	Prava Peak	L	L	C	L	L	L
OR-034-051	Quartz Mountain	L/O	L/O	C	L	L	L
OR-036-028	Rattlesnake Creek	L/O	L/O	C	L	L	L
OR-036-047	Red Mountain	L	L	C	L	L	L
OR-034-059	Rinehart Creek	L	L	C	L	L	L
OR-034-106	River A	L	L	C	L	L	L
OR-034-106	River B	L	L	C	L	L	L
OR-02-17	Rocky Basin	L	L	C	L	L	L
OR-034-019	Rookie Creek	L	L	C	L	L	L

Unit Number	Wilderness Characteristics Unit Name	Alternatives					
		No Action	A	B	C	D	PRMPA
OR-034-043	Rufino Butte	L	L	C	L	L	L
OR-036-014	Sacramento Hill	L	L	C	L	L	L
OR-034-120	Saddle Butte Contiguous	L	L	C	L	L	L
OR-034-023	Sand Hollow	L/O	L/O	C	L/O	L	L
OR-034-057	Schnable Creek	L	L	C	L	L	L
OR-034-107	Selle Gap	L	L	C	L	L	L
OR-034-073	Slaughter Gulch	L	L	C	L	L	L
OR-034-030	Sourdough Mountain	L	L	C	L	L	L
OR-034-092	Spanish Charlie Basin	L	L	C	L	L	L
OR-034-119	Sperry Creek Contiguous	L	L	C	L	L	L
OR-034-096	Spring Mountain	L/C	L/C	C	L/C	L/C	L/C
OR-034-034	Squaw Creek	L/O	L/O	C	L	L	L
OR-034-058	Steamboat Ridge	L	L	C	L	L	L
OR-034-054	The Tongue	L	L	C	L	L	L
OR-034-056	Three Fingers Rock North	L	L	C	L	L	L
OR-034-031	Trail Creek	L	L	C	L	L	L
OR-036-044	Twelve Mile Creek Contiguous A	L	L	C	L	L	L
OR-036-044	Twelve Mile Creek Contiguous B	L	L	C	L	L	L
OR-036-044	Twelve Mile Creek Contiguous C	L	L	C	L	L	L
OR-036-002	Twin Butte	L	L	C	L	L	L
OR-034-052	Wall Rock Ridge	L	L	C	L	L	L
OR-034-007	West Fork Bendire	L/O	L/O	C	L	L	L
OR-036-045	Whitehorse Butte (A1)	L	L	C	L	L	L
OR-036-045	Whitehorse Butte (A2)	L	L	C	L	L	L
OR-036-087	Willow Creek Contiguous A	L	L	C	L	L	L
OR-036-087	Willow Creek Contiguous B	L	L	C	L	L	L
OR-036-087	Willow Creek Contiguous C	L	L	C	L	L	L
OR-036-087	Willow Creek Contiguous D	L	L	C	L	L	L
OR-036-087	Willow Creek Contiguous (Border) E	L	L	C	L	L	L

Notes: Shaded cells = unit or parcel is protected in the specified alternative. "E" indicates the parcel would be eliminated in that alternative due to the 250-foot road boundary setback (applies only to Lower Cow Lake B). *Lower Cow Lake G parcel was split into two sub-parcels (G1 and G2) in Alternative C, wherein only parcel G2 is managed to protect wilderness characteristics. White Horse Butte was split into sub-parcels (A1 and A2) in Alternative C; both parcels would be managed to protect wilderness characteristics in the PRMPA.

The No Action Alternative would provide the most protection of wilderness characteristics by adopting the requirements of the 2010 Settlement Agreement, which provide that BLM shall not implement any projects that fall within any of the 76 units, where such action would be deemed by BLM to diminish the size or cause the entire BLM inventory unit to no longer meet the criteria for wilderness character. While Alternative B also protects all 76 wilderness characteristics units, the boundary road setbacks (in total, 9,247 acres) would not be protected. The No Action Alternative would not, however, provide as much protection as Alternatives B, C and D or the PRMPA in regard to naturalness because under the No

Action Alternative, OHV Open area designations (34,183 acres; see Figure 3-2) would remain in place and OHV use could have negative effects on naturalness.

Alternative A would provide the least protection of wilderness characteristics because no specific land use planning-level management of this resource would be implemented.

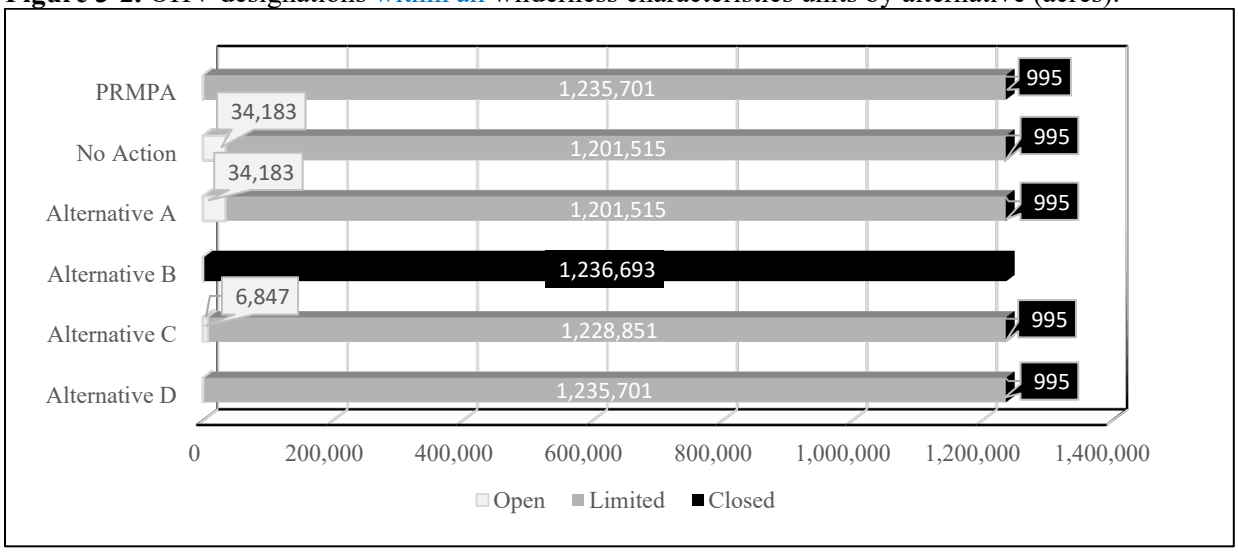
Issue 2

How would wilderness characteristics be impacted by changes in OHV area designations (Open, Limited, and Closed) across the planning area?

As described under the affected environment above, the majority of areas determined by the BLM to have wilderness characteristics have motorized primitive routes within their boundaries. There are approximately 1,583 miles of primitive routes located in the 76 wilderness characteristics units (see Table 3-9). As a result, changes to OHV area designations could affect the recreational use of these primitive routes and thus the condition of the wilderness characteristics within these areas. Specifically, designating an area with wilderness characteristics as OHV Closed, or changing the designation of an area that is currently OHV Open to OHV Limited, would improve the quality of the outstanding opportunities for solitude and primitive and unconfined recreation by reducing the visual and aural (noise) impacts from motorized recreation. There would be some impact to the experience of solitude and primitive and unconfined recreation in the vicinity and during the time when people are using motorized routes under the OHV Limited designation that would not occur under the OHV Closed designation. This would not be an impact that would eliminate wilderness characteristics (and thus not something that would result in disqualifying the unit from possessing wilderness characteristics in an inventory) but could affect the quality of the characteristics. Designating an area with wilderness characteristics as closed to OHVs will also, over time, result in an improvement to the area's naturalness as the impacts of existing motorized primitive routes lessen. Similarly, limiting OHV use to existing or designated routes in areas that are currently open will reduce impacts from the proliferation of routes over time.

Figure 3-2 below compares the OHV area designations within protected wilderness characteristics units for the PRMPA and alternatives. The PRMPA and Alternatives B, C, and D would reduce the acreage of areas that would be managed as OHV Open. These reductions could reduce potential user conflicts and improve the quality of solitude and of primitive and unconfined recreation, because motorized vehicle use would be either OHV Closed (Alternative B) or OHV Limited to existing routes (PRMPA and Alternatives C and D) in protected units. The No Action Alternative and Alternative A would not change the current OHV designations.

Figure 3-2. OHV designations within all wilderness characteristics units by alternative (acres).



The No Action Alternative and Alternative A continue existing OHV designations. Under these alternatives, OHV use would be permitted in the wilderness characteristics units primarily on existing primitive routes; however, 16 units have OHV Open areas totaling 34,183 acres, where off-road travel would continue to be allowed. OHV impacts to wilderness characteristics units would be expected to continue, including increases of user-created routes branching from existing primitive routes, particularly in areas open to OHV use. As described in Section 3.7.7 Invasive Species, the proliferation of invasive species carried by motorized vehicles would continue, having a negative impact on the area's naturalness, both in terms of visual impacts and ecologic function of the area. This would be expected to increase as OHVs continues to gain in popularity. Continued disturbance caused by motorized vehicles is also expected as OHV use disturbs stream and drainage crossings, leading to elevated rates of erosion and reduction in vegetation along primitive routes, as described in Sections 3.7.4 Soils and 3.7.5 Water Resources and Riparian Areas.

Under the continuation of existing OHV designations, impacts to solitude and primitive and unconfined recreation would continue or increase. While the BLM found that outstanding opportunities for solitude and/or primitive and unconfined recreation exist in all protected lands with wilderness characteristics, the quality of these opportunities would continue to be reduced in OHV Open areas as compared to areas designated as OHV Limited or Closed.

Alternative B would close all wilderness characteristics units to OHV use, and thus close 1,583 miles of primitive routes. In areas where OHV motorized travel is closed, naturalness and the opportunities for solitude and primitive and unconfined recreation could increase because motorized use would be excluded, and primitive routes would naturally reclaim due to nonuse.

An OHV area closure would enhance the naturalness of lands protected for their wilderness characteristics. The condition of an area's naturalness would improve due to the removal of impacts from OHV use described in Section 3.7.4 Soils, such as reducing ground cover, displacing soil, compacting soil, increased soil erosion. The natural condition of the area would also be positively affected by improvements to watershed function described in Section 3.7.5 Water Resources and Riparian Areas, such as decreased stream sedimentation, would contribute to an improvement to ecological function. This improvement would benefit the naturalness characteristic. The absence of OHVs would improve opportunities for solitude and primitive and unconfined recreation. Primitive and unconfined recreation is, by definition, non-motorized. The visual and aural impact of other visitors on opportunities for solitude is

amplified by visitors using motorized vehicles. For example, a hiker is more likely to be aware, and to be aware for a longer period of time, of another visitor in a motorized vehicle than they are of another hiker.

Alternative C would designate 27 protected units as OHV Limited (excluding setbacks); as a result, 1,199 acres that are currently OHV Open would become OHV Limited. The boundary road setbacks for these 27 protected units would retain their existing OHV designation as designated under the No Action Alternative, including 6,847 acres that are designated as OHV Open. The BLM expects that user conflicts would be reduced in the 27 protected units as OHV users are limited to existing routes where cross-country travel was previously allowed under the OHV Open designation. There would also be no impacts to naturalness from route proliferation as there might be under existing OHV Open designations.

Under Alternative D, the acreage of OHV limited acres would increase by 34,183 acres compared to the No Action Alternative and Alternative A because all 76 wilderness characteristics units (whether protected or not) would be designated as OHV Limited (unless already OHV Closed). The decrease in negative impacts to wilderness characteristics from OHV use would be of a similar type and scale as those described under Alternative C, but would occur on 6,847 additional acres because the boundary road setbacks Alternative D would also become OHV Limited.

The PRMPA would protect the same 33 wilderness characteristics units as Alternative D and would designate the 33 protected units and their associated setbacks as OHV Limited, unless already closed to motorized use.

After Alternative B, the PRMPA and Alternative D would result in the greatest protection of wilderness characteristics units as a result of designating the 33 units as OHV Limited. Alternative C would provide the next highest level of protection among OHV allocations in the 27 protected units. The No Action Alternative and Alternative A would have the least beneficial impact to wilderness characteristics because no change is made to OHV allocations; user conflicts and impacts to naturalness in wilderness characteristics units would continue at the current level.

Issue 3

How would wilderness characteristics be affected by BLM management actions that would reduce or eliminate livestock grazing as a result of Standards for Rangeland Health not being met due to existing livestock grazing or through a voluntary relinquishment of a grazing permit?

Impacts Common to All Alternatives

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to wilderness characteristics units from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

No Action Alternative and Alternatives A and C

Currently, there are 1,234,524 acres of lands with wilderness characteristics (27% of the planning area) that are available to livestock grazing. Management actions and responses under the No Action and Alternatives A and C allow for adjustments in the grazing system (AUMs, season of use, etc.) if such use is not meeting land use plan objectives, Standards for Rangeland Health, or if an area is found to be marginally capable and/or not compatible with other resources or resource uses upon receipt of a voluntary permit relinquishment.

The level and use of livestock grazing are not uniform across the planning area or within lands with wilderness characteristics; there are areas that may witness high use levels while other areas may have limited to no use by livestock due to topography, slope, water availability, and forage availability. These

varying levels of livestock use result in varying impacts to naturalness and solitude depending upon the level and intensity of livestock grazing management practices and activities. Areas where livestock concentrate (such as developed water sources like springs, troughs and reservoirs, and along linear features such as fencelines) can result in higher levels of vegetation trampling, exposure of the soil surface, and compaction of soils in the immediate vicinity of these areas, while other areas away from these features could show limited evidence of the presence of livestock or activities associated with livestock management. Repeated use of common trailing paths can also leave a visible and durable presence of livestock use. Livestock management operations (gathering, herding, trailing, maintaining range improvement projects, etc.) can cause temporary noise and disturbance. Although there can be impacts to ecological processes associated with livestock grazing management that can negatively impact naturalness and solitude, the impacts are not concentrated throughout the lands with wilderness characteristics units and are often temporary. Overall, potential reductions or elimination of livestock grazing in lands with wilderness characteristics that could occur under the No Action Alternative and alternatives A and C as a result of the implementation of current Standards for Rangeland Health and voluntary permit relinquishment policy could benefit the naturalness and solitude of those areas where it occurs.

Alternative B

Under Alternative B, 1,234,524 acres of the lands with wilderness characteristics (or up to 27% of public land in the planning area) could potentially have grazing reduced for the life of the RMP Amendment as a result of voluntary permit relinquishment. Under this alternative, two categories of areas could be made unavailable to grazing for the life of the RMP: 1) lands for which the BLM finds that Standards for Rangeland Health are not attained due to existing livestock grazing, and 2) areas where a livestock grazing permit is voluntarily relinquished that overlap specific management areas described in the 2010 Settlement Agreement Provision 29(2) (areas may fall into both categories). This reduction could have beneficial effects to naturalness and solitude by reducing annual use of upland and riparian resources by livestock as well as activities associated with livestock grazing management (gathering, herding, trailing, maintaining range improvement projects, etc.). In areas where existing livestock grazing is causing negative impacts to ecological conditions, values associated with naturalness may be improved at an enhanced rate due to the reduction or elimination of grazing in Alternative B when compared to the improvements made through the management responses of the PRMPA, No Action, and Alternatives A and C.

A removal or reduction of livestock could enhance the areas' naturalness characteristic, including through the improvement of ecological health of upland and riparian systems. Upland vegetation impacts from removal of livestock vary and depend on existing vegetation community and condition. As described in Section 3.7.7 Invasive Species, reductions in grazing could increase invasive annual grasses and the risk of wildfire, potentially degrading the wilderness characteristic of naturalness. In addition, the removal or reduction of grazing could lead to the reduction in, or maintenance of grazing management facilities (e.g., fencing and troughs) within lands with wilderness characteristics which would improve the quality of naturalness. See the General Vegetation 3.7.6 and Fire and Fuels Management 3.7.9 sections for a more detailed analysis. Long-term improvement to riparian vegetation condition is expected with reductions in grazing. See Section 3.7.5 Water Resources and Riparian/Wetland Areas.

Alternative D

Under Alternative D, 1,234,524 acres of lands with wilderness characteristics (or up to 27% of the planning area) could potentially have grazing removed when an area does not meet Standards for Rangeland Health due to existing livestock grazing. This reduction could have beneficial effects to naturalness by enhancing the recovery time to the ecological process when compared to the PRMPA, No Action, and Alternatives A and C. The duration of these impacts to naturalness and solitude due to the

removal of grazing could be shorter under Alternative D than under Alternative B because the removal of livestock would only be until Standards begin to trend toward being met, or for the duration of the term permit rather than for the life of the RMP Amendment under Alternative B. Unlike Alternative B, Alternative D does not require the removal of livestock in lands with wilderness characteristics units upon receipt of a voluntary permit relinquishment. Therefore, the only beneficial effects to naturalness and solitude relative to livestock grazing would be those resulting from the temporary removal of livestock in areas where Standards for Rangeland Health are not met due to existing livestock grazing.

PRMPA

Impacts to lands with wilderness characteristics as a result of reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, there may be a small increase in beneficial impacts over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur in lands with wilderness characteristics. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to naturalness. These added beneficial impacts would be less than those identified in both Alternatives B and D.

Wilderness Characteristics Cumulative Effects Summary

The cumulative effects analysis area for wilderness characteristics are the 76 units found to possess wilderness characteristics. This Section will address any additional effects to the wilderness characteristics resource from reasonably foreseeable actions.

In order to put the effects of the management direction proposed for wilderness characteristics in the planning area in context, the BLM has looked at how many wilderness resources are found within neighboring BLM districts or National Forests (USFS acres are included under the relevant BLM district in Table 3-6). Table 3-6 illustrates the total acreages of wilderness resources that are within BLM districts adjacent to the planning area. There are a total of 126,362 wilderness characteristics unit acres in the planning area that border the Burns District or public lands in the states of Idaho and Nevada. Under the No Action Alternative and Alternative B, the planning area would contribute 10% of the total wilderness characteristics acreage throughout the region. Alternatives A and C would contribute less than 2% while Alternative D and the PRMPA would contribute 7% of the total protected wilderness characteristics acreage throughout the region.

Table 3-6. Acres of wilderness characteristics resources within neighboring administrative unit boundaries.

Neighboring BLM District	Wilderness[a]	Wilderness Study Area	Lands with Wilderness Characteristics
Vale District			
SEORMP Planning Area	0	1,273,907	1,236,907
Baker Field Office	589,543[b]	22,343	3,691
Boise District (Owyhee Field Office)	238,297	0	108,956
Burns District	47,462	339,407	29,394
Lakeview District (Lakeview Field Office)	18,385	485,258	1,654,76
Winnemucca District (Humboldt River Field Office)	32,049	187,604	154,139
Total	925,736	2,308,519	3,187,262

[a]Acreages include Forest Service and BLM administered lands.
[b]This figure includes 946 acres on BLM land and 588,597 acres on Forest Service Land within the Baker Field Office boundary.

Based on the low values that the alternatives contribute to wilderness resources in the region, all alternatives considered through this planning effort will have only a minor effect on the broader wilderness resource. There are many other opportunities for recreationists to enjoy this resource and experience solitude or primitive and unconfined recreation.

The reasonably foreseeable actions that have the potential to affect lands with wilderness characteristics in the planning area are the LCGMA project, lithium exploration in the McDermitt caldera, the Tri-state Fuels Break project, Northwest Malheur County Greater Sage-grouse Habitat Restoration project, and Northwest Malheur Material Sites project.

Under the LCGMA project, there could potentially be treatments within 11 wilderness characteristics units. The LCGMA project could improve the ecological function of lands with wilderness characteristics in these units by treating invasive annual grasses, replacing invasive annual grasses with preferred perennial grasses, planting sagebrush, and reducing sagebrush where the overstory is denser than optimal for Sage-grouse habitat. Impacts to naturalness from vegetation treatments are greatest immediately after treatment (short-term). In the long term, the impacts would fade to minor.

Fuels treatment projects planned under the Tri-state project could potentially occur in 16 wilderness characteristics units totaling 4,519 acres. These treatments would involve fuel breaks and have the effect of short-term impacts to vegetation but would not be substantially noticeable, and so would not affect naturalness, through the use of design features.

Under the 2017 Northwest Malheur County Greater Sage-grouse Habitat Restoration project, one lands with wilderness characteristics unit totaling 10,514 acres could receive high elevation and low elevation fuels treatments throughout the entire unit.

Under the Northwest Malheur Mineral Material Sites Project there could potentially be a total of 18.5 miles of road maintenance on the boundary of three lands with wilderness characteristics units. The development of the material sites and the maintenance of the roads could result in disturbance to the solitude and primitive and unconfined recreation experience of visitors to the three wilderness characteristics units.

As identified in Table 3-1, Reasonably foreseeable future actions, approximately 11 miles of new fencelines may be necessary to make portions of four Key RNAs (Black Canyon, Mahogany Ridge, South Bull Canyon, and Spring Mountain) located in four wilderness characteristics units (Trail Creek, The Tongue, Prava Peak, and Spring Mountain) unavailable to grazing (see also, Table 2-6 2015 Greater Sage-Grouse (GRSG) Approved Resource Management Plan Amendment (ARMPA) ROD, p. 2–18. BLM 2015d). The four Key RNAs located in lands with wilderness characteristics units total 5,049 acres. Additional fencelines to exclude grazing within the Key RNAs could reduce the quality the naturalness within these lands with wilderness characteristics.

There is one lands with wilderness characteristics unit (Oregon Canyon Contiguous) within the McDermitt caldera portion of the planning area. Neither of the two ongoing Notice-level exploration actions nor the proposed Plan of Operations exploration action are within the unit. As a result, there are no anticipated cumulative effects from the exploration actions.

The reasonably foreseeable future Grassy Mountain Gold, Octagon and Malheur Queen Placer mining actions would occur outside of wilderness characteristics units and would not impact any of the wilderness characteristics units. The reasonably foreseeable transmission line projects are also located outside of wilderness characteristics units and the effects from these projects would not impact wilderness characteristics.

Alternative A

In addition to the impacts from the lack of wilderness characteristic protections found in this alternative and the continued impacts from ongoing OHV use, the impacts from the LCGMA, Tri-state, 2015 GRSG ARMPA Key RNAs and the NW Malheur projects would be negligible as these projects' alternatives have been developed under the existing 2010 Settlement Agreement where design features would minimize impacts to the wilderness characteristics. Ongoing OHV use would be the same as the No Action where the vast majority of OHV use throughout the district is already limited.

No Action and Alternative B

Activities that are determined by the BLM to diminish or eliminate wilderness characteristics would not be allowed in any area with wilderness characteristics under the No Action Alternative and Alternative B. There would not be cumulative effects to any of the wilderness characteristics units from any of the reasonably foreseeable actions noted above because actions in these areas that do not maintain or enhance the wilderness characteristics would be prohibited.

Alternative C

Under Alternative C, actions in the 27 protected units (see Table 3-5) would be constrained to those that would either maintain or enhance wilderness characteristics.

Reasonably foreseeable future actions in the LCGMA project could affect two protected wilderness characteristics units under this alternative; proposed projects would only take place if they could maintain or enhance the wilderness characteristics. Reasonably foreseeable future grazing management actions for rehabilitation and restoration in the two protected wilderness characteristics units under Alternative C would be designed to maintain wilderness characteristics or would not be allowed. Spring protection/development would result in improved riparian areas around the spring. This may draw more recreationists to these areas as the springs would have more vegetation and be more aesthetically pleasing. As these riparian areas also provide habitat to small wildlife species, recreationists may have increased opportunities to view such wildlife at these sites, with less disturbance associated with livestock.

The LCGMA project restoration and livestock administrative actions could affect 10 of the 11 wilderness characteristics units. Under Alternative C, two units (Coyote Wells and Sacramento Butte) are protected for wilderness characteristics. In eight of the nine unprotected units — where the LCGMA project is considering restoration and rangeland actions —actions could be implemented without providing additional protections for wilderness characteristics. In these eight units, actions could result in incremental reductions in naturalness and create negative effects to solitude and primitive and unconfined recreation. Range improvement projects could either temporarily or incrementally, or both, reduce wilderness characteristics of naturalness and create negative effects to solitude and primitive and unconfined recreation in the nine units.

Under the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, one lands with wilderness characteristics unit that is prioritized for protection totaling 10,514 acres could receive high elevation and low elevation fuels treatments throughout the entire unit. The treatments would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

The Tri-state Fuels project would occur along boundary roads of 17 units and could have incremental, additive impacts to wilderness characteristics, but would be located in the road boundary setbacks of units protected under Alternative C and would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

Alternative D

Under Alternative D, actions in the 33 protected units (see Table 3-5) would be constrained to those that would either maintain or enhance wilderness characteristics.

The LCGMA project overlaps parts or all of eleven wilderness characteristics units (eight protected under Alternative D: Alcorta Rim, Black Butte, Cairn C, Deer Flat, Oregon Butte, Rattlesnake Creek, Sacramento Hill and Twin Butte; and three unprotected units: Big Grassy, Coyote Wells, and Hanson Canyon). Reasonably foreseeable future actions in the LCGMA project could affect seven of the eight protected wilderness characteristics units under this alternative; the projects would only take place if they maintain or enhance the wilderness characteristics. LCGMA projects proposed in protected units would maintain wilderness characteristics or would not be allowed. Spring protection/development would result in improved riparian areas around the spring. This may draw more recreationists to these areas as the springs would have more vegetation and be more aesthetically pleasing. As these riparian areas also provide habitat to small wildlife species, recreationists may have increased opportunities to view such wildlife at these sites, with less disturbance associated with livestock. These actions could result in short term negative effects to naturalness but would have long term benefits to primitive and unconfined recreation in the seven protected units.

The LCGMA project restoration and livestock grazing improvement actions could affect three unprotected wilderness characteristics units and those projects could be implemented without providing protections to the units.

Under the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, one protected wilderness characteristics unit totaling 10,514 acres could receive high elevation and low elevation fuels treatments throughout the entire unit. The treatments would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

The Tri-state Fuels project would occur along the boundaries of 17 units and could have incremental, additive impacts to wilderness characteristics, but would be located in the boundary road setbacks of protected units in Alternative D and would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

Actions proposed in both Tri-state Fuels and LCGMA within protected wilderness characteristics units would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

PRMPA

Under the PRMPA, reasonably foreseeable future actions in the 33 wilderness characteristics units that are prioritized for protection, as indicated above in Table 3-5, would be constrained to those actions that would either maintain or enhance wilderness characteristics, or both. The PRMPA would apply those constraints to the 33 units (excluding setbacks).

As with Alternative D, the LCGMA project overlaps parts or all of eleven wilderness characteristics, in which eight units are proposed for protection under the PRMPA. Seven of the eight protected units have LCGMA restoration and/or livestock administrative actions proposed. The effects to those units could be a short-term reduction in naturalness with the potential for long-term enhancement of naturalness. Range improvement projects, as proposed in LCGMA project, could incrementally reduce wilderness characteristics of naturalness and create negative effects to solitude and primitive and unconfined recreation in the unprotected units located (wholly or partially) in the LCGMA project area. The long term benefits to wilderness characteristics of the LCGMA restoration actions would be the same as under Alternative D.

The Tri-state Fuels project would occur along the boundaries of 17 units and could have incremental, additive impacts to wilderness characteristics, but would be located in the boundary road setbacks of protected units under the PRMPA and would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation. Fuel breaks adjacent to parcels D and E of the Owyhee River Contiguous unit are proposed in existing road ROWs (designated ROW Corridor) along the boundary roads and would not impact the protected unit.

Actions proposed in both Tri-state Fuels and LCGMA within protected wilderness characteristics units would be designed to prevent impacts to size, naturalness, solitude, and primitive recreation.

3.7.2 Travel Management

Key Points

The following are travel and transportation definitions for off-highway vehicle (OHV) use and land use planning area designations.

- Off-highway vehicle definition: Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: 1) any non-amphibious registered motorboat; 2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; 3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; 4) vehicles in official use; and 5) any combat or combat support vehicle when used in times of national defense emergencies (as defined in 43 CFR 8340.0-5[a]). OHV is synonymous with off-road vehicle.
- Administrative Use (Administrative Access): Travel related access for official use by the BLM employees and agency representatives during the course of their duties. Access is for resource management and administrative purposes and may include fire suppression, cadastral surveys, permit compliance, law enforcement, and resource monitoring or other access needed to administer BLM-managed lands or uses.
- Authorized Use (Authorized Access): Travel related access for users authorized by the BLM or otherwise officially approved. Access may include motorized access for contractors, permittees, lessees, or other authorized users, along with approved access across BLM-administered public lands for other state and federal agencies.
- There are two major components of Travel Management Planning. The first is a land use planning level area designation category of OHV Open, Limited, or Closed. The second is implementation planning where options for the designation of linear assets (roads and primitive routes) is analyzed. Travel Management is conducted in accordance with the BLM's *Comprehensive Travel and Transportation Handbook H-8342* (BLM 2012b).
- This RMP Amendment makes OHV area designations that are land use planning decisions related to transportation, rather than implementation decisions. The designation of areas as Open, Limited, or Closed to OHV use is required for every acre within the planning area boundary (Ibid.). In OHV Open areas, OHV use is unrestricted. In OHV Limited areas, OHV use is limited to existing routes, until implementation planning is completed. In OHV Closed areas, motorized OHV use is not allowed.
- This RMP Amendment does not designate linear assets (routes) and does not propose permanent or temporary road construction, road closures, road maintenance, or road inventories. These implementation-level travel management planning actions would be addressed in subsequent travel and transportation planning efforts.
- OHV use includes drivers, riders and passengers of 4x4s, jeeps, all-terrain vehicles (ATVs or "Quads") dirt bikes and most commonly four-wheel drive trucks or cars. Members of the public participating in motorized recreation typically operate vehicles consistent with BLM decisions for travel allocations (Open, Closed, and Limited).

Affected Environment

The planning area is sparsely populated. Despite the low population, an extensive motorized vehicle route network enables public and private access to a variety of lands. Overall, recreational motorized use in the

planning area tends to be low, varies seasonally, and is related to access for sightseeing, hunting, and general OHV-related recreation. The low use is due: to the remoteness of much of the area; lack of maintained roads; and the distance to services for fuel and other amenities. OHV use across the planning area varies by proximity to preferred or targeted areas. For example, the public lands east of Succor Creek State Park and west of the community of Adrian receive higher levels of use by local residents. Higher concentrations of OHV use also occur near the several developed recreation sites, administrative sites, and interpretive sites located across the planning area (see Section 3.7.15, Recreation). Those areas are typically "bases" from which day and multi-day recreation activities occur.

Off-highway vehicle (OHV) use in the planning area is normally associated with hunting, fishing, sight-seeing and driving for pleasure. Typical OHV users are split between day trips by local residents and multi-day recreation (common during big game hunting season). Local all-terrain vehicle (ATV) use occurs, but the distance covered by this use is limited given the fuel carrying capacity of the vehicles and the lack of fueling opportunities within the planning area. OHV use is more common during late Spring after roads become passable, the higher elevations providing access after snow-melt. Longer (overnight) visits to the planning area by non-residents and locals is typically 2.6–3 days for general recreation OHV users for sightseeing and 3–6 days for hunters (Oregon State Parks &Recreation [OSP&R; Lindberg 2015], Oregon Department of Fish and Wildlife [ODFW 2019]. Average distance traveled by non-residents to the planning area is 120 miles round-trip; many of these travelers haul ATVs from their overnight stay locations. The BLM estimates that most OHV use is on the existing road and primitive route network; OHV use can vary from short excursions from "base camps" or day use trips of five to10 miles to multi-day stays (more common with sight-seeing recreationists) where users may travel between 20–50 miles in a day. OHV use is increasing at a rate of approximately One to two percent per year (ORSP&R). According to a survey by Oregon Parks and Recreation, the average trip to Eastern Oregon is 2.6 days in duration, although and the planning area is the lowest ranked destination in the state (Lindberg 2009).

Population growth in the Boise-Nampa metropolitan area (the nearest major population center) is increasing at a rate of 1.7% per year, which is the 15th fastest growing urban area in the United States (World Population Review 2018). Also, technological advances in navigation and sophistication of off highway vehicles have increased the popularity of this form of recreation. This could contribute to increased motorized use by recreationists who come from areas outside the planning area; however, in recent years, approximately three times the number of OHV visitors are local (Lindberg 2009). There are several sources that indicate that off highway vehicle use and sales have been continuing to rise and that overlanding journeys are becoming more popular (Lindberg 2015). However, due to the distance between fueling areas and population centers in the planning area, the use and interest has not increased to the degree it has in other locations in Oregon (See 3.7.15 Recreation).

Each of the alternatives analyzed in this PRMPA/FEIS would designate all public land in the planning area as either OHV Open, Limited, or Closed to public motorized access, which are defined as follows:

Open—Motorized vehicle travel is permitted year-long anywhere within an area designated as "Open" to OHV use. Open designations are used for intensive OHV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issue to warrant limiting cross-country travel.

Limited[13]—An OHV Limited area is governed by one or more defined limitations. A limitation is either a restriction at certain times, in certain areas, or to certain vehicular uses or users, or both. This restriction for this allocation is applied to existing roads, primitive roads and trails. Motorized vehicle travel is limited to existing routes within a specified area. The Limited designation is used where OHV use must be restricted to meet specific resource management objectives.

Closed—Motorized vehicle use is prohibited in the area. Access by means other than motorized vehicle is permitted. Areas are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts.

Since the signing of the 2002 SEORMP and ROD, the number of OHV Open acres was reduced as a result of the 2015 Greater Sage-Grouse Approved Resource Management Plan Amendment ROD (ARMPA, BLM 2015d). The 2015 ARMPA designated all Sage-grouse habitat as OHV Limited, unless already OHV Closed designating 2,248,711 acres of OHV Open under the 2002 SEORMP as OHV Limited to existing routes in order to minimize effects from OHV use and protect Greater Sage-grouse and its habitat.

Table 3-5 in Section 3.7.1 above depicts the OHV allocations for each alternative and individual wilderness characteristics unit.

Appendix M provides a map of OHV designations for the PRMPA. See the DRMPA/DEIS Appendix M, Maps OHV 1 to OHV 4 for proposed OHV designations under the No Action Alternative and Alternatives A–D.

Table 3-7 summarizes the current OHV designations for the entire planning area.

Table 3-7. Existing (No Action Alternative) OHV designations (acres).

Open	Limited	Closed	Total
359,869	4,265,748	15,829	4,641,445

As presented in Table 3-8, the BLM maintains eight percent of the motorized routes in the planning area.

Table 3-8. Miles of travel routes within the planning area.

Maintained[a] Routes in Planning Area	2,152
Non-maintained Routes in Planning Area	10,940
Total Miles of Routes in Planning Area	13,091
Maintained[a] Routes (BLM lands)	1,050
Non-maintained (BLM lands)	7,583
Total Miles of Routes on BLM Lands in Planning Area	8,633

Notes: All numbers exclude state and interstate highways.
[a]This category includes BLM Maintenance Levels 2, 3 and 4 as well as County-identified maintained routes. The BLM and the counties have multiple, reciprocal road maintenance agreements.

[13] For this RMP Amendment/EIS, use of the off-highway vehicle (OHV) area designation term "Limited" applies to both areas designated as OHV Limited under the 2002 SEORMP (BLM 2002), and OHV Limited under the 2015 GRSG ARMPA (BLM 2015d). The 2002 SEORMP identified 1,481,605 acres where OHV use is Limited to Designated routes and 535,417 acres as Limited to Existing routes. The Limited to Designated routes area allocations were identified in the 2002 SEORMP as areas where routes were either: in existence as of the issuance of the 2002 SEORMP ROD; located in special management areas including WSAs, certain ACECs, WSRs, and special habitat areas; or specifically identified for continued public use, or any combination. These routes are on file at the Vale District Office. In Limited to Existing areas, an existing route is either one that was present on the issuance date of the 2002 SEORMP ROD and is located in special management areas or sensitive habitat that otherwise was not allocated to Limited to Designated or Closed, or both (SEORMP ROD [BLM 2015d, 65–67]). In 2016, the BLM updated its 1626 Travel and Transportation Management Manual (BLM 2016f) and no longer identifies areas as Limited to Designated routes in RMPs or RMP Amendments. The 2015 Greater Sage-grouse Amendment to the 2002 RMP Amendment, designated an additional 2,248,711 acres as Limited to existing routes. In this RMP Amendment/EIS, the BLM is using the term OHV Limited.

Table 3-9 compares the miles of routes for each OHV area designation by alternative. Table 3-9 also provides the miles of motorized routes within Wilderness Study Areas (WSAs) and lands with wilderness characteristics units.

Table 3-9. Miles of routes on public lands in the planning area within each OHV area designation by alternative.

Alternative	No Action Alternative and Alternative A			Alternative B			Alternative C			Alternative D			PRMPA		
OHV Designation	**C**	**L**	**O**	**C**	**L**	**O**	**C**	**L**	**O**	**C**	**L**	**O**	**C**	**L**	**O**
Routes in protected wilderness characteristics units (miles)	0	1,536	47	1,583	0	0	0	227	0	0	546	0	0	546	0
Primitive routes in WSAs (miles)	0	493	0	493	0	0	0	493	0	0	493	0	0	493	0
Other Routes (miles)	0	5,763	794	0	6,557	0	0	7,607	306	0	6,803	791	0	6,803	791
Total Miles	0	7,792	841	2,076	6,557	0	0	8,327	306	0	7,842	791	0	7,842	791

Note: C=Closed, L=Limited to existing roads and primitive routes, O=Open. The total miles of routes on public lands for each alternative equals 8,633.

Minimization Criteria

The regulations governing travel and transportation planning require that all public lands will be designated as either, Open, Limited, or Closed to off-road vehicles. It further notes that all designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all users of the public lands, the minimization of conflicts among various users of the public lands, and in accordance with criteria listed at 43 CFR 8342.1(a)-(d). Those criteria, which are referred to as minimization criteria or designation criteria and guide the BLM's designation of Open, Limited, and Closed areas, are as follows:

(a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.

(b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

(c) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(d) Areas and trails shall not be located in officially designated Wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

Table 3-10 provides acres by OHV designation for each of the alternatives and the PRMPA. The BLM considered these minimization criteria in each of the alternatives.

Table 3-10. Acres of OHV Area Designation by Alternative.

Alternative	Open	Limited	Closed
No Action	359,869	4,265,748	15,829
A	359,869	4,265,748	15,829
B	0	2,127,604	2,513,842
C	107,075	4,518,539	15,829
D	325,686	4,299,928	15,829
PRMPA	40,368	4,585,249	15,829

Environmental Consequences

Analytical Methods

The BLM GIS data was used for the analysis of acres for current and proposed OHV area allocations. This includes acreages by OHV designation (Open, Limited and Closed), and miles of routes that would remain available for motorized use.

Indicators

- acres with Open, Limited and Closed OHV area designations in the planning area under the PRMPA and by alternative
- mileage of routes under the PRMPA and by alternative
- minimization criteria by alternative

Assumptions

Following completion of this plan, an interdisciplinary team will develop a travel management plan with public involvement that will identify needs and objectives for each road and primitive route in the planning area. The travel management plan will identify roads to be retained (including those that would be maintained and their maintenance objectives), rehabilitated, closed, or abandoned to meet resource objectives (BLM 2001b, 390).

Issue 2

How would travel be affected by changes in OHV area designations across the planning area (including those resulting from the protection of lands with wilderness characteristics units)?

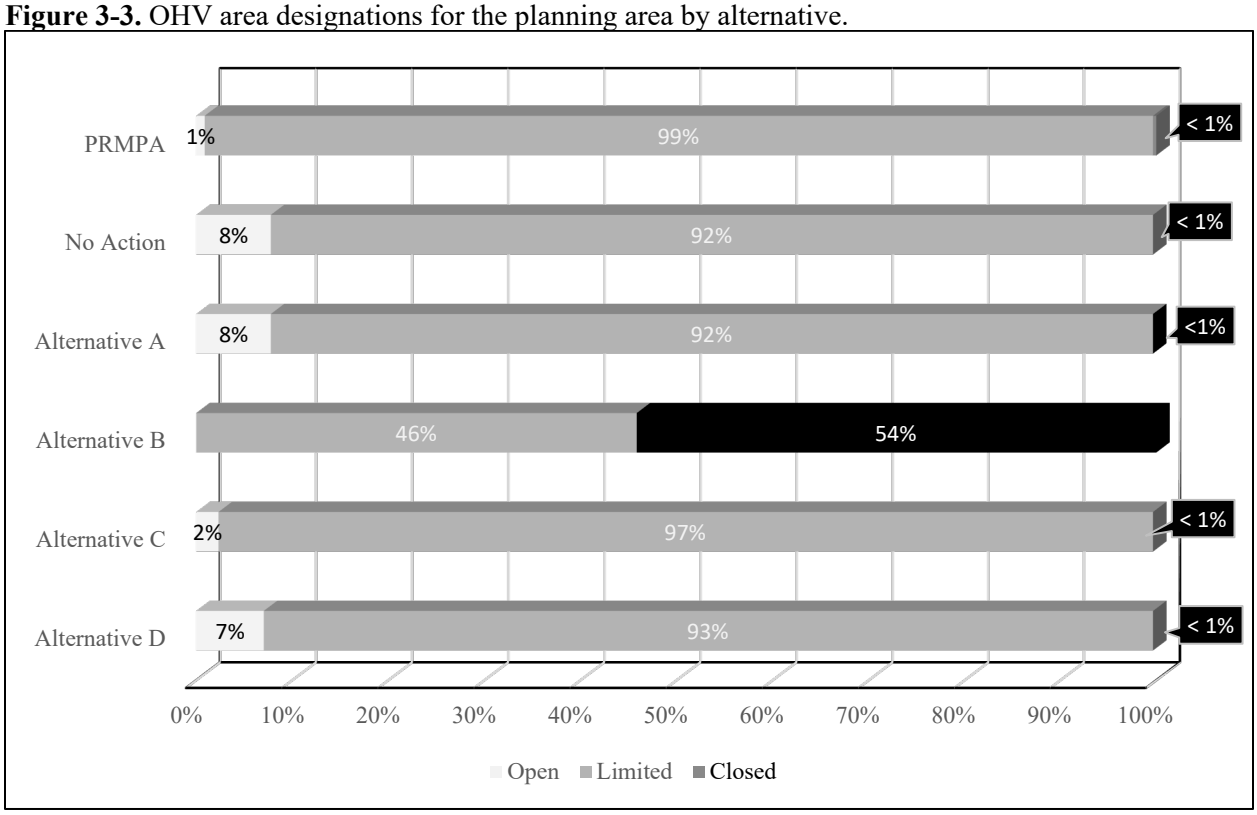
The percentage of public lands in each OHV designation (Open, Limited, or Closed) would directly affect the motorized access and the availability for travel across much of the planning area.

For the OHV Open area designation, the No Action Alternative and Alternative A would designate (carry forward) the same percentage and acres (8%, 359,869 acres) of the planning area. Alternative B would have zero acres designated as OHV Open. Alternative C would designate 2% (107,075 acres) as Open to OHV. Alternative D would be slightly less at 7% and 325,686 acres Open to OHV. The PRMPA would designate just under 1% (40,368 acres) as Open.

The No Action Alternative and Alternative A would designate (continue to manage) approximately 92% (4,265,748 acres) of the planning area as OHV Limited, with a slight increase under Alternative D (93% and 4,299,928 acres) as Limited. Alternative C would designate 97% (4,518,539 acres) and the PRMPA 99% (4,585,249 acres) of the planning area as Limited. Under the No Action Alternative and Alternatives A, C, D, and the PRMPA there would be less than 1% (15,829 acres) designated as OHV Closed. The

greatest degree of change among the alternatives would be that 54% (2,513,842 acres) of the planning area would be designated as OHV Closed for Alternative B and would result in the loss of motorized recreation opportunities, while potentially improving nonmotorized recreational experiences. OHV motorized recreational opportunities would be reduced under all alternatives except for the No Action Alternative and Alternative A due to the decrease in OHV Open areas and the increase in areas limited to existing roads and primitive routes. Figure 3-3 provides a visual display of the OHV allocations among the alternatives and the PRMPA.

Figure 3-3. OHV area designations for the planning area by alternative.



In evaluating the effects of the OHV allocations, the BLM has described the overall effects of the alternatives on travel and access and also described the relationship between the alternatives and the minimization criteria. All the alternatives share the following relationships with minimization criterion (b): None of the alternatives have Open areas where there is federally threatened or endangered species habitat. Through monitoring and winter closures and other seasonal restrictions, the OHV Open areas under each alternative can meet minimization criterion (b). Please refer to Sections 3.7.4 Soils, 3.7.10 Special Status Plant Species and 3.7.11 Fish and Wildlife for additional details. Other monitoring protocols can be found on pages 1-28 to 1-29 of Section 1.6.4 of the 2015 ARMPA ROD for GRSG (BLM 2015d) and in Appendix W of the ROD for the 2002 SEORMP (BLM, 2002).

No Action Alternative and Alternative A

The No Action Alternative and Alternative A do not propose any changes in OHV area designations. Under the No Action Alternative and Alternative A there are: 359,869 acres that are Open to OHV use, 4,265,748 acres where OHV use is Limited to existing routes, and 15,829 acres that are Closed to motorized use (see Figure 3-3, above). Within these 359,869 acres that are Open, there are 20 areas with continuous acreages of approximately 1000 acres or more, that are open to motorized OHV travel. These two alternatives could lead to route proliferation within these open areas. Within the OHV Limited areas,

OHV use would continue to be restricted to only existing routes. The current level of access to these areas would remain unchanged. Within the 15,829 acres of OHV Closed areas, motorized use and access would continue to be unavailable.

Overall, the effect of the OHV allocations on motorized use and access would continue to be limited to those impacts of OHV use associated with activities on existing routes, except in areas that remain open to OHV use. While intensive OHV activities are not authorized in these OHV Open areas, the predominant motorized use is expected to continue to be on the existing routes.

The remaining OHV Open areas under these two alternatives do not respond well to minimization criterion (a) which calls for areas to be located to minimize damage to soil, watershed, vegetation, air, or other resources. Many of the Open areas are isolated and surrounded by other ownerships and difficult to monitor impacts. The larger Open areas are either near populated areas (such as near the city of Vale) and concentrated use in challenging terrain for some users is leading to unmanaged resource impacts. In relation to criterion (b), there are no Open areas where there is threatened or endangered habitat. A number of these Open areas are within or adjacent to habitat of several species of big game and all are surrounded by Greater Sage-grouse habitat. Habitat for Greater Sage-grouse was previously identified as either not present or not assumed to be capable of sustaining Sage-grouse under the 2015 Greater Sage-grouse ARMPA (BLM 2015d). The remaining expanse of Open areas under these two alternatives do not respond strongly to minimization criterion (b) which calls for areas to be located to minimize harassment of wildlife or significant disruption of wildlife habitats. The expanse of Open areas under these two alternatives do not respond well to minimization criterion (c) which calls for areas to minimize conflicts with off-road vehicle use. The large number of acres where off-road vehicle use could occur under these alternatives, increases the chance for user conflicts between non-motorized and motorized users. However, overall motorized use across the planning area is relatively low and route density in the areas possessing primitive recreation opportunities is also very low, so actual user conflicts under these two alternatives are also relatively low. Minimization criterion (d) calls for areas to be located outside of designated Wilderness areas or primitive areas and under these two alternatives; all the existing Wilderness Study Areas (WSAs) and all but 34,156 acres of lands with wilderness characteristics are classified as OHV Limited. The OHV allocations vary from: 359,869 acres as Open to OHV use; 4,265,748 acres that are Limited (of which 1,274,101 acres are WSAs and 1,202,751 acres are lands with wilderness characteristics); and 15,829 acres that are closed.

Alternative B

Under Alternative B, all 76 wilderness characteristics units (1,206,780 acres) and all WSAs (1,273,908 Acres) would be closed to off-highway vehicle (OHV) use. This would close motorized access to approximately half of the planning area, an increase in closed acres of 2,498,013 acres. All currently Open OHV areas outside of WSAs and lands with wilderness characteristics units would be classified as OHV Limited. Under this alternative there are no Open areas. Under Alternative B, there are approximately 2,076 miles of existing routes that would no longer be available for OHV use in the closed areas; 6,557 miles of existing roads and primitive routes are located in areas that would be designated as Limited. No areas would be designated as OHV Open; cross-country OHV use would not be authorized. This alternative is the most restrictive for OHV travel and would rank the highest among all alternatives for meeting the minimization criteria.

With the elimination of Open areas, the number of OHV user-created routes would decrease across the planning area. The area closed to motorized use would be greater in the central part of the planning area than the northern part. Closure would reduce motorized recreation opportunities and may affect where hunting occurs because hunters would not be able to use OHVs to assist in scouting or game retrieval of deer, elk, bighorn sheep, and pronghorn. This closure would limit the availability of future motorized travel because many routes within the lands with wilderness characteristics units and WSAs rely on regular use by motorized vehicles to keep passage possible. However, this change may improve the

quality of hunting with less disturbance. As primitive routes naturally reclaim from lack of motorized use, access may be lost unless the roads were converted to maintained trails; however, given the trend in trail maintenance budgets, such conversions would be unlikely. Opportunities for recreational experiences that are free from motorized vehicle interactions would increase under this alternative. Opportunities for nonmotorized recreation would remain the same under this alternative but access on the existing route network would be reduced (Figure 3-2, Table 3-8 and 3-9).

Through the elimination of Open areas and the closure of 2.4 million acres to OHV use, Alternative B would reduce damage to soil, watersheds, vegetation, air, and other resources, as proposed by minimization criterion (a). It is likely that roadbeds would be reclaimed by vegetation over time, soils would not be compacted by motor vehicles, and the likelihood of new primitive roads and motorized trails created by public motorized use would be dramatically reduced. Under this alternative, watershed health would likely improve over time due to the reduced levels of disturbance. This alternative would enhance the likelihood of areas where OHV use is limited to either retain or obtain wilderness characteristics by eliminating disturbances due to motorized road and trail use, route proliferation, and accompanying noise levels that could detract from wilderness characteristics features. Under Alternative B, harassment of wildlife or significant disruption of wildlife habitats, including threatened and endangered species would be greatly reduced or eliminated in conformance with minimization criterion (b), even though administrative/authorized use would still be allowed. A reduction in habitat fragmentation, direct disturbance and noise disturbances would likely occur under this alternative by eliminating motorized use and the associated impacts. Under Alternative B, conflicts between OHV use and other existing or proposed recreational uses of the same or neighboring BLM managed lands, would be reduced or eliminated by eliminating motorized use across many acres in support of minimization criterion (c). As route proliferation would likely decrease, this further reduces potential conflicts between users. In terms of use compatibility, non-motorized users of all types would likely have fewer conflicts with motorized users.

Under Alternative B, no motorized areas or trails would be located in WSAs or in the 76 lands with wilderness characteristic units. This closure fully supports minimization criterion (d).

Alternative C

Alternative C would continue existing Open OHV management in eight specific areas (with acreages of approximately 1000 acres or more), located in the north half of the planning area, covering 107,075 acres as open to OHV use (see Map OHV 3 in DEIS Appendix M). The remaining 252,794 acres that are currently OHV Open would be designated as Limited (to existing roads and primitive routes) for motorized vehicle use. Alternative C makes no changes to the acres that are Closed to OHV and is the same as the No Action and Alternative A (15,829 acres). This alternative has a lower number of OHV Open acres than the No Action Alternative and Alternatives A and D but more than the PRMPA and Alternative B. Within the Open areas under Alternative C, access would be available for intensive motorized use and existing routes would also still be available. Within the Open areas, route proliferation could occur. Within the OHV Limited areas, existing routes would still be available for OHV access and use, but off-route OHV use would not be available, and route proliferation would be reduced in 252,794 OHV Limited areas that are Open under the No Action and alternative A. The 15,829 acres of OHV Closed would continue to be unavailable for OHV access. Overall, the effect of the OHV allocations to motorized use and access would be to reduce the area that is currently available to unrestricted OHV access but would not reduce the miles of existing routes that would be available to use; these existing routes would continue to provide public access opportunities.

The reduction of Open areas under Alternative C supports reduced damage to soil, watersheds, vegetation, air, and other resources as proposed by minimization criterion (a). In the OHV Limited areas, it is likely that roadbeds would be reclaimed by vegetation over time, soils would not be compacted, and the likelihood of new primitive roads and motorized trails created by public motorized use would be

dramatically reduced. Under this alternative, watershed health would likely improve over time due to the reduction in areas that are available for intensive motorized OHV opportunities. This alternative would enhance the likelihood of areas where OHV use is limited to either retain or obtain wilderness characteristics by eliminating disturbances due to motorized road and trail use, route proliferation, and accompanying noise levels that could detract from wilderness characteristic features. Under Alternative C, harassment of wildlife or significant disruption of wildlife habitats, including threatened and endangered species would be greatly reduced in the areas where OHV use is limited to existing routes and in the areas that are closed to motorized use. A reduction in habitat fragmentation, direct disturbance and noise disturbances would likely occur under this alternative by eliminating areas that are available to intensive motorized use and the associated impacts, in support of minimization criterion (b).

Under Alternative C, conflicts between OHV use and other existing or proposed recreational uses of the same or neighboring BLM managed lands, would be decreased or eliminated by reducing the amount of cross-country motorized use in the previously OHV Open areas that would be designated as Limited. As route proliferation would likely decrease, this further reduces potential conflicts between users. In terms of use compatibility, non-motorized users of all types would likely have fewer conflicts with motorized users. Minimization criterion (d) calls for areas to be located outside of designated Wilderness areas or primitive areas and under Alternative C; the 32 WSAs continue to be classified as OHV Limited. Of the 76 units identified as having wilderness characteristics, 27 are protected under this alternative and would receive an OHV Limited designation.

The 49 units that would not receive protection of wilderness characteristics result in four units that would continue to be Open to OHV use; the remaining units would continue to be managed as OHV Limited, unless already Closed. The OHV allocations in the unprotected units would result in the following OHV designations: 6,549 acres that would be Open to OHV use; 1,199,073 acres that are OHV Limited; and 995 acres that are Closed to OHV use. This conforms with minimization criterion (d) in areas designated as OHV Limited where no new travel routes would be permitted; areas between existing primitive routes would continue to protect naturalness and primitive conditions, but to a lesser extent than OHV closures. Alternative C conforms with minimization criterion (d), but to a lesser extent than Alternatives B and D and the PRMPA.

Under Alternative C, 107,075 acres would remain open to motorized cross-country travel within eight areas. This alternative could lead to route proliferation within the eight areas and adjacent lands if not monitored annually.

Alternative D

Under Alternative D there are 325,686 acres that are Open to OHV use, 4,299,928 acres where OHV use is Limited (to existing routes), and 15,829 acres that are Closed to motorized use (see Figure 3-3).

Within the 325,686 OHV Open acres, there are 20 major areas, with continuous acreages of approximately 1000 acres or more, that are Open to cross country travel. This alternative could lead to route proliferation within the OHV Open areas, and adjacent lands. Within the Limited areas, OHV access would be restricted to existing routes in 4,299,928 acres; no cross-country use would be authorized. Within the 15,892 acres that would be designated as Closed OHV use and motorized access would continue to be unavailable. The 325,686 acres of Open OHV would continue to be available for OHV use access, including on the existing routes. Overall, the effect of the OHV allocations to motorized use and access would be to increase restrictions (in approximately 34,183 acres of currently Open) where OHV use and access would be limited to existing routes for motorized use over the No Action and Alternative A. This alternative has a lower number of Open areas than the No Action Alternative and Alternative A and but higher than under the PRMPA and Alternatives B and C.

The reduction in Open areas under Alternative D from the No Action Alternative, would promote conformance with minimization criterion (a) and the call for reducing damage to soil, watersheds,

vegetation, air, and other resources, but not to as great an extent as under the PRMPA and Alternatives B and C. Similarly, the reduction in Open areas from No Action Alternative levels would promote compliance with minimization criterion (b) which calls for reducing disruption to wildlife habitats, and minimization criterion (c) which calls for reducing user conflicts, but not to as great an extent as under the PRMPA and Alternatives B and C. This alternative would enhance the likelihood of areas where OHV use is limited to either retain or obtain wilderness characteristics by eliminating disturbances due to motorized road and trail use, route proliferation, and accompanying noise levels that could detract from wilderness characteristic features. A reduction in habitat fragmentation, direct disturbance and noise disturbances would likely occur in those acres that move from Open to Limited under this alternative. Under Alternative D, conflicts between OHV use and other existing or proposed recreational uses of the same or neighboring BLM managed lands, would be reduced in those areas that move from an Open to a Limited designation. Minimization criterion (d) calls for areas to be located outside of designated Wilderness areas or primitive areas. Under Alternative D, the 32 WSAs are classified as Limited. Of the 76 units identified as having wilderness characteristics, 33 units are protected under this alternative and, therefore, receive an OHV Limited designation.

The 43 units that would not receive protection of wilderness characteristics under Alternative D results in zero units that would be Open to OHV use; the 43 units would be OHV Limited, unless already Closed. The OHV allocations in the unprotected units would result in the following OHV designations: zero acres Open to OHV use; 417,196 acres that are OHV Limited; and 995 acres that are OHV Closed. This conforms with minimization criterion (d) in areas designated as OHV Limited where no new travel routes would be permitted; areas between existing primitive routes would continue to protect naturalness and primitive conditions, but to a lesser extent than OHV closures. Alternative D conforms with minimization criterion (d), but to a lesser extent than Alternative B, the PRMPA.

Under Alternative D, 325,686 acres would remain Open to motorized cross-country travel across the planning area. Within these 325,686 acres, there are 20 major areas with continuous acreages of approximately 1000 acres or more, that are open to intensive motorized use in Alternative D. This alternative could lead to route proliferation within the OHV Open areas, and adjacent lands if not monitored annually, although that has not occurred yet.

PRMPA

Under the PRMPA, two areas, totaling approximately 40,368 acres, near Vale, Oregon would continue to be managed as OHV Open to (cross-country) motorized and non-motorized use. The remainder of the currently Open OHV designation under the No Action Alternative and Alternative A (approximately 319,492 acres) would be designated as Limited (to existing routes). This alternative retains the same number of Closed acres as under the No Action, and Alternatives A, C and D (15,829 acres). The PRMPA OHV designations are provided in Table 3-11 below and displayed on Map OHV 5 in Appendix M.

Table 3-11. Proposed RMP Amendment OHV allocations.

OHV Category	Acres
Open	40,368
Limited[a]	4,585,249
Closed[b]	15,829

[a]The 2015 Greater Sage-Grouse ARMPA (BLM 2015d) designated all Sage-grouse habitat as OHV Limited, if not already OHV Closed. That decision shifted approximately 2.3 million acres from OHV Open under the 2002 SEORMP to OHV Limited to existing roads and primitive routes (BLM 2002).
[b]Areas closed to OHV use as designated under the 2002 SEORMP would remain unchanged under the PRMPA.

The two OHV Open areas are retained because they are: either near populated areas; accessible along existing developed travel routes; presently being used for motorized activities; known to be popular with hunters, OHV users, and other backcountry motorized vehicle users; or they have potential for successful

management of intensive OHV activities and minimization of impacts to other resources and uses, or any of these combinations.

Within the two OHV Open areas, this alternative could lead to route proliferation, including on adjacent lands. However, these two areas are currently Open and route proliferation has not yet occurred.

In approximately 98% of the planning area, OHV use would be Limited (to existing roads and primitive routes). Within the PRMPA, 47 acres in parts of four of the 17 wilderness characteristics units that are proposed for protection and that are Open to OHV use and access in the No Action Alternative would become OHV Limited under this alternative. The other 13 lands with wilderness characteristics units would continue to be Limited unless already Closed for OHV use under the PRMPA. No currently existing routes would be removed from public access, and no additional areas would be Closed to OHV use under the PRMPA. Until the BLM can develop a travel management plan with public input, this management would continue to retain the approximately 8,633 miles (see Table 3-9) of roads and primitive routes in the planning area on public lands as available to motorized use. This management would continue to provide extensive motorized vehicle opportunities. See Map OHV PRMPA in Appendix M. Overall, the effect of the OHV allocations to motorized use and access would reduce the area that is available for intensive OHV use and access, relative to all alternatives except Alternative B. The additional 319,501 acres of OHV Limited would restrict OHV use and access in most of the planning area to the existing route network.

The significant reduction in OHV Open areas under the PRMPA would do much in support of minimization criterion (a) where there is an emphasis on reducing damage to soil, watersheds, vegetation, air, and other resources. In the areas that move from OHV Open to Limited, route proliferation would be reduced, and the impacts associated with that proliferation would be reduced.

The likelihood of new primitive roads and motorized trails created by public motorized use would be dramatically reduced under this alternative. Under this alternative, watershed health would likely improve over time. This alternative would enhance the likelihood of areas where OHV use is limited to either retain or obtain wilderness characteristics by eliminating disturbances due to: motorized road and trail use, route proliferation, and accompanying noise levels that could detract from wilderness characteristic features. The reduction in OHV Open areas would also support minimization criterion (b) which promotes wildlife habitat by encouraging the identification of areas to reduce harassment of wildlife or significant disruption of wildlife habitats, and by reducing or eliminating public motorized use. A reduction in habitat fragmentation, direct disturbance and noise disturbances would likely occur under this alternative by reducing the number of OHV Open areas and designating them as Limited (to existing routes). Under the PRMPA, conflicts between OHV use and other existing or proposed recreational uses of the same or neighboring BLM managed lands, would be greatly reduced due to the significant reduction in Open OHV areas in support of minimization criterion (c). Under the PRMPA, the 32 WSAs continue to be classified as OHV Limited. Of the 76 units identified as having wilderness characteristics, 33 are protected under the PRMPA and would receive a Limited designation.

The 59 wilderness characteristics units that would not receive protection under the PRMPA results in zero units (zero acres) being Open to OHV use; the 59 units would be OHV Limited, unless already Closed. The OHV allocations in the unprotected units would result in the following OHV designations by acreage: zero acres of OHV Open to motorized use and access; 1,109,521 acres that are OHV Limited, and 995 acres that are OHV Closed. This conforms with minimization criterion (d) in areas designated as OHV Limited where no new travel routes would be permitted; areas between existing primitive routes would continue to protect naturalness and primitive conditions, but to a lesser extent than OHV closures. The PRMPA conforms with minimization criterion (d), but to a lesser extent than Alternative B.

Under the PRMPA, 40,368 acres would remain open to motorized cross-country travel across the planning area. These 40,368 acres occur in two areas. This alternative could lead to route proliferation within these Open areas, and adjacent lands, if not monitored.

Cumulative Effects

The cumulative effects analysis area for travel management is the planning area. This Section will address any additional effects to travel management from reasonably foreseeable actions (see Table 3-1). These effects are in addition to the ongoing effects to travel management of increasing population growth and increasing interest in motorized use) described in the affected environment section and the effects of the actions of each of the alternatives on the resource are noted above.

The Grassy Mountain Gold Mine, the Octagon and Malheur Queen projects, lithium resource exploration, Tri-state Fuel Breaks, Northwest Malheur County Greater Sage-grouse Habitat Restoration, Northwest Malheur Mineral Site Development, and the Boardman to Hemingway projects are all reasonably foreseeable actions that could have an impact on travel management due to improvements to existing routes associated with all four projects.

The Grassy Mountain Gold Mine, combined with the proximity to services (gas, food, and lodging) and population areas (Vale, Ontario, etc.) could lead to an increase of use on approximately 25 miles of existing routes in the northern part of the planning area. The Malheur Queen andOctagon mines could also lead to increases in vehicle use along existing and potentially new routes between population centers and the projects, and within and near the proposed mines.

Construction of the Boardman to Hemingway transmission line would result in the creation of both temporary routes and long-term ROW access routes that could provide more opportunities for travel in that portion of the planning area. However, mitigation as proposed to reclaim those temporary routes would result in no lasting impact on travel management in that area.

The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions cannot exceed five acres each. The Plan of Operations for the potential 9,160 acre exploration project area for lithium could involve improvements to existing primitive routes to allow for a 14’ wide route and the potential for up to 29 miles of cross country access. Although the disturbance from road modifications and the creation of access would be remediated, any improvements to primitive routes and increased access could lead to the proliferation of user created routes.

The Tri-state Fuels Breaks Project would emphasize maintenance of up to 552 miles of existing routes in the southeastern portion of the planning area and this maintenance could lead to increased motorized use in that area. The Northwest Malheur County Greater Sage-grouse Habitat Restoration and the connected Northwest Malheur Mineral Material Site (both referred to from now on as the Northwest Malheur projects) would emphasize implementation of fuel break development and maintenance, efficient access of emergency vehicles and related safety of operations, and meeting restoration objectives. Approximately 300 miles of existing routes in the northwest portion of the planning area would ensure safe and efficient access on travel routes to meet management objectives and could lead to increased public motorized use in that area. The BLM will, subsequent to the signing of the ROD for this RMP Amendment, initiate implementation level travel and transportation planning. Implementation level planning will involve extensive public involvement and the development of alternatives for all routes in the planning area. The implementation level travel management planning process is a route-by-route review of current conditions where specific objectives for areas within each of the RMPA level allocations of Open, Limited, and Closed, are further refined.

No Action and Alternative A

The No Action Alternative and Alternative A do not propose any changes in OHV designations. Under the No Action Alternative and Alternative A there are 359,869 acres that are OHV Open use, 4,265,748 acres where OHV use is Limited to existing routes, and 15,829 acres that are OHV Closed to motorized use (see Figure 3-3). Overall, the effect of the OHV allocations to motorized use and access are to maintain current levels of authorized OHV use and existing access. The present levels of use under the No Action and Alternative A are, overall, not leading to negative user-caused impacts except at isolated and concentrated locations. Current levels of access have not been identified as limiting OHV activities or opportunities. It is assumed that with ongoing population growth in the towns and cities surrounding and within the planning area that motorized use and a desire for access will continue to grow. This is in addition to the increased motorized use associated with the Grassy Mountain Gold Mine, lithium exploration, the Tri-state Fuel Break, the Northwest Malheur County Greater Sage-grouse Habitat Restoration, and the Boardman to Hemingway projects. Overall, these two alternatives, combined with the reasonably foreseeable actions have the potential to temporarily reduce OHV use and access during construction/implementation and potentially while the areas are being rehabilitated. After implementation of these RFFAs, OHV use and access could be improved as a result of the maintenance and upgrades to existing roads (in the case of the Grassy Mountain Gold Mine, improvement along the approximately 25-mile road). The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions could not exceed five acres each. Under the Plan of Operations, the proponent has identified a 9,160 acre exploration project area for lithium; exploration activities could involve improvements to existing primitive routes to allow for up to a 14’ wide equipment and vehicle access route and the potential for up to 29 miles of cross country access to occur in the area. Although the disturbance from road modifications and the creation of access would be remediated, these actions would increase access to these areas and could result in increased motorized use and the proliferation of user created routes. Road modifications in each of these projects could improve access to nearby areas. While road improvements may promote more recreational travel in the project areas, that recreational use and access would be limited to existing routes under these alternatives. On-route activities may benefit OHV use in these areas for sight-seeing and access.

Future implementation level travel and transportation planning would be implemented with extensive public involvement efforts and would be intended to provide opportunities for OHV use and access appropriate to each of the OHV area designations of Open, Limited, and Closed.

Alternative B

Under Alternative B, all 76 wilderness characteristics units (1,206,780 acres) and all WSAs (1,273,908 acres) would be closed to off-highway vehicle (OHV) use. This would close motorized access to approximately half of the planning area, an increase in closed acres of 2,498,013 acres and 2,069 miles of roads; with the existing 15,829 acres of OHV Closed, Alternative B would close a total of 2,513,842 acres in the planning area. All currently Open OHV areas outside of WSAs and wilderness characteristics units would be classified as OHV Limited. Under this alternative there are no Open areas. These OHV allocations would concentrate motorized use along the existing road network in the OHV Closed areas and limit motorized use and access to roads and primitive routes in the 2,127,604 acres of OHV Limited parts of the planning area.

The lack of OHV Open areas, combined with growing interest in motorized use could result in conflicts between motorized and non-motorized uses along routes in the OHV Limited areas. Overall, the OHV allocations would result in an increase in opportunities for non-motorized uses; in contrast, there would be a decrease in motorized use and access in both closed and limited areas. The increased motorized use associated with road improvements and route development actions of the Grassy Mountain Gold Mine, lithium resource exploration, the Tri-state Fuel Break, the Northwest Malheur County Greater Sage-

grouse Habitat Restoration, and the Boardman to Hemingway projects may promote more recreational travel in the project areas and route proliferation could occur because there would be more direct effects of OHV closures under Alternative B. The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions could not exceed five acres each. Under the Plan of Operations for the potential 9,160 acre exploration for lithium could involve improvements to existing primitive routes to allow for a 14' wide route and the potential for up to 29 miles of cross country access to occur in the area. Although the disturbance from road modifications and the creation of access would be remediated, these actions would increase access to the area and could result in the proliferation of user created routes. Road modifications in each of these projects could improve access to nearby areas.

Similarly, for the Boardman to Hemingway project, the location of temporary routes would and could accommodate displaced OHV users that would otherwise travel along open primitive routes. The Tri-state Project proposes regular maintenance of roads adjacent to fuel breaks. The Northwest Malheur projects will transport and place road materials to meet road objectives. These actions will facilitate access and could broaden the number of motorized users utilizing those roads; their access, however, would be limited to the maintained routes of the projects. Implementation level planning that would be applied to the OHV allocations in this alternative would result in route-specific objectives being established and will involve public participation in determining appropriate levels and types of use.

Taking into consideration past, present (on-going) and reasonably foreseeable future actions, Alternative B would best meet the minimization criteria by concentrating motorized use and access along the existing road network in the OHV Limited area designations and making the closed areas unavailable to motorized access. Future implementation level travel and transportation planning would be implemented with extensive public involvement efforts and would address OHV use and access for this Alternative's OHV area designations of Limited and Closed.

Alternative C

Under Alternative C, 27 wilderness characteristics units (167,709 acres) would be OHV Limited to existing routes. All WSAs (1,273,908 acres) would continue to be designated as OHV Limited also. Of the 359,869 acres of OHV Open areas under the No Action Alternative, 252,794 acres would be designated as limited to existing roads and primitive routes; the total area under Alternative C that would be OHV Limited would be 4,518,542 acres. 107,075 acres would continue to be designated as Open to motorized access and use; these areas are concentrated in eight discrete areas in the northern portion of the planning area. OHV use is likely to be concentrated in these open areas. Overall, these OHV allocations would reduce opportunities for intensive OHV use by approximately 252,794 acres, where the current Open areas are designated as limited. There are no additional areas that would be closed to OHV use under this alternative, retaining the existing 15,829 acres as OHV Closed.

The increased motorized use associated with roadwork (surface work, maintenance, or upgrades (or any combination) for the Grassy Mountain, lithium exploration, Tri-state and Northwest Malheur projects could increase motorized use, but would be limited to the existing route network in the OHV Limited areas. The open area in the southwest portion of the Northwest Malheur projects would continue to be open to intensive motorized use; however, that OHV Open area is heavily wooded (juniper woodlands) in some portions. OHV use, as in much of the planning area is predominantly along the existing route network. The Grassy Mountain mine project is similar in impacts to the Northwest Malheur projects, where one of the open areas under Alternative C would continue to be available for intensive motorized use. Access to this open area would be improved by the road upgrade for the mining operation, which could result in an increase in overland travel and route proliferation through user-created motorized activities. The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions could not exceed five acres each. Under the Plan of Operations for the potential 9,160 acre exploration for lithium could involve

improvements to existing primitive routes to allow for a 14' wide route and the potential for up to 29 miles of cross country access to occur in the area. Although the disturbance from road modifications and the creation of access would be remediated, these actions would increase access to the area and could result in the proliferation of user created routes. Road modifications in each of these projects could improve access to nearby areas.

Alternative C, in combination with past, present (on-going) and reasonably foreseeable future actions would, relative to the No Action Alternative, reduce the area available for intensive motorized use, but would retain similar access levels to most areas of the planning area along the existing route network. Future implementation level travel and transportation planning would be implemented with extensive public involvement efforts and would be intended to provide opportunities for OHV use and access appropriate in each of the OHV area designations of Open, Limited, and Closed.

Alternative D

Under Alternative D, 33 wilderness characteristics units (417,196 acres) would be designated as OHV Limited to existing routes; all WSAs (1,273,908 acres) would continue to also be designated as OHV Limited. Overall, an additional 34,183 acres designated as OHV Open under the No Action Alternative would be designated as OHV Limited, bringing the total area OHV Limited under Alternative D to 4,299,928 acres (93% of the planning area). 325,686 (7%) acres would continue to be designated as open to motorized use and access under Alternative D. The current area (15,829 acres) designated as OHV Closed would continue to be unavailable to motorized access and use.

As with Alternative B, this would concentrate future motorized use along existing roads and primitive routes in the OHV Limited areas, which could result in conflicts between motorized and non-motorized uses along those routes. The remaining area under Alternative D that would be designated as open to OHV use and access (325,686 acres) is a reduction from the No Action Alternative of approximately 34,183 acres. Overall, the OHV allocations would result in a small decrease (from the No Action Alternative) in opportunities for motorized uses in those area where currently open areas are designated as OHV Limited. The road maintenance and upgrades along the Grassy Mountain mine road and public routes between McDermitt, NV and lithium exploration may result in an increase in motorized use along those routes; this could increase access to primitive routes that branch off that route and increase interaction between motorized and non-motorized users. Similar impacts could occur along the Boardman to Hemingway transmission line project, particularly during construction along temporary routes, and subsequently along longer-term maintenance and operations routes. The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions could not exceed five acres each. Under the Plan of Operations for the potential 9,160 acre exploration for lithium could involve improvements to existing primitive routes to allow for a 14' wide route and the potential for up to 29 miles of cross country access to occur in the area. Although the disturbance from road modifications and the creation of access would be remediated, these actions would increase access to the area and could result in the proliferation of user created routes. Road modifications in each of these projects could improve access to nearby areas.

The Tri-state and Northwest Malheur projects propose regular maintenance of roads adjacent to fuel breaks; this will facilitate access and could broaden the number of motorized users utilizing those roads; their access, however, would be limited to the maintained routes of the projects. Primitive routes would still be available for use and access in the OHV Limited areas. Future implementation level travel and transportation planning would be implemented with extensive public involvement efforts and would be intended to provide opportunities for OHV use and access appropriate in each of the OHV area designations of Open, Limited, and Closed.

PRMPA

Under the PRMPA, 33 wilderness characteristics units (417,190 acres) would be designated as OHV Limited to existing routes; all WSAs (1,273,908 acres) would continue to be designated as OHV Limited. With the exception of two areas (40,368 acres) near the community of Vale, Oregon all areas that are open to OHV use under the No Action Alternative would be designated as OHV Limited, bringing the total area that would be limited to existing roads and primitive routes under the PRMPA to 4,585,249 acres (99% of the planning area). No increases in areas closed to motorized use and access are proposed under the PRMPA; the current closed area (15,829 acres) would be unchanged. In areas designated as OHV Limited, motorized use would be limited to the existing road and primitive route network, which may result in conflicts between motorized and non-motorized users near travel routes. With the reduction in areas open to motorized use and access, non-motorized activities would benefit and would result in a reduction in user conflicts.

Overall, the OHV allocations would result in a decrease of 319,501 acres of opportunities for motorized uses in OHV Open areas as compared to the No Action Alternative. The road maintenance and upgrades along the Grassy Mountain mine road and routes accessing lithium exploration may result in an increase in motorized use along that route, particularly in the vicinity of the southern remaining OHV Open area; this could increase in route proliferation and increase access to primitive routes that branch off the project route. The two Notice-level lithium exploration actions could involve road modifications and cross-country travel to facilitate access. The disturbance from these actions could not exceed five acres each. Under the Plan of Operations for the potential 9,160 acre exploration for lithium could involve improvements to existing primitive routes to allow for a 14’ wide route and the potential for up to 29 miles of cross country access to occur in the area. Although the disturbance from road modifications and the creation of access would be remediated, these actions would increase access to the area and could result in the proliferation of user created routes. Road modifications in each of these projects could improve access to nearby areas.

There could also be an increase interaction between motorized and non-motorized users near primitive routes. Similar impacts could occur along the Boardman to Hemingway transmission line project, particularly during construction along temporary routes, and subsequently along longer-term maintenance and operations routes. The Tri-state and Northwest Malheur projects propose regular maintenance of roads adjacent to fuel breaks; this will facilitate access and could broaden the number of motorized users utilizing those roads. Their access, however, would be limited to the maintained routes of the projects. Primitive routes would still be available for use and access in the OHV Limited areas. After Alternative B, the PRMPA is the second best alternative in meeting the minimization criteria by concentrating motorized use and access along the existing road network in the OHV Limited area designations and only allowing for 40,368 acres of Open OHV areas. Future implementation level travel and transportation planning would be implemented with extensive public involvement efforts and would be intended to provide opportunities for OHV use and access appropriate in each of the OHV area designations of Open, Limited, and Closed.

3.7.3 Livestock Grazing and Rangeland Management

Key Points

- There are no proposed changes to current management direction for authorizing or allocating grazing use under the No Action Alternative or Alternatives A. Changes in management direction for authorizing or allocating grazing use are proposed in Alternatives B and D. While Alternative C and the PRMPA would continue to follow existing grazing policy and guidance, additional management direction would be incorporated.
- Current regulatory and policy requirements, as well as existing guidance, are described due to the broad nature of the management options available for addressing potential conflicts of grazing use and grazing allocation with other resource values.
- While broad-scale effects from the proposed planning level changes in Alternatives B and D are analyzed, subsequent, site-specific analysis would be required to implement changes in permitted use and grazing authorizations for management responses required upon completion of a Standards for Rangeland Health Evaluation. The site-specific effects of those actions would be displayed in those subsequent analyses.
- The impact analysis for Alternatives B and D is more detailed when compared to the PRMPA, No Action, Alternative A, and Alternative C due to the management responses the BLM would be required to take when BLM has made a determination that existing livestock grazing management was a significant causal factor for non-attainment of one or more Standard for Rangeland Health. Likewise, the analysis for Alternatives B and D is more detailed when considering allocating areas as unavailable to grazing upon the voluntary relinquishment of a grazing permit in those lands specified in 2010 Settlement Agreement Provision 29(1) and 29(2).
- Alternatives B and D identify effects to livestock grazing and rangeland management of reductions or the elimination of grazing. These analyses are assumptions-based; see the "Assumptions" section below. The assumptions allow the BLM to project what the possible effects of the plan level direction in the alternatives may be at the allotment or pasture level.
- In the case of implementing the actions following the receipt of a voluntary relinquishment of a grazing permit under Alternatives of B or D, the BLM is not proposing to modify or make changes to any previous determination that lands within the planning area and grazing district are "chiefly valuable for livestock grazing and raising forage crops". In accordance with the *Taylor Grazing Act* of 1934 (TGA), this determination was made by the Order of the Secretary of Interior or their designate when the grazing district was established. The *Federal Land Policy and Management Act* (FLPMA) provides that "[l]and use plans shall be developed for public lands regardless of whether such land previously have been classified, withdrawn, set aside or otherwise designated for one or more uses" (43 USC 1712[a]). A change in a "chiefly valuable for livestock grazing and raising forage crops" determination can only occur if the Secretary is proposing to create or modify the boundary of a grazing district or under Section 7 of the TGA to permanently classify lands for any uses other than grazing and raising forage crops or for disposal. Alternatives B and D do not propose a change in the grazing district boundaries nor fall under the specifications of Section 7 of the TGA. Grazing use (e.g., levels of use, areas available or not available for grazing, etc.) is established through the FLPMA and the land use planning process. Alternatives B and D provide alternatives to be considered in the land use planning process for establishing levels

of grazing use by identifying areas where areas would be allocated as "unavailable to livestock grazing" upon receipt of a voluntary grazing relinquishment.

- The analysis of environmental consequences of the PRMPA and the alternatives on livestock grazing and rangeland management in this section focuses on impacts to the *administration* of grazing permits and allocation of grazing use on public lands. That is, the analysis clarifies how BLM administration of grazing authorizations would be conducted. Analysis of impacts to other resources (such as soils, riparian, general vegetation, and lands with wilderness characteristics) from implementing these actions are described in those resource sections as applicable.

Affected Environment

The *Taylor Grazing Act* (TGA), enacted on June 28, 1934, is a guiding authority that provides for public land grazing. This law created a framework to protect public land and resources from degradation, provide orderly management to improve and develop public rangelands, and stabilize the livestock industry. The TGA and its implementing regulations established a system for the allocation of grazing privileges to livestock operators based on priorities of use and grazing capacities. The TGA also provided for the delineation of allotment boundaries, established standards for rangeland improvements, and authorized grazing fees. Within the Department of the Interior, first the Division of Grazing and later the Grazing Service were formed to manage the grazing program on 142 million acres of western public land that were organized into grazing districts under the TGA. After enactment of the TGA, grazing on public lands not located within grazing districts and lands in Alaska were administered by the General Land Office. In 1946, pursuant to a federal administrative reorganization, the General Land Office and the Grazing Service were combined to become the BLM. *The Federal Land Policy and Management Act* (FLPMA) passed in 1976, and the Public Rangelands Improvement Act, passed in 1978, also provide authority for the management of livestock grazing on public land.

Integration of the requirements of these and other laws that govern public land grazing is provided in a federal regulation entitled "Part 4100—Grazing Administration—Exclusive of Alaska." Further detailed guidance for administering public land livestock grazing is provided in applicable manuals, handbooks, and instruction memorandums. The structure for administering livestock grazing, including protocols for qualifications and preference, grazing management, authorizing grazing use, prohibited acts, unauthorized grazing use, administrative remedies, penalties, and rangeland health is based on the hierarchy of law, regulation, handbooks, manuals, and other policies.

The BLM manages livestock grazing on public lands under the principle of multiple use and sustained yield, in accordance with applicable land use plans. Land use plans establish allowable resource uses, related levels of production or use to be maintained, areas of use, and resource condition goals and objectives. The plans also set forth program constraints and general management practices needed to achieve management objectives. Livestock grazing activities and management actions approved by the BLM shall be in conformance with the land use plan (43 CFR § 4100.0-8).

Washington Office (WO) Instruction Memorandum (IM) 2012-169, Resource Management Plan Alternative Development for Livestock Grazing (BLM 2012c), communicates policy guidance regarding resource management plan/environmental impact statement alternative development for livestock grazing. This IM specifically addresses RMP/EIS alternatives development for livestock grazing and provides the BLM with guidance to meet the *National Environmental Policy Act* (NEPA) requirements to analyze the environmental impact of proposed management alternatives and to "rigorously explore and objectively evaluate all reasonable alternatives." IM 2012-169 specifically identified rangeland management program adjustments that include, but are not limited to:

- Alternatives that address nonattainment of Standards, particularly where [existing] livestock grazing is identified as a significant contributing factor, and
- Areas where forage and grazing preference would not be reallocated upon receipt of a voluntary grazing relinquishment

Grazing Authorizations

A grazing permit is the document that authorizes livestock grazing use of the public lands within an established grazing (BLM) district, whereas a grazing lease is the document that authorizes livestock grazing use of public lands outside an established grazing district (43 CFR § 4100.0-5). As specified in Chapter 2, there are no grazing leases within the planning area. The kind and number of livestock, the period of use, the allotment to be used, and the amount of use in animal unit months (AUMs) are mandatory terms and conditions of every grazing permit (43 CFR § 4130.3). An AUM is the amount of forage necessary for the sustenance of one cow or its equivalent for one month, and an allotment is an area of land designated and managed for grazing of livestock (43 CFR § 4100.0-5).

Livestock grazing is administered on 206 allotments of approximately 4,547,820 acres of public lands allocated as "available for livestock grazing" within the planning area. Information specific to each of the allotments is provided in Appendix E of the 2002 SEORMP and ROD (BLM 2002), as well as maintenance documents. Maintenance updates to Appendix E of the 2002 SEORMP and ROD have been completed as information is updated, either permit renewals are completed or other processes occur that adjust allotment and authorization information, or both. There are 211 grazing permits[14] that authorize livestock grazing on public lands within the planning area; these permits range in the number of authorized active AUMs from four to 14,160. Overall, there are 423,672 active AUMs[15] in total within the planning area that are administered by the Vale District BLM's Malheur or Baker Field Offices (BLM 2018d).

Approximately 93,625 acres of public land within the planning area are currently not permitted to be grazed because: 1) they are 'unallotted' or 2) have been allocated as 'unavailable to grazing' through other land use planning efforts. For areas that are 'unallotted', grazing is not authorized under a grazing permit or lease, nor have these areas been allocated as 'available to grazing' or 'not available to grazing'. Approximately 10,337 acres of public land acres are classified as "unallotted" within the planning area. There are 83,288 acres of public land in the planning area that have been designated through land use planning as not available for livestock grazing, including the 2015 Oregon Greater Sage-grouse ARMPA decision to make unavailable to grazing approximately 9,354 acres in nine key RNAs[16] (BLM 2015d, 2-18). These areas are set apart from grazing allotments for the specific purpose of improving or maintaining resource values that cannot be protected through changes in grazing management, to meet specific resource objectives, or were found unsuitable for livestock grazing. The areas listed in Table 3-12 are not available for livestock grazing. Additional scattered parcels of public land, intermixed with other ownerships and outside allotment boundaries, are not currently allotted to a specific livestock operator.

Collection of monitoring data tracks and identifies progress toward meeting identified livestock grazing and rangeland management objectives. Active grazing use authorization and management actions in each allotment are periodically evaluated. Based on these data, adjustments to terms and conditions of permits

[14] The number of grazing authorizations can fluctuate for reasons such as base property leases, partial transfers of base property, administrative purposes that either incorporate multiple allotments on one grazing permit or divide authorizations by allotment, or both, rather than combining the allotments into one grazing permit.
[15] The planning area does have allotments that overlap more than one planning area. Those allotments and associated permits are administered by other BLM districts and are not included in the total AUMs.
[16] Our description of the affected environment assumes continued implementation of the 2015 ARMPA, in accordance with the Idaho District Court's preliminary injunction of the 2019 ARMPA (1:16-cv-00083-BLW).

are made by decisions in accordance with legislation, regulations, and policy to ensure that management objectives are met, and public land resources are maintained or improved for future commodity and non-commodity values. In accordance with the Geographic Management Area (GMA) planning process identified in the 2002 SEORMP and ROD (BLM 2002, 16–24), management actions implemented in each GMA were anticipated to occur at least once every ten years by an interdisciplinary team.

WO IM 2013-184, Relinquishment of Grazing Permitted Use on the BLM Administered Lands (BLM 2013b), was issued to provide guidance beyond that provided in the grazing administration regulations for processing a voluntary relinquishment of a grazing permit and preference. The IM also presents the BLM's policy on how reassignment of permitted use to qualified applicants would be assessed/implemented, as well as how the BLM may designate the relinquished area as no longer available for livestock grazing using the BLM's Land Use Planning (LUP) and the NEPA processes.

Table 3-12. Areas with livestock grazing use discontinued in the SEORMP planning area.

Area	Acres
Owyhee Wild and Scenic River Corridor[a]	40,693
Dunlevy-Sayer Botanical Exclosure	595
Leslie Gulch	12,759
Owyhee Reservoir State Park	837
Historic Birch Creek Ranch[b]	106
Jordan Craters	15,860
Luscher Pasture	3,084
2015 GRSG ARMPA Key RNAs[c]	9,354[d]
Total	83,288

[a] A portion of the corridor, either including or adjacent, or both, to the Owyhee WSR. (See Appendix O for acres by allotment—and portions of pastures—that are not available to grazing within the Owyhee WSR.)
[b] Per the 2002 SEORMP, grazing is not authorized by a grazing permit. Grazing may be authorized only on a temporary basis for either administrative or interpretive purposes, or both. Although the area does allow grazing only for specified purposes, grazing has not been permitted for these reasons since the 2002 SEORMP ROD and is considered to be not available for grazing for analysis purposes in this EIS.
[c] In October 2019, the US District Court of Idaho (1:16-cv-00083-BLW) issued a preliminary injunction of the 2019 Oregon Greater Sage-grouse ROD and Approved RMP Amendment (2019d). In response to the District Court's injunction, BLM issued a Supplemental EIS (BLM 2020a) and ROD (BLM 2021d). The Supplemental EIS and ROD did not alter the preliminary injunction, which remains in effect. As a result, the 2015 GRSG ARMPA (BLM 2015d) governs BLM's actions and makes all or portions of the identified Key RNAs unavailable to grazing (Table 2-6, p. 3-18). The BLM is in the process of implementing the removal of grazing from these areas (43 CFR 4110.4-2[b]; § 4120.3-1[f]; and §4160).
[d] This number only reflects acres in Key RNAs included in Table 2-6 of the 2015 OR Greater Sage-Grouse ARMPA (BLM 2015d). Table 2-6. Acres may change slightly as implementation occurs.

Standards for Rangeland Health and Grazing Management Guidelines

The grazing administration regulations were revised in 1995[17] to include Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration (43 CFR § 4180). In accordance with 43 CFR § 4180.2, "Standards for Rangeland Health and Guidelines for Livestock Grazing Management for

[17]Changes to the grazing regulations also occurred in 2006. Even though these regulations were amended effective August 11, 2006 (see 71 Federal Register 39,402 [July 12, 2006]), the United States District Court for the District of Idaho enjoined the implementation of the amended grazing regulations in all respects (Western Watersheds Project v. Kraayenbrink, 538 F.Supp.2d 1302 [D. Idaho 2008], aff'd in relevant part, vacated in part, and remanded, 632 F.3d 472 [9th Cir. 2011], cert. denied, 565 US 928 [Oct. 3, 2011]). WO-IM-2009-109 (BLM 2009e) instructs the field to not implement any changes to the grazing regulations that were promulgated on July 12, 2006, and provides a copy of grazing regulations, as they existed as of July 11, 2006.

Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington" (Standards), were effective on August 12, 1997 (BLM 1997). The OR/WA Standards are intended to provide a clear statement of agency policy and direction for those who use public lands for livestock grazing and for those who are responsible for their management and accountable for their conditions. There are five Standards specified for OR/WA public rangelands managed by the BLM: Standard 1—Watershed Function, Uplands; Standard 2—Watershed Function, Riparian/Wetland Areas; Standard 3—Ecological Processes; Standard 4—Water Quality; and Standard 5—Native, T&E, and Locally Important Species (habitat). At times, interdisciplinary teams have evaluated Standard 5 by separating "Terrestrial" and "Riparian" habitats. Guidelines for Livestock Grazing management provide guidance in achieving plan goals, meeting Standards and fulfilling the fundamentals of rangeland health. Guidelines for Livestock Grazing Management consist of "General Guidelines", "Livestock Management", "Facilitating the Management of Livestock Grazing" and "Accelerating Rangeland Recovery".

The BLM Handbook H-4180-1 Rangeland Health Standards (BLM 2001a) defines the objectives of the Healthy Rangeland Initiative as to "promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; and to provide for the sustainability of the variety of uses and communities that are dependent upon productive, healthy public" rangelands. The fundamentals of rangeland health combine the basic precepts or physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Although the focus of the Standards for Rangeland Health is on domestic livestock grazing on BLM-administered lands, on-the-ground decisions must consider the impacts of all uses and other influencing factors (e.g., drought, fire, invasive species, etc.).

The Standards are the basis for assessing and monitoring rangeland conditions and trends. The assessments evaluate the standards and are conducted by an interdisciplinary team with participation from permittees and other interested parties.

Since implementation of the 1995 grazing regulations, 55 of the 206 allotments within the planning area have had a rangeland health evaluation completed between 2000 and 2009.[18] This represents approximately 1,899,600 acres of public land or 41% of the planning area that has had a rangeland health evaluation and determination of causal factors when Standards were not met. Table 3-13 provides information on those acres that applied to each Standard[19], and if the Standard was met or not met. It also shows the percentage of causal factors (existing grazing or "other") for those Standards that were not met.

[18] These statistics are for evaluations completed at the time of compilation of the 2019 SEO Draft RMPA/EIS (BLM 2019a). The Malheur Field Office (MFO) has since completed a new Standards for Rangeland Health Evaluation document for the LCGMA in 2018, although a determination of causal factors for those Standards for Rangeland Health that were not met has not been finalized. A re-evaluation of the Kivett and Squaw Butte allotments was also completed in 2019; all applicable standards continued to be met, and livestock grazing was in conformance with livestock grazing management guidelines for those allotments. Changes in grazing management has occurred for those allotments where existing grazing management was determined to be a significant causal factor for non-attainment of one or more Standards.

[19] All acres within each allotment were accounted for when compiling information on areas that have a completed evaluation. However, not all areas either within an allotment or geographic management area (GMA), or both, were evaluated for each Standard. In general, most upland-related standards were not evaluated for exclosures, holding fields, and fenced federal range. Riparian-related standards are only evaluated if riparian resources are present.

Table 3-13. OR/WA Standards for Rangeland Health summary for the Malheur Field Office planning area.

OR/WA Standard for Rangeland Health	Acres Evaluated	% Met	% Not Met	Causal Factor for Non-Attainment of Standard by %	
				Existing Grazing	"Other"
Standard 1	1,586,557	93	7	2	5
Standard 2	1,148,729	27	73	52	21
Standard 3	1,856,544	66	34	7	27
Standard 4	1,477,734	45	55	23	32
Standard 5 (Terrestrial)	1,512,356	67	33	11	22
Standard 5 (Riparian)	630,446	44	56	51	5

Per 43 CFR 4180.2(c), appropriate action that will result in significant progress towards fulfillment of the Standards and significant progress toward conformance with the Guidelines shall be made by the authorized officer no later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the Standards and conform to Guidelines. Appropriate action, which is subject to NEPA and subsequent decision, is then taken to address permitted grazing use when existing grazing is determined to be a significant causal factor for non-attainment of the Standards or not in compliance with the guidelines. Appropriate action may include practices and activities that are subject to Standards and Guidelines and include the development of grazing-related portions of activity plans, establishment of terms and conditions of permits, other grazing authorizations, and range improvement activities.

Trends indicate that existing livestock grazing management, where Standards for Rangeland Health evaluations have not been completed and adjustments to grazing practices have not been made, could continue to be a concern and contributing factor to allotments found to not be meeting or making progress toward achieving Standards for Rangeland Health. In areas where Standards for Rangeland Health evaluations have been completed, existing livestock grazing was the primary significant causal factor for non-attainment of Standard 2 (Riparian/Wetlands) and Standard 5 (Riparian habitat). As suggested by Table 3-13, and as the BLM completes future Standards for Rangeland Health evaluations, impacts from existing grazing in allotments/pastures with riparian habitat (Standards 2 and 5) have the potential to be a concern if the grazing system is not compatible with riparian functionality or associated riparian habitats.

Rangeland Projects

Rangeland treatments, including weed treatments, brush control and rangeland seeding to improve forage availability, range condition and function, in addition to structural improvements of fences, cattle guards, reservoirs, spring developments, wells and pipelines to better distribute livestock and facilitate livestock and rangeland management have been completed since the1940s. Seeding of nonnative perennial grass species, primarily crested wheatgrass, began in the late 1950s. The rangeland seeding program was most active during the 1960s and early 1970s. From the mid-1970s to the present, rangeland seedings have been established on a limited scale. The original intent of rangeland seedings with nonnative perennial species was to increase forage production. As rangeland practices evolved, seedings were used more as a tool to provide rest and deferment for the adjacent native vegetation communities. Furthermore, seedings were used for emergency fire stabilization and rehabilitation on sites that were susceptible to erosion, repeated fire, and invasion by either noxious weeds or annual invasive species such as cheatgrass, or both.

Federal funding for the construction of range improvements and rangeland treatments was minimal in the planning area prior to 1960, though some improvements were completed by livestock operators. As mandated in the TGA in 1934 and amended in the FLPMA in 1976 and the *Public Rangelands Improvement Act* in 1978, a portion of grazing fees is invested in range improvements, which may benefit wildlife, watersheds, and livestock producers. The state of Oregon and other federal agencies, livestock

operators, and other affected publics have also funded the construction of some rangeland improvement projects.

Rangeland projects implemented through 2018 are summarized in Table 3-14. Rangeland projects continue to support the allocation of forage resources to livestock grazing.

Table 3-14. Implemented rangeland projects on public lands in planning area.

Improvement	Amount (number, miles, acres)
Fences	3,702 miles
Cattle guards	373
Seedings [a]	1,028,509 acres
Land Treatments [b]	1,807,835 acres
Reservoirs and waterholes	1,289
Spring developments	561
Wells	73
Pipelines	732 miles
Guzzlers	64

[a] Total includes all seeding types: aerial, broadcast, drill, harrow/broadcast, manual-bare root (shrubs) and manual-plug.
[b] Land treatments include herbicide spraying, prescribed burning, mowing, plowing, and juniper cutting.

Ongoing Actions Influencing Existing Conditions

Ongoing actions (see also Section 3.4) within the planning area will continue to impact livestock grazing and rangeland management such as grazing permit renewals, Rangeland Health evaluations, Emergency Stabilization and Rehabilitation (ESR) treatments post-wildfire, incorporating Management Decisions identified in the 2015 Oregon Greater Sage-Grouse ARMPA (BLM 2015d) related to livestock grazing, and implementation of fuels projects such as the Northwest Malheur County Greater Sage-grouse Habitat Restoration. All of these actions impact how grazing is managed across the planning area through: adjustments in AUMs, adjustments to season of use in an allotment or pasture given resource values of concern, temporary closures of pastures or allotments which affects grazing rotations that may be established through an allotment management plan or its equivalent, as well as financial impact to the livestock grazing operator due any adjustments resulting in either a loss in AUMs or pasture closure, or both.

Analysis of alternatives associated with grazing permit renewal can result in a number of grazing management responses, including but not limited to: changes in grazing practices to meet resource objectives; adhering to Management Decisions of the 2015 Oregon Greater Sage-Grouse ARMPA; making progress toward attainment of Standards for Rangeland Health; improving upon existing conditions even if resource conditions Standards are achieved; addressing needs of a grazing operation; or any combination. The BLM will continue to complete Standards for Rangeland Health evaluations, which provide information on current conditions of the rangelands and can be used to help inform livestock grazing and rangeland management actions. Grazing systems are established in an allotment management plan—or its equivalent—and directed through the terms of a grazing permit. Either maintenance or construction of range improvements, or both, are on-going efforts that facilitate placement and distribution of livestock within a permitted area of use, as well as aid in the protection and management of sensitive resources such as riparian health and function, sensitive plant and animal species, or cultural values.

Authorized activities associated with managing livestock in the planning area include motorized and non-motorized means for turnout, pasture moves, and removing livestock from public lands. Typical authorized motorized and non-motorized activities also include maintenance and construction of range improvements, placement of supplements and temporary water hauls. Motorized use mainly occurs on existing roads and primitive routes. Some off-route motorized use may occur when maintaining range

improvements or herding livestock but is dispersed across the landscape and not recurring in the same location every grazing season. Herding of livestock may occur through motorized (all-terrain vehicles) or non-mechanized means throughout the period of use where livestock grazing is permitted.

Grazing prescriptions may be adjusted to aid in the success and long-term viability of ESR, fuels management, and restoration treatments, which can result in: either a temporary closure of a pasture(s) to grazing for a specified timeframe; potential temporary suspension of AUMs; or changes in grazing rotations, or any combination. The specifics of temporary grazing closures are addressed through the consultation, coordination, and cooperation (CCC) process with the permittees and interested public and must follow minimum temporary closure times identified in the 2002 SEORMP (BLM 2002) and 2015 Oregon Greater Sage-Grouse ARMPA (BLM 2015d). In general, these closure times are a minimum of one full year plus an additional growing season after seeding treatments occur.

Reduction or loss of vegetation that provides sustainable forage values for livestock grazing and declining ecosystem health on public lands due to periods of prolonged drought has the potential to impact the sustainability of forage values (e.g., reduction in desired native or non-native species due to increase in invasive species) and water availability.

Environmental Consequences

Analytical Methods

Standards for Rangeland Health

The PRMPA and all of the alternatives describe the regulatory processes the BLM must take to address Standards for Rangeland Health and voluntary permit relinquishment. While broad-scale effects from the alternatives are analyzed, subsequent, site-specific analysis would be required to implement changes in permitted use and grazing authorizations. The site-specific effects of those actions would be provided in those subsequent analyses. The effects identified for the PRMPA and the alternatives are qualitative in nature and rely on the use of assumptions because it is unknown exactly where or when areas may fail to meet Standards for Rangeland Health or where or when a permit will be voluntarily relinquished. Quantitative information regarding the number of authorizations (grazing permits), either allotments or pastures impacted by each of the alternatives (or both), and the AUMs that would be potentially reduced are identified and utilized whenever possible. The BLM used data from the BLM's Range Administration System (RAS) and GIS databases to estimate general effects, and to identify allotment or pastures affected by each alternative.

Voluntary Permit Relinquishment

Alternatives B and D specify areas where, upon receipt of a voluntary grazing relinquishment, the BLM would not reallocate forage and would discontinue grazing preference, therefore providing a more specific set of circumstances for analysis when compared to the PRMPA, No Action, Alternative A, and Alternative C. The analytical methods utilized in Alternatives B and D incorporated GIS data and permitted use information from the BLM's Rangeland Administration System (RAS) to describe impacts to permitted grazing use. Analysis of permitted use by either allotment or pasture, or both, that meet specified management considerations as described in the settlement provisions are brought forward to allow for quantitative impacts. Due to the voluntary nature of relinquished grazing permits, scenarios that were broad in scope (Appendix G, Table G-3), and analytical assumptions (listed below) were used to complete a qualitative analysis of impacts to common allotments as well as for portions of allotments where the specified conditions identified in Alternatives B and D (from Provisions 29(1) and 29(2) of the 2010 Settlement Agreement) apply (e.g., common allotments where some, but not all pastures, overlap

National Conservation Lands [previously known as the National Landscape Conservation System, NLCS]).

Current forage allocations are made at the allotment-scale. If portions of grazing permits are voluntarily relinquished under Alternatives B and D, the BLM would be responsible for determining the AUMs each pasture can support. The forage allocation process for a portion of a common allotment is more detailed than for a portion of an allotment with a single grazing authorization (see Appendix G, Table G-3).

Indicators

- Acres where there would be prohibitions on or limitations to the construction or maintenance of structural and nonstructural range improvements would be an indicator of management costs (limitations would make it more expensive).
- Acres that overlap 2010 Settlement Agreement-identified National Conservation Lands (NCL; Alternative D, see Table A-4, Appendix A) and other identified public land management categories ("NCL Plus Additions", Alternative B, see Table A-2, Appendix A) would be an indicator of the areas subject to an adjudication of 'not available to grazing" and the potential reduction in areas available to grazing and the corresponding reduction in permitted AUMs within the planning area.
- Acres subject to suspension or elimination of grazing would be an indicator of impacts to the level of maintenance of range improvements and orderly administration of the rangelands.
- Existing Rangeland Health Evaluations and Determinations where OR/WA Standards for Rangeland Health were not met and existing livestock grazing management is identified as a significant causal factor would be an indicator of management responses for all alternatives and required reductions in AUMs for Alternatives B and D.
- The number of requests to voluntarily relinquish a grazing permit, and the BLM's response for adjudication of lands being made available or unavailable for grazing use, since the 2002 SEORMP ROD, is an indicator of the potential reduction in AUMs by alternative.
- The number of permitted AUMs is an indicator of opportunities for livestock grazing on public lands and the direct cost to a livestock operation. Number of permitted AUMs is also an indicator for impacts to socioeconomic values addressed in this document.

Assumptions

The assumptions for the two resource Issues 3a and 3b analyzed in this section are described below.

Assumptions for both Issues 3a and 3b

BLM is in the process of closing approximately 9,354 acres in the nine key RNAs identified in the 2015 Oregon Greater Sage-Grouse ARMPA as unavailable to grazing. If the Idaho District Court's preliminary injunction of the 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) is lifted, the Key RNAs would be made available to livestock grazing.

Assumptions Related to Standards for Rangeland Health (Issue 3a)

The following assumptions are made in the analysis of impacts solely related to Issue 3a.

Assumptions for All Alternatives

- The BLM would continue to prioritize evaluation of Standards for Rangeland Health and associated grazing permits as identified through existing land use plans and current and subsequent direction provided by the Washington Office, OR/WA State Office, or District

Office. All alternatives would require monitoring to support rangeland health evaluations and no single alternative would result in decreased timelines to complete the evaluation of rangeland health process.

- All actions would require site-specific analysis of management actions necessary to ensure significant progress is made toward attainment of Standards for Rangeland Health when existing livestock grazing is determined (through the conformance determination process) to be a significant causal factor in the nonattainment of a standard.

Assumption Specific to the PRMPA, No Action, Alternative A, and Alternative C

Changes in grazing practices to address non-attainment of Standards for Rangeland Health due to existing livestock grazing would be for a ten-year timeframe, the maximum term of a grazing permit.

Assumptions Specific to Alternatives B and D

- The BLM interprets Settlement Agreement Provision 27 (regarding the BLM's response to when Standards for Rangeland Health are not met due to existing livestock grazing) as applying only to future Standards for Rangeland Health assessments/evaluations.
- The entire planning area is subject to rangeland health evaluations. This analysis assumes that any livestock grazing allotment in the planning area could fail to meet at least one OR/WA Rangeland Health Standard due to existing livestock grazing over the life of the RMP Amendment. To fully represent the scope of permitted areas that could be affected by these alternatives, the analysis also assumes a range of AUMs (fewest to greatest number) that could be impacted by reductions in grazing under each alternative.
- Closing allotments or pastures to grazing that result in the suspension of all active AUMs would increase direct and indirect costs to the grazing operator whose allotment or pasture was closed. It is assumed that there would be an increase to management costs, decreased production, and decreased financial input to local economies while permitted use is suspended.
- Increased direct and indirect management costs to those operators that neighbor allotments or pastures that have been closed to grazing in order to ensure boundary fences are maintained to keep livestock in the area(s) where they are authorized. In many situations, maintenance of allotment boundary fences is shared between multiple grazing permittees that have authorized use in neighboring allotments, thereby transferring additional maintenance responsibilities and costs to those that continue to hold active grazing permits.
- Closure of allotments or pastures to grazing and suspension of grazing use would reduce range improvement funds as established through the Public Rangelands Improvement Act of 1978. This would result in either increased management costs and less opportunity for maintenance or reconstruction of existing rangeland projects, or construction of new range improvements throughout the planning area or any combination.

Assumptions used in the Analysis of Voluntary Permit Relinquishment (Issue 3b)

The following assumptions are made in the analysis of impacts solely related to Issue 3b.

Assumption for All Alternatives

Voluntary relinquishment of a grazing permit is not common within the Vale District, or throughout the BLM. There have been no instances of voluntary relinquishment of grazing permits within the planning area over the last 20 years. It is assumed that trends for the planning area would remain as they have historically, and voluntary relinquishment of grazing permits would occur infrequently, if ever. Trends within OR/WA BLM indicate that grazing permits are voluntarily relinquished following the sale of base property and the transfer of grazing preference to parties that are not associated with the ranching industry, or in areas where it is no longer feasible to graze livestock due to other multiple uses (e.g., conflicts with urban development and increased recreation by ATV/UTV use).

Very few, if any, impacts to grazing management, permitted AUMs for the planning area, and reductions in funds for either construction, modification, or maintenance of range improvements (or all) are expected to occur upon receipt of a voluntarily relinquished permit.

The BLM did not speculate where future voluntary relinquishment of grazing permits may occur due to the unpredictable nature of where and if a grazing permit would be voluntarily relinquished.

Assumptions Specific to the PRMPA, No Action, Alternative A, and Alternative C

- Based upon historic trends it is assumed that allocation of grazing use to other resource uses or values would be limited within the planning area because conflicts between grazing management and other resource values can often be addressed through changes to the permit terms and conditions such as season of use, rest-rotations, class of livestock, or other grazing prescriptions. This could result in the continued allocation of resource values to livestock forage upon receipt of a voluntary relinquishment.
- For these alternatives, voluntary relinquishment of a grazing permit would not automatically result in the elimination or reduction of permitted livestock grazing where the relinquishment occurred. Existing requirements guidance (WO IM 2013-184, BLM 2013b) would be unchanged for determining if livestock forage and grazing preference allocations would be unchanged are compatible with other resource uses and values.

Assumption Specific to the PRMPA

Under the PRMPA, if a permit is voluntarily relinquished and the area is found by the BLM — through site-specific analysis — to be marginally capable and not suitable for livestock grazing, additional land use planning would not be required to designate the area as unavailable to grazing.

Assumptions Specific to Alternatives B and D

- For this Amendment, the Settlement Agreement requires consideration of future grazing authorizations in the 2010 Settlement Agreement-specified lands (see Tables A-2 for Alternative B and Table A-4 for Alternative D in Appendix A). BLM's analysis does not assume where or the number of grazing authorizations that would be subject to requests for

voluntary relinquishment of a grazing permit and assumes that occurrences would remain limited as indicated by trends in OR/WA BLM[20].

- Analysis of the effects to livestock grazing and rangeland management assumes a range of AUMs that would be subject to a reduction, in those locations where the permitted area overlaps one or more areas listed in Tables A-2 (Alternative B) and A-4 (Alternative D) of Appendix A. Where this occurs, the area relinquished has the potential to be identified as not available for livestock grazing (or appropriately reduced in common allotments).
- The reduction or elimination of grazing would result in limited future maintenance of water developments. Maintenance (which typically is the responsibility of the permittees under maintenance agreements) would revert to the BLM.
- Reduction or elimination of grazing would reduce range improvement funds for the life of the plan under both alternatives.
- Reduction or elimination of grazing would result in less maintenance of other range improvements such as fencelines, cattle guards, etc., which could increase the potential for nonfunctioning range improvement projects if not addressed by the BLM, neighboring permittees, or other cooperators. Transferring maintenance responsibilities to others reduces the amount of preventative maintenance that can be completed on any given maintenance cycle (usually annually to five-year cycles depending upon the type of project), thereby increasing maintenance costs once repairs can be made.

Issue 3a

How would opportunities for livestock grazing and rangeland management be affected by BLM management actions that would close areas to grazing when Standards for Rangeland Health are not being met and BLM determines that existing livestock grazing management is a causal factor?

No Action Alternative and Alternatives A and C

Following regulatory requirements of 43 CFR 4180, the BLM would take appropriate action to address causal factors—within BLM control—that are determined as leading to the non-attainment of Standards. This would include changes in existing grazing management practices when livestock grazing is determined to be a significant causal factor for nonattainment of Standards for Rangeland Health. The BLM would conduct site-specific analysis of alternative grazing management practices to ensure progress would be made toward the attainment of Standards for Rangeland Health. Alternative approaches would address a range of livestock grazing management options, including, but not limited to, changes in season of use, implementation of rest-rotation grazing systems, adjustments in permitted use, the removal of livestock grazing, or any combination. Each of these site-specific actions would have effects to livestock grazing that would be considered in a site-specific NEPA analysis. Direct and indirect effects to livestock grazing and rangeland management would generally be the continuation of grazing under a refined

[20] For example, the Upper Deschutes RMP (UDRMP) in 2005 (BLM 2005d) allows for grazing to become unavailable after meeting certain criteria after a voluntary relinquishment notification. Since signature of the UDRMP ROD in 2005, one grazing permit that affected four allotments in "Maintain" management categories was voluntarily relinquished. This resulted in approximately 20,394 public land acres or eight percent of the planning area becoming unavailable to grazing due to voluntary relinquishment of grazing. The allocation of the areas as unavailable to grazing resulted in the removal of 649 AUMs or approximately three percent of the 25,058-total available within the planning area. All four allotments that were subject to voluntary relinquishment occurred in 2005, with no additional notifications of voluntary permit relinquishments since signing of the ROD (Personal communication by Vale District Supervisory Rangeland Management Specialist Michele McDaniel with Prineville BLM Range staff on September 28, 2020 (BLM 2020b).

grazing prescription that allows for progress to be made toward rangeland health standard(s) until the grazing permit expires. Continued grazing may allow an increase, decrease or no change in permitted AUMs depending upon the levels and type of use occurring on either each allotment or pasture, or both. Upon expiration of the permit, BLM would reevaluate range conditions prior to renewing the permit for another 10 years. Maintenance of existing range improvements is expected to continue at existing rates (anywhere from annually to every five years, depending on the nature, location, and objective of the improvement).

Alternative B

Alternative B would result in the longest duration of potential reductions in authorized grazing use. If it is determined through the Standards for Rangeland Health process that existing livestock management is a significant causal factor for nonattainment under this alternative, those lands would be closed to grazing for the life of the plan (RMP). AUMs in those allotments or pastures would be suspended for the duration of the plan (typically up to 20 years). Based on existing permitted use, the resource diversity and ecology across the planning area, and results from completed rangeland health evaluations, allotments/pastures with the following resources have a higher potential for not meeting standards as a result of existing livestock use: riparian/wetland areas (Standard 2), and either water quality issues (Standard 4) or riparian values associated important plant and animal habitat (Standard 5), or both. The range of active AUMs per grazing authorization that could be affected is between four and 14,160 AUMs (smallest grazing permit to largest grazing permit within the planning area) or between four and 20,960 AUMs currently permitted when considering permitted use at the allotment scale (smallest to largest permitted active AUMs per allotment) at a rate of every three to five years[21] under Alternative B.

It is expected that maintenance and the condition of existing fences and water developments would diminish where closure to livestock grazing occurs. This could have indirect effects to livestock grazing management in adjacent pastures or allotments where closure and suspension of grazing has not occurred. The long-term functionality of these types of projects is also expected to be jeopardized due to limited, or lack of, maintenance. Maintenance responsibilities would be retained by the operators that hold the grazing preference, temporarily reassigned to permittees that hold grazing permits on adjacent allotment or become the responsibility of the BLM until grazing was allowed to resume. Due to the long-term nature of a suspension of a grazing permit under this alternative, maintaining these projects would be less of a priority compared to where there was active grazing occurring.

Negative effects from the suspension of AUMs/permits through long-term grazing closure of allotments or pastures include either increased management costs per animal to an operator, decreased livestock production, or decreased value of a grazing operation due to the long-term nature of the permit suspension, or any combination. Site-specific analysis would consider impacts associated with a grazing closure in a specific area given the variation of AUMs and number of permittees within allotment(s) throughout the planning area.

Alternative D

Direct and indirect effects to livestock grazing management are identical to those analyzed in Alternative B, but the duration of the impact would potentially be shorter due to the closure of allotments or pastures and suspension of grazing potentially being temporary. Grazing would be removed for the term of the existing grazing permit (maximum of 10 years as defined by 43 CFR 4130.2[d]), or until the BLM finds, through monitoring, that significant progress is being made towards the attainment of Standards for Rangeland Health.

[21] Average length of time for Standards for Rangeland Health process to be completed, from initiation of assessment through implementing grazing decisions.

Maintenance of range improvements such as either fences or water developments, or both, assigned to operators would likewise be similar to those of Alterative B, but the duration of the suspension could be shorter. As with Alternative B, site-specific analysis would consider impacts associated with a grazing closure in a specific area given the variation of AUMs and number of permittees within allotment(s) throughout the planning area.

PRMPA

BLM would follow existing regulatory requirements as identified for the No Action Alternative and Alternatives A and C above, in addition to the following:

The BLM may be required to consider changes in grazing management to improve natural resource conditions, even in cases where existing livestock grazing is not determined to be a causal factor in not meeting Standards.

The Standards for Rangeland Health assessment and evaluation would be used to inform potential changes to livestock grazing, restoration and other management actions to address resource needs.

Issue 3b

How would livestock grazing and rangeland management be affected by BLM management actions that would either eliminate or appropriately reduce livestock grazing allocations due to BLM receiving a voluntary relinquishment of a grazing permit?

No Action Alternative and Alternative A

The No Action Alternative and Alternative A represent the continuation of existing regulatory mechanisms and guidance provided under WO IM 2013-184 to process a voluntary relinquishment of a grazing permit. Under these two alternatives, if the most recent allotment evaluation still reflects the current situation and conditions, and Standards for Rangeland Health or other criteria established by the authorizing BLM official are being met, the forage should be allocated to other qualified applicants (see also Figure G-1, Appendix G). If one of the following situations exist: a) a recent evaluation has not been completed, b) standards are not being met due to existing livestock grazing management practices, or c) opportunities are presented to reallocate forage to resource uses or values other than for livestock grazing (e.g., in Greater Sage-grouse habitat as identified in the 2015 Oregon Greater Sage-Grouse ARMPA (BLM, 2015d), then the BLM official examines and documents whether continued livestock use of all or a part of that forage allocation would be compatible with achieving land use plan management goals and objectives. Direct and indirect effects of this process to grazing management are unknown until a voluntary relinquishment of a specific grazing permit is received. Given assumptions described above, effects could be either positive or negative to livestock grazing and rangeland management within the planning area. Positive effects to livestock grazing and rangeland management could result if grazing continues to be an allocated use, assuming that the permitted use would be consistent with Standards for Rangeland Health, land use plan objectives, and other resources that were requested for adjustment in allocation. This would allow livestock operations to continue on public land as well as the maintenance of range improvements such as fencelines and water developments that are within and/or adjacent to the area where the relinquishment occurred.

Negative effects to livestock grazing and rangeland management could occur if the BLM discontinues livestock grazing upon a voluntary relinquishment because opportunities for public land grazing would be reduced. Based on the compatibility of livestock grazing with competing resource values or uses or other opportunities, the BLM could wholly or partially: continue to authorize grazing under terms and conditions of a new grazing permit; designate an area as unavailable to livestock grazing; create a reserve common allotment; and/or only allow livestock grazing for vegetation treatments (e.g., targeted or

prescriptive grazing). Maintenance of existing infrastructure such as allotment boundary fencelines and water developments that service multiple areas would also be reduced, while potential maintenance costs to the remaining grazing operators and the BLM would increase due to the reduced presence and management responsibilities of the operators relinquishing the grazing permit

Alternative B

Under this alternative, livestock forage would be allocated to the purpose of protecting areas as described in the 2010 Settlement Agreement Provision 29(2) (see Table A-2 in Appendix A) because either allotments or pastures, or both, that overlap these area(s) would be designated as not available for livestock grazing for the duration of the RMP upon a voluntary relinquishment of a grazing permit. Under this alternative, livestock forage would be allocated to the purpose of protecting these areas as described in the 2010 Settlement Agreement Provision 29(2) (see Table A-2 in Appendix A) because either allotments or pastures, or both, that overlap these area(s) would be designated as no longer available for livestock grazing for the duration of the RMP upon a voluntary relinquishment of a grazing permit. The allotments where these provisions could apply are identified in Figure G-5, Table G-1 and Table G-2 in Appendix G. Allocation of grazing upon receipt of a voluntary relinquishment in non-overlapping areas would be processed under existing direction described in the PRMPA, No Action, and Alternative A.

This alternative has the greatest potential for the elimination of grazing in response to a voluntary relinquishment because 94 allotments are within the geographic extent of the area covered by provision 29(2) (see Appendix G, Table G-2 and Appendix M, Map SMA2). Figure G-2 in Appendix G provides the process that would be used under Alternatives B and D. Livestock forage allocations, under this alternative, could be reduced by a range of zero and 152,034 AUMs across the planning area (this range of potential forage reductions represents zero to 94 (all) permits overlying the areas being voluntarily relinquished listed in Appendix A, Table A-2). Livestock forage would not be allocated due to the areas becoming unavailable to grazing upon the receipt of a voluntary relinquishment of a grazing permit; the areas would subsequently be managed in accordance with the predominant land management allocation of the area (WSA, ACEC, etc.) for the life of the RMP.

Potential for fenceline adjustments (either new construction, realignment, or removal, or any combination), either increased herding, or adjustment of allotment or pasture boundary lines (or any combination), to topographical features is anticipated for those pastures or allotments that only partially overlap lands to be designated as unavailable for grazing upon a voluntary relinquishment of a grazing permit. All these options result in increased operations cost to both the BLM and permittees if grazing continues to be authorized in that allotment/pasture.

Range improvement funds would be reduced when reduction or elimination of grazing occurs. The range of reduction in range improvement funds would be between $0 and $102,623[22] on an annual basis. Direct effects of reduced funds and a reduction in the number of operators with maintenance responsibilities are anticipated to be greater in common allotments, compared to individual allotments. However, direct impacts to a reassignment in maintenance responsibilities for allotment boundary fences are expected for any authorized livestock operator(s) that neighbors an area where a relinquishment occurs, or responsibility may revert back to the BLM. A reassignment in maintenance responsibility is also anticipated for those water developments that serve either multiple pastures or allotments, or both. This

[22] Figures were based upon the minimum grazing fee of $1.35 per AUM and the percentage that would be appropriated to range improvement funds to the BLM and associated county grazing boards (per 43 CFR 4120.3-8(a), one-half of the available funds shall be expended in the State and district from which they were derived). This figure would increase with any change in AUM fees, which are calculated annually. Any annual increase or decrease in grazing fees for any given year shall be limited to not more than plus or minus 25% of the previous year's fees. For example, 2018 grazing fees were $1.41 per AUM, resulting in a reduction in range improvement funds of $0 to $107,184.

transfer of responsibility is expected to result in a reduction in the number of improvements maintained, as well as a potential increase in cost for maintenance of such developments due to fewer grazing permittees that complete maintenance or a decrease in the frequency normal maintenance actions occur due to other higher priorities.

Negative impacts from the loss of AUMs and to grazing management include increased management costs to neighboring operator(s) that have permits adjacent to or within common allotments. These potential management costs include, but are not limited to, either decreased production, increased costs for range improvement maintenance or construction (specifically allotment or pasture boundaries and water developments), or potential decreased value of the grazing operation, or any combination.

Given trends within the planning area and throughout OR/WA BLM, it is expected that very few (up to 1%) grazing permits would be voluntarily relinquished. Given trends, it is assumed that two grazing authorizations within the planning area may become unavailable to grazing, and a reduction of up to 4,561 AUMs (3% of the highest range of active AUMs in those areas that meet the criteria of Settlement Provisions 29(2) and 30) due to Alternative B.

Alternative C

Under Alternative C, the BLM would continue to implement the same regulatory mechanism to process a voluntary relinquishment as identified for the No Action Alternative and Alternative A. However, under Alternative C, the BLM would clarify the regulatory mechanism by identifying the resource values that the BLM would be required, at a minimum, to consider if a voluntary relinquishment of a grazing permit is received. As with the No Action and Alternative A, the BLM would evaluate the compatibility of livestock grazing with competing resource values or uses or other opportunities—including, but not limited to resources and resource uses specifically identified in Table A-3, Appendix A— the BLM could wholly or partially: continue to authorize grazing under terms and conditions of a new grazing permit; designate an area as unavailable to livestock grazing; create a reserve common allotment; and/or only allow livestock grazing for vegetation treatments (e.g., targeted or prescriptive grazing). These resource use considerations) provide more detail to the process than the No Action Alternative and Alternative A. Figure G-3 in Appendix G provides the process that would be followed under Alternative C. After analysis of effects, if a determination to allocate forage to other resources than grazing, additional land use planning-level analysis would occur. The effects of this alternative are the same as those identified for the No Action Alternative and Alternative A.

Alternative D

Under Alternative D, livestock forage would be allocated to the purpose of protecting the areas as described in the 2010 Settlement Agreement Provision 29(1) (see Table A-4 of Appendix A) because either allotments or pastures, or both, would be designated as no longer available for livestock grazing for the duration of the RMP upon a voluntary relinquishment of a grazing permit. The allotments where these provisions could apply are identified in Figure G-5 and Table G-2 in Appendix G and Map SMA3 in Appendix M. Figure G-2, Appendix G provides the process that would be used under Alternatives B and D. As described in Alternative B, allocation of grazing upon receipt of a voluntary relinquishment in non-overlapping areas would be processed under existing direction described in the No Action, and Alternative A.

The types of environmental consequences are identical to Alternative B, but at a smaller geographic scale. Areas subject to allocation of livestock forage to other resources would be less those identified in Alternative B. There are a total of 65 allotments that overlap the areas (identified in 2010 Settlement Agreement Provision 29 (1) and identified in Appendix G, Table G-2). AUMs allocated for the planning area could be reduced between zero and 69,929 AUMs. This would result in a reduction in range

improvement funds of $0 to $47,202[23] at a minimum on an annual basis. Common allotments could have a reduction in the allocation of AUMs as a result of an individual relinquishing a grazing permit, but grazing would not be eliminated as an allocated use unless all parties in a common allotment or pasture also relinquished their permit(s). In common allotments, grazing would have the potential to be eliminated at the pasture scale only if an allotment management plan or its equivalent specified an individual area for each operator to use.

Similar to Alternative B, trends within the planning area and throughout OR/WA, are expected to result in few (up to one percent) grazing permits or two grazing authorizations being voluntarily relinquished within the planning area may become unavailable to grazing, and a reduction of 2,098 AUMs (three percent of the highest range of active AUMs in those areas that meet the criteria of Settlement Provisions 29(1) and 30) due to Alternative D.

PRMPA

Under the PRMPA, the BLM would incorporate the same regulatory mechanisms identified under the No Action Alternative and Alternatives A and C to process relinquished permit. In addition, the PRMPA would specifically incorporate an analysis of the compatibility of livestock grazing use with other existing resources uses and resource values, utilizing the same list of resources and resource values identified under Alternative C (Table 2-4, Chapter 2 and Table A-3, Appendix A) as a baseline set of considerations. Figure G-4 in Appendix G provides the relinquishment process that would be used under the PRMPA. Based on the compatibility of livestock grazing with competing resource values or uses or other opportunities, the BLM could wholly or partially: continue to authorize grazing under terms and conditions of a new grazing permit; designate an area as unavailable to livestock grazing; create a reserve common allotment; and/or only allow livestock grazing for vegetation treatments (e.g., targeted or prescriptive grazing). This management direction would apply across the entire planning area. Under the PRMPA, the the BLM could re-allocate forage based on site-specific analysis and subsequent decision. Unlike the No Action Alternative and Alternatives A and C, there would be no requirement for an additional land use planning decision. The effects of this alternative are the same as the No Action Alternative and Alternatives A and C but the procedural difference in the PRMPA could increase the speed with which changes in management could occur.

Cumulative Effects to Livestock Grazing and Rangeland Management

The cumulative effects analysis area for grazing and rangeland management is the planning area and any neighboring BLM districts that have identified agreements for administration of grazing permits by the Vale District. This Section will address any additional effects to livestock grazing and rangeland management from reasonably foreseeable future actions (listed in Table 3-1). These effects are in addition to the ongoing effects to livestock grazing (Standards for Rangeland Health evaluations and associated future permit renewals, Northwest Malheur County Greater Sage-grouse Habitat Restoration project, and post wildfire ESR actions) described in the affected environment section and the effects of the actions of each of the alternatives on livestock grazing noted above.

Reasonably foreseeable future actions (RFFAs) identified in Table 3-1 that could impact livestock grazing and rangeland management include: temporary suspension of grazing in the Northwest Malheur County Greater Sage-grouse Habitat Restoration project area; the LCGMA Permit Renewal and Restoration Treatments (Draft EIS under development); 2015 Oregon Greater Sage-Grouse ARMPA (BLM 2015d) livestock grazing actions (e.g., fence construction) for implementation of grazing closures in Key RNAs;

[23] Calculations were determined through the same means as Alternative B.

the 2019 Oregon Greater Sage-Grouse ARMPA (2019d) making Key RNAs available to livestock grazing, the Grassy Mountain Gold Mine, and lithium exploration in the McDermitt caldera.

Implementation of Northwest Malheur County Greater Sage-grouse Habitat Restoration treatments will result in temporary suspensions of AUMs and temporary closure of areas to livestock grazing throughout this long-term project. Grazing prescriptions in some areas may have to be adjusted in order to maintain the long-term viability of the restoration treatments. The specifics of the temporary grazing closures are future actions that are to be addressed through the consultation, coordination, and cooperation (CCC) process with the permittees and interested public. Similarly, the LCGMA EIS process will consider alternatives that: maintain current grazing practices, change season of use for livestock grazing, temporary closure of pastures to livestock grazing to allow restoration actions to successfully establish, reduction in AUMs, restoration of upland and riparian habitats, and construction of range improvements such as exclosures and water sources.

If the Idaho District Court's preliminary injunction of the 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) remains in effect, Key RNAs would remain unavailable to livestock grazing. To implement closure to livestock grazing, BLM could find it necessary to construct up to approximately 27.2 miles of new fencing to exclude livestock from these areas. Fences may also facilitate protection of resource values such as riparian systems if current grazing is negatively impacting the conditions of those values. This could result in additional ground disturbance associated with fence construction, possible changes in livestock distribution in areas that remain available for grazing, and potential development of livestock trails adjacent to the new fences. If the injunction is lifted and the 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) is implemented, approximately 9,354 acres of the Key RNAs would be available for livestock grazing; actions to implement closure the key RNAs (and associated ground disturbance) would not be required, and grazing of these areas may continue.

The Grassy Mountain Gold Mine project proposes the approximately 500 acre mine site to surrounded by protective fencing, and approximately 25 miles of road improvement along which a power service line would be installed. Increases in daily traffic during construction and throughout operations are proposed. Project-specific NEPA will analyze potential impacts to affected resources, including livestock grazing management. Potential impacts to grazing management include: effects to available AUMs, loss of existing range improvements such as pasture fences and existing water developments, and changes in season of use due to the development and operation of the project.

The other small scale mining operations (Octagon and Malheur Queen) may affect livestock grazing in the project area, but due to their small area and requirements for reclamation, are not expected to impact grazing management in the long term. The effects would be analyzed through project level NEPA.

The ongoing implementation of the two Notice-level lithium exploration projects and the potential implementation of the Plan of Operations for the 9,160 acre exploration project may have short term impacts to livestock grazing during road modification for equipment access and drilling operations, resulting in temporary loss of forage. These exploration activities may also result in temporary disturbance to livestock. Reclamation of disturbed areas as a result of exploration would be implemented at the conclusion of exploration activities.

Overall, the effect of these RFFAs has the potential to have temporary reductions in AUMs and a potential to disrupt livestock distribution patterns.

No Action Alternative and Alternatives A and C

Livestock management actions under the No Action Alternative and Alternatives A and C allow for flexibility in grazing management options to address areas not meeting Standards for Rangeland Health due to existing grazing management. There are a range of management responses to address existing livestock grazing management when found to be a significant causal factor in not meeting one or more

Standards for Rangeland Health. These include, but are not limited to either reducing AUMs, temporarily closing areas to grazing, or changing seasons of use, or any combination. Implementation of range improvements could continue with site-specific analysis and adherence to design features to limit impacts to other resource values and concerns. These management options allow for sustainable health of the rangelands while continuing to authorize public land grazing. Implementation of the Northwest Malheur County Greater Sage-grouse Habitat Restoration treatments, alternatives being considered in the LCGMA EIS, and the Grassy Mountain Gold Mine could result in either changing grazing systems by adjusting season of use, grazing rotations, or available AUMs either temporarily or until areas are reclaimed (in the case of Grassy Mountain Gold Mine), or any combination.

The interaction of effects of the No Action, Alternative A and Alternative C, when coupled with these RFFAs is variable and site specific. Options for adjusting livestock grazing management do not automatically result in the suspension of grazing. Impacts to livestock grazing management is expected to be offset as management responses may allow for the potential to continue livestock grazing, even if at a reduced level in order to allow for sustainable health of the rangelands. Therefore, it is expected that grazing management changes, when Standards for Rangeland Health are not met due to existing livestock grazing in areas where RFFAs overlap the permitted area, could offset the impacts of the RFFAs that may have temporary or long-term changes to livestock grazing and rangeland management. However, if management response to Standards not being met due to existing livestock grazing result in a reduction or elimination of permitted AUMs, there would be an additive cumulative effect of these alternatives and the RFFAs.

The continued implementation of the BLM's current policy mechanisms in response to receipt of a voluntary grazing permit relinquishment would have a similar effect on livestock grazing and rangeland management as described above for management responses to areas that are not meeting Standards for Rangeland Health due to existing livestock grazing. Therefore, cumulative impacts to livestock grazing and rangeland management due to RFFAs would also be the same, unless it is determined that the forage for grazing where the relinquished grazing permit should be allocated to another use or if the area is marginally capable and not suitable for livestock grazing. If grazing is reduced temporarily to meet restoration objectives, or if longer term effects from mining, exploration or utility development result in grazing reductions or closure, and a grazing permit is relinquished, livestock grazing could continue in adjacent areas if continued grazing is compatible with other resources and uses. However, if BLM determines that livestock grazing is incompatible with other resources, there could be additive cumulative effects of the alternatives when coupled with the RFFAs.

Alternative B

The proposed changes in livestock management responses when Standards for Rangeland Health are not met due to existing livestock management or elimination of grazing upon receipt of a voluntary permit relinquishment in areas identified in Settlement Provision 29(2), coupled with the temporary grazing closures of the RFFAs (Northwest Malheur County Greater Sage-grouse Habitat Restoration treatments and the LCGMA project implementation) associated with restoration or longer term RFFA closures (e.g., the range improvements necessary to implement the elimination of grazing in Key RNAs as identified in the 2015 Oregon Greater Sage-grouse ARMPA and gold mining) are expected to further reduce AUMs permitted on the public lands, and may lead to adjustments in permitted season of use for a minimum of 10 years (the term of a grazing permit) and a maximum duration of the land use plan (generally considered to be 20 years) decision(s). The lithium exploration projects are not expected to impact livestock grazing management beyond incidental disruption to livestock during operations. This is expected to result in negative cumulative impacts to livestock grazing and rangeland management when using available AUMs as the indicator. Areas identified for elimination of grazing in Alternative B upon voluntary relinquishment of a grazing permit total 2,491,270 acres of public land (identified in Table A-2 in Appendix A). All grazing-related actions under Alternative B and identified RFFAs have the potential

to adjust grazing prescriptions (e.g., season of use, livestock type and numbers, etc.) and could result in a reduction in available AUMs. Therefore, Alternative B has the greatest potential negative cumulative impact among all alternatives to livestock grazing and rangeland management as a result of the greatest potential to reduce or eliminate grazing.

If the injunction of 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) is lifted, Key RNAs would become available to grazing and could result in resumption of grazing in all or portions of the Key RNAs. This could result in no change to permitted AUMs if all applicable Standards for Rangeland Health are met. This would eliminate the need for actions that exclude grazing such as exclosure fencing of the Key RNAs and would not result in any cumulative effects when coupled with the grazing management actions described under Alternative B. Under Alternative B, grazing could resume in these areas unless a Standards for Rangeland Health evaluation found one or more standards to not be met due to existing livestock grazing or if grazing permits were voluntarily relinquished.

Cumulative effects of grazing management and forage allocation responses upon a voluntary relinquishment for those areas that do not overlap specifically identified areas identified in the 2010 Settlement Agreement Provisions 29(2) and listed in Table A-2 in Appendix A would be the same as the No Action Alternative and Alternatives A and C.

Alternative D

The proposed changes in livestock management responses when Standards for Rangeland Health are not met due to existing livestock grazing and elimination of grazing upon a voluntary permit relinquishment in areas that overlap those lands identified in Settlement Provision 29(1) (Table A-4 of Appendix A) when combined with RFFAs that could impact livestock grazing such as temporary grazing closures (Northwest Malheur County Greater Sage-grouse Habitat Restoration project and the LCGMA EIS project) to protect restoration treatments, fence construction that may be necessary to effectively close all or portions of Key RNAs to livestock as identified in the 2015 Oregon Greater Sage-Grouse ARMPA, and Grassy Mountain is a reduction in AUMs. All grazing-related actions under Alternative D and identified RFFAs have the potential to result in adjustments in grazing prescriptions (e.g., season of use, livestock type and numbers, etc.). Effects of Alternative D are similar to Alternative B, although they differ in temporal and geographic scale due to management responses for Standards for Rangeland Health not met due to existing grazing being temporary (a maximum of 10 years or the life of the grazing permit) and the reduced acreage for lands identified for elimination of grazing upon a voluntary grazing permit relinquishment (1,253,773 acres of public land in Alternative D compared to 2,491,270 identified under Alternative B).

Similar to Alternative B, if the injunction of 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) is lifted, Key RNAs would become available to livestock and could result in resumption of grazing in all or portions of the Key RNAs. This could result in no change to permitted AUMs if all applicable Standards for Rangeland Health are met. This would eliminate the need for actions to exclude grazing from Key RNAs such as exclosure fencing and would not result in any cumulative effects when coupled with the grazing management actions described under Alternative D. Under Alternative D, grazing would remain in these areas unless a Standards for Rangeland Health evaluation found one or more standards to not be met due to existing livestock grazing or if grazing permits were voluntarily relinquished.

Cumulative effects of grazing management and allocation responses upon receipt of a voluntary relinquishment for those areas that do not overlap areas identified in Table A-4 in Appendix A would conform to existing guidance under the PRMPA, No Action, Alternative A, and Alternative C.

PRMPA

Cumulative effects to Livestock Grazing and Rangeland Management are similar to those under the No Action Alternative and Alternatives A and C. However, under the PRMPA management actions are

broader in scope to address where Standards are not being achieved, including potential modifications to livestock grazing, regardless of the significant causal factor(s). The BLM would consider taking action to address Standards not being achieved and to meet objectives of the 2002 SEORMP as amended.

Implementation of the 2015 ARMPA management direction to make Key RNA's unavailable to livestock grazing would be implemented and would have the same cumulative impacts as under the No Action Alternative and Alternatives A and C. Future fenceline construction/placement may also facilitate protection of other resource values. However, if the 2019 ARMPA injunction is lifted, Key RNAs would be available to livestock grazing; actions such as fencing to close the key RNAs to livestock would not be required, and grazing of these areas may continue.

Likewise, the impact on future livestock grazing management and grazing systems with regard to management response to address where Standards for Rangeland Health are not being achieved, in combination with the RFFAs are similar as described under the No Action Alternative and Alternatives A and C; management options may include adjustments to livestock grazing and may not lead to a suspension of grazing. Additionally, under the PRMPA, if a Rangeland Health Assessment is not completed or is not representative of current conditions, the BLM would not permit increases to AUMs should analysis conclude that impacts to other resources could be negative. Management response could offset impacts of the RFFAs that may have temporary or long-term changes to livestock grazing.

The cumulative impacts of the RFFAs on livestock grazing and rangeland management and the process used when BLM receives a relinquished grazing permit would also be similar to those of the No Action Alternative and Alternatives A and C and would apply across the planning area. However, upon receipt of a relinquished permit, a determination by BLM that livestock grazing is incompatible with other resources or uses could result a more rapid impact on livestock grazing because additional land use planning would not be required and the area could become unavailable to grazing.

3.7.4 Soils

Key Point

Alternative B has the greatest benefit to soils resources through protection of ecological communities.

Affected Environment

Soils in the semiarid SEORMP planning area are young and poorly developed. Chemical and biological soil-building processes—such as rock weathering, decomposition of plant materials, accumulation of organic matter, and nutrient cycling—proceed slowly in this environment. Because soil recovery processes are slow, disruption of soils can lead to long-term changes in ecological condition and productivity.

Detailed information on soils in the SEORMP planning area is scarce because Order III soil surveys have not been completed on the public lands in Malheur County. From the information provided by the unpublished soil surveys, the analysis area supports diverse and expansive ecosystems that serve a variety of social and ecological functions (NRCS 2018; Provisional Soil Survey; STATSGO2). Soils function to support biological communities, provide a substrate to stabilize our landscapes and regulate air, water and nutrients (Orgiazzi et al. 2016).

Ground disturbing activities that disturb the soil surface can reduce the maximum potential development of biological crusts. The potential for biological crust development is highest within salt desert shrub, Wyoming big sagebrush, basin big sagebrush, low sagebrush, black sagebrush, or stiff sagebrush vegetation communities receiving 12 inches of precipitation per year or less in mid- to late-seral ecological condition.

As a result of limited soils data to indicate condition and functionality, vegetative community health is the indicator used by the Vale District resource staff to reflect soils health. Therefore, best management practices identified in the 2002 SEORMP and ROD such as proper grazing management, improved design of roads, selective logging, rehabilitation of unneeded surface disturbance, restricting vehicles to roads and primitive routes, rehabilitating mining areas, restoration of invasive weed species areas, rehabilitation of wildfire areas, and control of concentrated recreational activities result in reduced erosion effects and improved soil conditions. Because healthy plant communities are indicative of healthy soil processes, the effects discussed about climate change, vegetation rehabilitation, restoration, and prevention of invasive species discussed in Section 3.7.6, 3.7.7, and Section 3.7.22 pertain directly to soils resources.

Permitted soil disturbance activities that are not for the purpose of restoration of ecosystem health, such as livestock grazing, vehicular traffic, recreational use, and mining activities affect the ability of soils to maintain productivity by influencing soil mechanisms such as displacement, compaction, erosion, and alteration of organic matter and levels of soil organisms. When soil degradation occurs in semiarid, high desert regions, natural processes are slow to return site productivity. Soil disturbances contribute to the widespread propagation of invasive plants that in turn, reduces the diversity of native plant communities and modifies the disturbance regimes which reduces soil biodiversity (Boyd et al. 2014). Prevention of soil degradation is far more cost-effective and time effective than remediation or waiting for natural processes.

Soil resources change slowly unless catastrophic or large-scale disturbance events, such as landslides, floods, volcanoes, or wildfires, occur. Then, erosion or deposition would change the ground cover at one point or many. Thus, the degree of change in the planning area would be considered low or insignificant, with the direction of change being that most likely to occur naturally over time. There have been larger wildfire events and, to some degree, restoration activities that have altered the vegetation communities where juniper or cheatgrass has been invading sagebrush communities.

The restoration activities alter the hydrologic condition of the soil and provide support for recovery of disturbance over time. The overall trend for soil resources is to maintain or improve the ability of the soil to support native vegetation and allow water and nutrients to be cycled by either macro- or microorganisms, all of which promote and improve the health of the land. Degradation by excessive grazing, erosion, or land developments will cause a reduction in soil function, as one or perhaps many of the soil properties are changed, thereby affecting the functions necessary for healthy soil. In the planning area, impacts on soil resources have resulted from energy development, improper grazing, recreation, invasive species, natural processes, and other activities. The potential for maintaining or restoring these communities and conserving the soil resource depends on the specific soil types and how resource programs are managed.

Biological soil crusts are made up of tiny living plants and bacteria that grow together on the soil surface. They help keep the soil from washing or blowing away, fix nitrogen from the atmosphere into the soil, help establish vascular plants, reduce germination of exotic annual grasses, and promote the health of plant communities. Intense disturbance results in bare soil. Severely, newly, or frequently disturbed soils are generally dominated by large filamentous cyanobacteria. When disturbance is less severe or less frequent or when some time has elapsed since the disturbance, crusts are generally in some mid-successional state, with some lichens and mosses present. If disturbance continues, crusts will stay in early-successional stages (i.e., with cyanobacteria only; USDI 2001). In areas where biological soil crusts have been lost, there is a greater risk of exotic annual grasses (or other invasive weeds) colonizing those areas without intact crusts (Deines et al. 2007; Ponzetti et al. 2007).

While climate change research continues to develop, most accepted science agrees that the overall impacts of climate will have negative impacts on natural resources, including soils and soil function. The potential effects of temperature and precipitation changes resulting from climate change on future water availability in the planning area are expected to result in increasing average temperatures and duration of drought. The Oregon Climate Change Research Institute (Dalton et al. 2018) indicates, "Soil hydrophobicity (repelling rather than absorption of water by soil) also is likely to increase after a wildfire, resulting in less infiltration and more direct runoff. Changes in hydrophobicity depend on burn severity and vegetation composition, but overall reduce the lag from snowmelt to streamflow, increase overland flow, and increase peak streamflow. These changes are likely to increase erosion and contribute to earlier drying of soils and vegetation and reductions in late-season flows. As a result, water shortages in the dry season, and differences in seasonal flows in many parts of Oregon, may be exacerbated." Soil-moisture is expected to decline in this scenario, reducing both water availability for plant growth and infiltration into subsurface and ground water storage. These impacts are also expected to result in indirect effects to other resources like water, where average stream temperatures and decrease stream flow are likely, resulting in negative impacts to aquatic resources and increases in invasive aquatic species. Decreases in available subsurface flows and soil moisture may result in reduced riparian area extent and size, further impacting stream temperature. Wetlands are sensitive to warming temperatures and altered hydrological patterns, such as changes in precipitation seasonality and reduction of snowpack (Dalton et al. 2018).

There are ongoing actions within the planning area that cause both beneficial and adverse effects to soils. Those actions include juniper cutting and burning, fuel break mowing, mining, livestock grazing, transmission line construction, seeding and planting, and noxious and invasive weed control.

Juniper treatments (the known reasonably foreseeable juniper treatments include the Northwest Malheur County Greater Sage-grouse Habitat Restoration project identified in Table 3-2 identifies 5,000 acres of various juniper reduction actions) are designed to improve vegetation health and riparian area function which lends itself to improving soil functionality and condition. Cutting juniper decreases evapotranspiration rates that increases soil moisture that was being used by juniper, making it available for other plants as well as water sources and riparian areas. Burning juniper piles can potentially temporarily sterilize the site under individual piles. These burn pile sites may then be susceptible to invasive plants, though design features such as herbicide treatments and seeding reduce this impact. These

treatments could potentially cause isolated short-term negative effects to soils but increased vigor of vegetation over the long-term which would contribute to improving soil processes.

Ongoing wildfire stabilization and rehabilitation projects would result in beneficial effects to soils as they reduce abundance of invasive plants and increase desirable perennial plant cover which results in decreasing the potential for soil erosion and displacement.

Livestock grazing has occurred on most of the planning area for decades and has resulted in changes in plant communities and soil functionality, especially in the sagebrush communities. The loss of aboveground biodiversity from the conversion of native plant communities to annual invasive plants is reflected in the belowground soil biodiversity. Rangeland health assessments identify where Standards for Rangeland Health are not being met. If existing livestock grazing is identified as a significant causal factor, changes in grazing management are made to improve the conditions that make progress toward meeting standards. Best Management Practices established under the 2002 SEORMP ROD as amended (Appendix O) are retained under this Amendment, with no change.

BLM continues to assess and evaluate soil conditions and soil functionality at the geographic management area (see Section 3.7.3 Livestock Grazing, Affected Environment, Standards for Rangeland Health) level. Table 3-13 provides information on completed Rangeland Health assessments. Detailed and site-specific management actions to address negative impacts to these resources were addressed in lower-level planning documents following the guidance provided for in the 2002 SEORMP and ROD.

Mining and extraction of locatable, leasable, and saleable minerals cause soils disturbance and typically removes the topsoil, resulting in slow or no revegetation. Planning has been under way for over 30 years on the Grassy Mountain Gold Mine, and while the proposed process has changed over time, the current proposal would impact approximately 80 acres at the site, along with road improvements and modifications along approximately 25 miles. This may cause highly localized adverse effects but minor long-term adverse effects to soils across the planning area.

Proposed transmission line construction and maintenance would have a short-term impact on soils, but proposed revegetation would reduce long-term impacts. The approved route of the Boardman to Hemingway 500kV transmission line (BLM 2017a) has been fully analyzed under separate analysis but traverses approximately 70 miles in the planning area. Impact mitigation is a priority in the project, limiting direct impacts and rehabilitating construction period impacts as analyzed. Impacts are analyzed in the project environmental impact statement, including design features and selective mitigation measures, (BLM 2016b; B2H FEIS: Section 3.2.1 Earth Resources; and Chapter 2 Table 2-7 and Table 2-13) and agency approved best management practices are required to minimize soils impacts during construction excluding tower locations and requiring immediate rehabilitation after construction efforts conclude. The analysis of impacts for the authorized actions to conduct construction, operations and maintenance, along with required mitigation, is incorporated by reference.

Environmental Consequences

Analytical Methods

This analysis was informed by provisional soils inventories, field surveys of ecological conditions (NRCS unpublished; ongoing Malheur north and south surveys), OR/WA Standards for Rangeland Health (BLM 1997), and remotely sensed data used to evaluate land cover and topography. Information was synthesized and generalized to the scale of the SEORMP analysis area.

Indicators

- total acres of lands which can receive appropriate restoration activities (Issues 1)
- connectivity of vegetation communities and miles of roads or primitive routes closed to motorized vehicles (Issue 2)
- timeframe for soil recovery (Issues 3)

Assumptions

- Provisional soils inventories and vegetation condition assessments provide the best estimation of soils conditions across the analysis area.
- Because Vale District does not conduct soil indicator monitoring on a regular basis, assessment results and trend monitoring of vegetation communities is used to extrapolate soil productivity and functionality.
- If Standards for Rangeland Health are not being met and exiting livestock grazing is a significant causal factor, the BLM would implement proper livestock grazing management actions that lead conditions toward meeting standards.
- Analysis of impacts to soils includes soil (microbiotic) crust as well as the mineral component of the soils.

Issue 1

How would soils be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

In general, restrictions on ground disturbing activities in areas possessing wilderness characteristics would benefit soil function and soil biodiversity. However, limiting restoration and rehabilitation ground disturbing activities (see SEO DRMPA/DEIS Action Table, Appendix K, Section K.3) in these same areas would ultimately not benefit soil resources.

By managing for wilderness characteristics in the No Action Alternative and Alternatives B, C, D, and the PRMPA, permitted soil disturbances would be lessened as compared to those allowed in Alternative A. Protected units under the No Action and Alternatives B, C, D, and the PRMPA would: be closed to new mineral material sales/pits and to new road construction, place restrictions (NSO) on leasable minerals, and limit or exclude ROWs. Soils-related benefits from reducing ground disturbance would be greatest under the No Action Alternative where no actions would be allowed that would eliminate or diminish wilderness characteristics in any of the 76 units (1,236,907 acres), followed by Alternatives B (76 units, 1,206,780 acres), the PRMPA and D (which protect the same 33 units, and 417,190 acres) and C (27 units, 167,709 acres) respectively. Under Alternative B, disturbance would also be reduced by closing all lands with wilderness characteristics units and WSAs (1,273,907 acres) to OHV use, which would further reduce negative soils impacts of compaction, increased erosion and reduced vegetative cover. Reducing these permitted surface disturbing activities would reduce the potential for negative impacts related to soil compaction, disturbance, and displacement.

Conversely, the priorities to protect, maintain or enhance, and constraints designed to limit long-term impacts placed on wilderness characteristics units identified for protection in the alternatives would limit the acres of restorative surface disturbing activities such as vegetation seedings/plantings and invasive species treatments that would occur (refer to analysis in Sections 3.7.6 and 3.7.7), thereby limiting the acres of ecological restoration activities. As soil processes are directly linked to healthy ecological communities, this results in limiting acres of soil functionality and productivity that could be enhanced by

restoration and rehabilitation treatments. The No Action Alternative would have the greatest level of limitation on restoration and rehabilitation treatments to meet the requirements of the Settlement Agreement, followed by Alternative B. Alternatives C, D, and the PRMPA would apply the same requirements to limit impacts to wilderness characteristics as in Alternative B, but on 27 units under Alternative C and 33 units under both Alternative D and the PRMPA (excluding setbacks), respectively. No additional management protections would be applied to Alternative A but may be considered at the project level.

The analysis for impacts to soils resources relies heavily on the analysis for general vegetation and invasive species (Sections 3.7.6 General Vegetation and 3.7.7 Invasive Species) to reflect soil health. Beyond restrictions on actions that are not consistent with protecting wilderness (for example, road construction, certain ROWs), restoration and rehabilitation actions to encourage recovery of degraded landscapes, additional design features to limit or avoid impacts to wilderness characteristics reduce the available funding per acre that can be invested. This is due to additional application of limited resources to project layout and protective design features (to limit the duration of visual impacts) and would result in a lower level of resources being applied to on the ground restoration. The No Action Alternative and Alternative B protect similar acres for wilderness characteristics, therefore the limitations placed on permitted soil surface disturbances would be similar and highest.

The No Action Alternative and Alternative B would provide the most benefit to soils through the limitation of soil disturbing activities in all 76 units. Alternative C would permit soil disturbing activities on approximately 14% more acres than the No Action and Alternative B. Alternative D and the PRMPA would permit soil disturbing activities on approximately 35% more acres than the No Action Alternative and Alternative B.

Conversely, protecting wilderness characteristics would apply more constraints on beneficial vegetation treatments that benefit soil function. The No Action Alternative and Alternative B would constrain ground disturbing beneficial treatments in all 76 units. Alternative C would constrain these treatments in the 27 protected units (86% of the acres with wilderness characteristics); Alternative D and the PRMPA would constrain desirable vegetation treatments on 65% of the acres, resulting in more opportunities to protect and improve soils than the No Action Alternative and Alternative B, but less than Alternative A.

Issue 2

How would soils be affected by BLM management actions that would change OHV area designations across the planning area?

Off-highway vehicle use negatively impacts soil function by reducing ground cover and biological soil crusts, displacing soil, compacting soil, and increasing erosional processes. These disturbances provide conditions that are often more favorable for the establishment and propagation of invasive weeds over native plants, thus reducing native soil biodiversity (Brooks and Lair, 2005). The intensity and connectivity of OHV use influences the severity of these effects. Wilderness characteristics units, and in the case of Alternative B in WSAs (which would be designated as OHV Closed; see Section 3.7.2 Travel Management for miles of primitive routes closed by alternative), where OHV use would be Limited or Closed would result in increased protection of soils from soil surface disturbances and have fewer negative impacts to vegetative communities and soil functionality.

As reflected in the vegetation analysis in Section 3.7.6 (refer to this Section for acres), Alternative B would have the greatest benefit to soils resources through protection of ecological communities, because all lands with wilderness characteristics and all WSAs would be closed, and no public lands would be open to cross country OHV use. The PRMPA would be the next alternative to benefit soil resources by retaining only 40,368 acres as OHV Open and the bulk of the remaining acreage as OHV Limited. Alternative C would designate the protected wilderness characteristics units as OHV Limited (an increase of approximately 50,000 acres—lands with wilderness characteristics that are currently open to OHV

use—above the No Action and Alternative A), and would reduce OHV Open areas to 107,075 acres, which would have the greatest benefit to soils compared to all of the alternatives except for Alternative B and the PRMPA. Impacts to soils would be greatest under the No Action and Alternative A (359,869 acres open to OHV use), followed by Alternative D (325,686 acres of OHV Open) due to the greatest extent of public lands that would be open to cross-country motorized travel.

Issue 3

How would soils be affected by BLM management actions that would reduce or eliminate livestock grazing due to: (a) BLM receiving a voluntary relinquishment of a grazing permit, and/or (b) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to soils from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, under "Standards of Rangeland Health and Grazing Management Guidelines" the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner.

Livestock grazing affects soils, vegetation health, species composition, water, and nutrient availability over the short term and long term by consuming vegetation, redistributing nutrients and seeds, trampling soils and vegetation, and disrupting microbial systems (BLM 2015d). Livestock grazing is a dispersed disturbance that exerts repeated pressure across the landscape over many years. Thus, the effects of grazing are not likely to be detected as disruptions but as differences in the processes and functioning of the sagebrush, riparian, and wetland systems. Grazing effects are not distributed evenly because historic practices, management plans and agreements, and animal behavior all lead to differential use of the range (Ibid.).

The impacts to soil resources of reducing or closing livestock grazing is highly variable and dependent on the condition of the vegetation community, the resistance to invasive annual grasses, and the resilience of both vegetation and soils to disturbance. Upland sites are assessed to inform Standards 1, 3, and 5 of the 1997 OR/WA Standards for Rangeland Health. Standard 1 focuses on the soil functionality and processes such as soil infiltration, soil water holding capacity, and soil stability. Standard 3 addresses the ecological processes of the site. Standard 5 applies to native, threatened, and endangered species, and locally important species. Many of the species addressed in Standard 5, such as Greater Sage-grouse, have specific vegetation requirements for habitat and food. Because soil condition and functionality are linked to vegetation condition and health, an imbalance in soils resources or vegetative community could result in failure to meet any of these Standards for Rangeland Health.

Although all of the alternatives include management actions that allow improvement or maintenance of soil conditions to meet Standards for Rangeland Health, the main difference is the timeframe in which soils respond to management changes. Under Alternative B, where existing grazing practices are determined to be a causal factor in not meeting Standards for Rangeland Health, the permit would be suspended for the life of the plan (RMP), while under Alternative D, grazing would be suspended for the term of the permit or until monitoring determines significant progress is being made toward meeting Standards for Rangeland Health. These two Alternatives would result in longer timeframes where livestock grazing would be discontinued. See Sections 3.7.3 Livestock Grazing and Rangeland Management, 3.7.6 General Vegetation and 3.7.7 Invasive Species for further details on the impacts on soil health and productivity due to reductions in grazing that directly influence—or are influenced by—changes in grazing management.

Alternative B would have the greatest potential positive impact to soils due to the longer period of time during which livestock grazing would be suspended. Alternative D would have the next greatest potential beneficial impact. Both alternatives B and D would have similar positive impacts to soils resources at an accelerated timeframe, compared to the other alternatives. Management actions and responses under the No Action and alternatives A and C allow for adjustments in the grazing system (AUMs, season of use, etc.) if such use is not meeting land use plan objectives, Standards for Rangeland Health, or if an area is found to be marginally capable and/or not compatible with other resources or resource uses upon receipt of a voluntary permit relinquishment.

The level and use of livestock grazing are not uniform across the planning area; there are areas that may witness high use levels while other areas may have limited to no use by livestock due to topography, slope, water availability, and forage availability. These varying levels of livestock use result in varying impacts to soils depending upon the level and intensity of livestock grazing management practices and activities. Areas where livestock concentrate (such as developed water sources like springs, troughs and reservoirs, and along linear features such as fencelines) can result in higher levels of vegetation trampling, exposure of the soil surface, and compaction of soils in the immediate vicinity of these areas, while other areas away from these features could show limited evidence of the presence of livestock or activities associated with livestock management. Repeated use of common trailing paths can also leave a visible and durable presence of livestock use. Livestock management operations (gathering, herding, trailing, maintaining range improvement projects, etc.) can cause temporary soil disturbance. Overall, potential reductions or elimination of livestock grazing that could occur under the No Action Alternative and alternatives A and C as a result of the implementation of current Standards for Rangeland Health and voluntary permit relinquishment policy could benefit soils where it occurs.

Under the PRMPA, impacts to soils resulting from reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, there may be a small increase in beneficial impacts over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to soils. These added beneficial impacts would be less than those identified in both Alternatives B and D.

Soils Cumulative Effects Summary

The cumulative effects analysis area for soils resources is the planning area, as activities outside this area would not have an impact. Managing soils as an integral part of managing for healthy vegetative communities is an integral part of BLM-administered land management on the Vale District. This Section will address any additional effects to soils from reasonably foreseeable actions These effects are in addition to ongoing effects to soils described in the affected environment section and the effects of the actions of each of the alternative on soils that are noted above.

Reasonably foreseeable future actions (Table 3-1) that have the potential to affect soil resources are listed below. These actions can have both beneficial and adverse effects to soil condition and functionality,

depending on the level of impact from ground disturbing or vegetation reduction actions. Such actions include juniper cutting and burning, fuel break mowing, mining, livestock grazing, transmission line construction, seeding and planting, mining and mineral exploration, and noxious and invasive weed control.

Reasonably foreseeable future projects that have a negative impact on soils are: Boardman to Hemingway 500-kV transmission line (the proposed ROW is approximately 2,234 acres (1,576 acres on public land) in the planning area; the proposed action includes 332 pole/tower structures (236 on public land) and temporary and permanent access routes totaling approximately 100 acres overall), Grassy Mountain Gold Mine (500 acres), lithium exploration (76 acres of total temporary disturbance under the plan of operation for exploration and not to exceed 5 acres of disturbance in each of the two Notice-level projects), the Malheur Queen and Octagon gold mines (approximately five acres active, followed by reclamation), Owyhee Pump Storage Energy Development (40 acres), Agency Valley Free Use Saleable Mineral Pit Development (five acres), Vale to Drewsey Transmission Line ROW Modification and Renewal c, and the Residential Trespass Resolution (six acres).

The Boardman to Hemmingway 500-kV transmission line would have a short-term impact on soils across 2,234 acres of ROW corridor, but proposed mitigation would reduce long-term impacts. There would be long term negative impacts to soils for permanent (life of operation of the project) structures and facilities and those negative impacts cover approximately 100 (access routes, buildings and towers/poles) acres of public land in the planning area.

The Grassy Mountain Gold Mine would have a negative impact on soils within the approximately 500-acre site that is proposed for development and along the 25 miles access route where widening, maintenance, and realignment is proposed to take place.

The existing Malheur Queen and Octagon gold mines would have negative impacts to soils in the active mining areas until reclamation is completed. Both mining protects are located in previously disturbed (historic mining) areas; mining activities are approved for the Malheur Queen project but only testing activities are occurring thus far. The NEPA is still in development for the Octagon project.

The proposed lithium exploration would disturb soils in up to 10 acres for the Notice-level lithium exploration actions and potentially a 76.3 acre area in the western portion of the McDermitt caldera as a result of the Plan of Operation lithium exploration proposal.

These utility, mining and lithium exploration projects have the potential to cause soil disturbance and remove topsoil. Long term negative impacts to soils would be localized at these sites. These projects may cause highly localized adverse effects but minor long-term adverse effects to soils across the planning area, with the application of appropriate management stipulations and rehabilitation/reclamation requirements.

In general, future foreseeable rehabilitation and restoration actions (Tri-state Fuels Reduction, Northwest Malheur County Greater Sage-grouse Habitat Restoration, and LCGMA Permit Renewal and Restoration projects) designed to respond to disturbances like wildfire or invasive species, and those that are designed to encourage natural function of soils, vegetation and hydrologic function would have the overall, long-term effect of maintaining and improving soil condition and functionality in the planning area. These types of projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds and to stabilize soils and improve their functionality.

Overall, reasonably foreseeable future actions that are designed to restore or rehabilitate degraded areas would have the overall effect of maintaining and improving soil function. Projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds.

Reasonably foreseeable future actions that have the potential to beneficially affect soils include the Tri-state Fuels Management, the LCGMA Permit Renewal and Restoration, and Northwest Malheur County Greater Sage-grouse Habitat Restoration treatments. These projects benefit soils in many ways. The Tri-state Fuels Management Project would use a combination of mowing, seeding of native and non-native species, targeted grazing, prescribed burning, and herbicide treatments to modify vegetation in order to create fuel breaks within 200 feet on either side of proposed roads. In the short-term there would be disturbance to soils but in the long-term there is a benefit to soils through reduced size of wildfires.

Additional ground disturbing actions included with the Tri-state Fuel Breaks are road maintenance and the development of four wells and four gravel pits. These 82 acres would remain permanently disturbed resulting in both short- and long-term, adverse effects to soils resources.

The LCGMA Permit Renewal and Restoration Treatments address the renewal of livestock grazing permits and the restoration of upland and riparian vegetation communities that are not meeting Standards for Rangeland Health. The resulting actions could include the construction of fencing and water sources for improved livestock management. Livestock grazing permits could include terms and conditions that could allow for grazing while promoting attainment of Standards for Rangeland Health. Restoration treatments could use herbicide application, seeding, and shrub planting to reduce invasive grasses, prevent erosion, and establish perennial vegetation communities. Mowing, prescribed burning, or herbicide may be used to reduce sagebrush density where it is too high to benefit Sage-grouse. These restoration actions may have short-term impacts to soils caused by implementation of the treatments but would provide benefits in the long-term through improved soil condition and function. Constructing fence and development of water sources create both short- and long-term disturbance through removal of vegetation, though the scale of the disturbance would be minimal.

The Northwest Malheur County Greater Sage-grouse Habitat Restoration project focused on juniper removal which increases soil moisture that was being removed by juniper, making it available for other plants. Burning juniper piles removes existing, above ground biomass in the burned area, followed by seed germination and regrowth of plants existing on the site, but also temporarily sterilizes the site under individual piles. The project also improves forested communities by reducing fuels and diseases trees making the community less susceptible to high intensity wildfires. Other proposed actions create fuel beaks to improve the ability to control wildfires and reduce the acres of sagebrush communities burned. All these activities have a long-term benefit to vegetation by improving or maintaining vegetation community health, thereby improving soil function in the long term. The Northwest Malheur Mineral Site project, associated with the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, would have short- and long-term impacts on soils through development of up to seven mineral development sites and temporary staging sites.

Proposed transmission line construction would have a short-term impact on soils, but proposed revegetation would reduce long-term impacts, except at permanent structure locations. Where access roads or infrastructure are constructed to support the transmission line, there would be long-term disturbance of soils, but the effects would be localized resulting in minor long-term adverse effects to soils across the planning area. The Owyhee Pump storage energy development would have similar long-term effects but on a smaller scale as it is a smaller project.

The residential trespass resolution would change six acres from Land Tenure Zone (LTZ) 1(retain or acquire) to either Zone 2 (disposal) or 3 (land exchange). In the short-term there would be no impact to soils but in the long-term there could be disturbance to soils if the land is disposed of or exchanged. This long-term impact would be highly localized and diminutive on the planning scale.

If the Idaho District Court's preliminary injunction remains in effect and implementation of the Key RNA decisions in the 2015 *Oregon Greater Sage-Grouse ARMPA* (BLM 2015d) continues; up to approximately 27.2 miles of new fencing could be constructed to exclude livestock from these areas. This could result in approximately an additional 16.5 acres of ground disturbance associated with fence

construction and potential development of livestock trails adjacent to the new fences. This impact could have a diminutive impact in the short- and long-term as it affects significantly less than 1% of the soils in the planning area. Resumption of grazing in the Key RNAs would not have long-term impacts to soils as all alternatives have corrective measures that would be implemented if grazing is a causal factor in not meeting Standards for Rangeland Health.

If the injunction is lifted and the 2019 *Oregon Greater Sage-Grouse ARMPA* (2019d) is implemented, approximately 9,354 acres would become available for livestock grazing once again. Under this scenario the potential for fencing described above (and the associated ground disturbance) would not occur.

Livestock management actions under the PRMPA, No Action, Alternative A and Alternative C, allow for flexibility in grazing management options to address areas not meeting Standards for Rangeland Health due to existing grazing management. There are a range of management responses to address existing livestock grazing management when found to be a significant causal factor to not meeting one or more Standards for Rangeland Health; this may include: either reducing AUMs, temporary closing areas to grazing, or changing seasons of use, or any combination. Implementation of range improvements could continue with site-specific analysis and adherence to design features to limit impact to vegetation. These management options allow for sustainable health of the rangelands as well as public land grazing. Under the PRMPA, No Action, Alternative A and Alternative C, options for adjusting livestock grazing management are variable, and do not automatically result in the suspension of grazing.

Under Alternatives B and D, livestock grazing would be suspended if Standards for Rangeland Health determined that existing grazing was a significant causal factor in not meeting standards. In this case as well, there would be no cumulative impacts to soils from the reasonably foreseeable future actions.

In general, reasonably foreseeable future actions that are targeted at restoration or rehabilitation of degraded areas would have the overall effect of maintaining and improving soils function in the planning area. Projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds. The incremental beneficial and negative effects to soils from these reasonably foreseeable actions do not vary by alternative, and therefore, Alternative B and D have the greatest potential benefit to soils, followed by the PRMPA as noted above.

3.7.5 Water Resources and Riparian/Wetland Areas

Key Point

Riparian areas make up a relatively small portion of the landscape, but are important for the ecosystem services they provide, such as floodplain and groundwater storage, water transport, improved water quality, and fish and aquatic habitat.

Affected Environment

The SEORMP planning area is hydrologically diverse with waterways in the east supporting the Malheur and Owyhee River systems and closed basins in the west. Additionally, springs and wetlands support diverse plant communities, provide critical wildlife habitat, and have important social and economic values. The beneficial uses of surface water in these basins are: public, private, industrial, and domestic water supplies, irrigation, livestock watering, wildlife and hunting, boating, recreation, and aesthetic quality. Fish and aquatic life are among the most sensitive beneficial uses in these basins (see Fish and Wildlife, Section 3.7.11).

The 2001 Proposed SEORMP and Final EIS (PSEORMP/FEIS, BLM 2001b) analyzed the environmental impacts of the alternatives on the hydrologic network, water quality and function of streams across the planning area. That analysis is hereby incorporated by reference as authorized under 40 CFR § 1501.12. The 2001 PSEORMP/FEIS analyzed the impacts of upland and riparian area surface disturbance on water quality and riparian function. Impacts analyzed were as a result of restoration, rehabilitation, fire suppression, livestock grazing and motorized vehicle use. Appendices D1, D3 and D4 of the 2001 PSEORMP/FEIS (BLM 2001b) provide management objectives and stream conditions and trends for riparian and wetland resources; no change to these objectives is proposed in this SEORMP Amendment. Appendix D4 provides a planning area wide list of intermittent and perennial stream segments by mile and riparian trend if known. As the BLM continues our Standards for Rangeland Health processes, this information on trend and condition is updated as a component of Standards 2, 4 and 5. Riparian and wetland conditions are assessed for "proper functioning condition" (PFC). PFC describes both the assessment method and a defined, on-the-ground condition of a riparian area. The on-the-ground condition PFC refers to how well physical processes are functioning.

There are over 1,000 stream miles of water quality limited waters with impairments under the Clean Water Act Section 303(d) in the planning area, as identified in Appendix D-4 in the 2001 PSEORMP/FEIS (Ibid.). As noted in the preceding paragraph, Appendix D-4 also provides stream segment/reach information on water quality limited streams and is considered in all analyses in this Amendment and is also hereby incorporated by reference. Water quality limited waters are listed for bacteria, chlorophyll-a, arsenic, toxics (the pesticides DDT and dieldrin) and dissolved oxygen. The majority of the listings are for high temperatures that impair fish habitat. At the time of writing, the following sub-basins do not have Water Quality Management Plans under an approved Total Maximum Daily Load analysis: Crooked-Rattlesnake, East Little Owyhee, Jordan, Lower Owyhee, Middle Owyhee, and Middle Snake-Succor. In these sub-basins management continues to occur under current land use and project level planning. Water quality impairments for all other subbasins will be managed consistent with their respective Water Quality Management Plans (ODEQ Water Quality Management Plan—superseded by ODEQ 2010). Management actions in the 2002 SEORMP and ROD with regard to water quality-limited streams (pp. 44–49) are not changed by this Amendment.

While climate change research continues to develop, most accepted science agrees that the overall impacts of climate will have negative impacts on natural resources, including water. The potential effects of temperature and precipitation changes resulting from climate change on future water availability in the planning area are expected to result in increasing average temperatures and duration of drought (Dalton

2018). Both conditions are expected to result in negative impacts to water resources. Extreme heat events are expected to increase in frequency, duration, and intensities due to warming temperatures, leading to more intense and longer duration drought, reduced instream flows and warmer water temperature. Soil-moisture is expected to decline in this scenario, reducing both water availability for plant growth and infiltration into subsurface and ground water storage. Extreme precipitation events may increase slightly, leading to greater potential for increases in erosion and translocation of sediment during and following ephemeral events. These impacts are expected to increase average stream temperatures and decrease stream flow, resulting in negative impacts to aquatic resources and increases in invasive aquatic species. Decreases in available subsurface flows and soil moisture may result in reduced riparian area extent and size, further impacting stream temperature. Wetlands are sensitive to warming temperatures and altered hydrological patterns, such as changes in precipitation seasonality and reduction of snowpack (Dalton 2018).

Activities within the planning area that impact riparian/wetland areas and water quality include livestock grazing, wildfire suppression, fuel break projects, emergency stabilization and rehabilitation projects, wild horse burro management, invasive species management, and restoration activities.

Livestock grazing has occurred on most of the planning area for decades and has resulted in impacts to riparian areas. Improper riparian area grazing decreases riparian vegetation, streambank stabilization, soil-water storage, and water quality. Rangeland health assessments identify where Standards for Rangeland Health are not being met. If existing livestock grazing is identified as a significant causal factor, changes in grazing management are made to improve the conditions that make progress toward meeting standards. Table 3-13 provides data on completed Rangeland Health assessments/evaluations in the planning area, including those associated with riparian condition and water quality (Standards 2, 4 and 5). The table also notes significant causal factors that were determined to be to not meeting Standards. The table helps inform the recorded condition and function of uplands and water related resources in areas that have been evaluated as well as providing information for the analytical assumptions in this Section and in 3.7.3 Livestock Grazing and Rangeland Management.

Wildfire suppression and fuel break projects directly impact riparian areas in the short-term by removing some upland and riparian vegetation to reduce fuels, but in the long term these activities prevent further loss of vegetation and wildfires.

Ongoing wildfire stabilization and rehabilitation projects would result in beneficial effects to riparian areas as they are designed to improve the health of vegetation communities by decreasing erosional processes and improve soil functionality.

Wild horse and burro population management conducts activities to reduce herd sizes. This is beneficial to riparian areas and water quality as it reduces the impacts of overgrazing from these animals.

Invasive species projects reduce the abundance of invasive plant species, lessening resource competition and improving the health of both upland and riparian plant species. Included in this are juniper treatments designed to improve overall ecosystem health including riparian area functionality. Cutting juniper decreases evapotranspiration rates that allows increased soil-water storage and groundwater recharge. Juniper treatments on the district have restored the historic productivity of springs and streams and their associated riparian areas. These treatments could potentially cause isolated short-term (less than five years) negative effects to riparian areas due to immediate, localized increases in soil surface erosional processes, but over the long-term the positive effects of the treatment will improve riparian/wetland areas.

Restoration activities restore vegetation communities and make communities resistant to invasion from invasive plant species. Healthy upland vegetation communities contribute to meeting riparian and water quality objectives.

Wildfire suppression and fuel break projects directly impact streams and wetlands in the short-term by removing some riparian vegetation to reduce fuels, but in the long-term these activities prevent further loss of vegetation due to wildfires, thereby preventing more erosional impacts in streams and wetlands.

Ongoing emergency stabilization and rehabilitation projects would result in beneficial effects to riparian areas as they increase native upland vegetation, reduce soil erosion, and reduce abundance of invasive plant species.

Wild horse and burro management identifies populations that are AML and conducts activities to reduce herd sizes. This is beneficial to riparian areas as fewer animals are grazing in the streams and wetlands and their impacts are reduced.

BLM continues to assess and evaluate riparian conditions, stream functionality, and water quality at the geographic management area (see Section 3.7.3 Livestock Grazing, Affected Environment, Standards for Rangeland Health) level. Section 3.7.3 Livestock Grazing and Rangeland Management Table 3-13 provides information on completed Rangeland Health assessments.

Environmental Consequences

Analytical Methods

Impacts were assessed using existing surveys of wetland and riparian condition, trend monitoring data, and Oregon State water quality standards. Impacts were assessed based on the potential for proposed management actions to directly or indirectly alter riparian areas and water resources.

Indicators

- miles of streams and acres of riparian/wetland areas meeting Standard 2 (Issue 3)
- miles of streams and acres of riparian/wetland areas exhibiting Proper Functioning Condition (PFC) (Issue 1 and 2)
- sediment and erosional processes occurring adjacent to streams and riparian/wetland areas (Issues 1 and 2)

Assumptions

- There will be no measurable effects to groundwater resources as none of the actions in the proposed alternatives would significantly affect groundwater infiltration.
- If Standards for Rangeland Health are not being met and existing livestock grazing is a significant causal factor, the BLM would implement proper livestock grazing management actions that lead water resources and riparian/wetland conditions toward meeting standards.

Issue 1

How would water and riparian/wetland areas be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Under all alternatives and the PRMPA, the protection of wilderness characteristics would contribute to achieving desired outcomes and conditions for water resources and riparian/wetland areas identified in the 2002 SEORMP and ROD (Appendix D-4). This is defined as more miles of stream and acres of wetlands maintaining or moving towards achieving proper functioning conditions (PFC) and more allotments/pastures meeting Standard 2 (see Section 3.7.3 Livestock Grazing and Rangeland Management). Management actions that involve ground disturbing activities within or near riparian areas

have the most potential to negatively affect water quality through the process of sediment disturbance, transport, and delivery into waterbodies (Mebane 2001). In general, restrictions on ground disturbing activities in the proximity of water resources/riparian wetland areas in lands possessing wilderness characteristics would benefit water and riparian resources.

The PRMPA, No Action Alternative, and Alternatives B, C, D all have restrictions on surface disturbing activities in protected lands with wilderness characteristics units. These restrictions would reduce the potential for impacts on water resources and riparian/wetland areas, with Alternative B, followed by the No Action Alternative, prioritizing protection of the most acres for wilderness characteristics. Alternatives D and the PRMPA would provide the same wilderness characteristics protections, with Alternative C followed by Alternative A providing fewer area protections, in decreasing order. Under Alternative A, zero acres would be managed for wilderness characteristics resulting in no additional benefits to water resources and riparian/wetland areas.

Issue 2

How would water and riparian/wetland areas be affected by changes in OHV area designations across the planning area?

The greatest potential for negative impacts to areas adjacent to water sources and in riparian/wetland areas occurs in areas open to OHV use, which can cause soil surface disturbance and increased sedimentation input into water sources. OHV use in riparian areas compacts riparian soils, damages, or destroys riparian vegetation, increases sedimentation, and increases the potential for hydrologic erosional events. Soil-water release is directly affected by compacted soils and a lack of the proper riparian vegetation present to stabilize the streambanks. This can also contribute to stream temperature increases along with a lack of shade providing vegetation. These effects negatively impact stream and associated riparian area functionality and contribute to nonattainment of PFC which in turn leads to nonattainment of OR/WA Standard 2. OR/WA Standard 2 is assessed based on riparian/wetland trend data, Proper Functioning Condition assessments, and any other existing hydrologic data.

Alternative B has the greatest potential to positively affect riparian habitat, aquatic habitat, and Special Status aquatic species due to a potential decrease in OHV use and activity. Alternative B would close all lands with wilderness characteristics and WSAs (which would be designated as OHV Closed; see Section 3.7.2 Travel Management for miles of primitive routes closed by alternative), in the planning area, resulting in a total of 2,513,842 OHV Closed acres (54% of all lands in the planning area) where OHV travel would be restricted to existing roads (primitive routes would be closed). This could result in beneficial effects due to a potential decrease in sedimentation, riparian vegetation removal, streambank trampling, and an overall improvement in riparian functionality, water quality, and attainment of PFC. Ground surface disturbance resulting from OHV use would be similar in the No Action Alternative and Alternative A, where 359,869 acres remain open to OHV use, and areas designated as Limited or Closed remain unchanged. Alternative D would provide slightly more benefit to water and riparian resources where 325,686 acres remain open to OHV use. Alternative C has approximately 240,000 fewer acres of OHV Open than the No Action Alternative and Alternative A, and approximately 220,000 fewer acres than Alternative D; therefore, the potential exists for slightly fewer negative impacts to water and riparian resources. The PRMPA is most similar to Alternative C but with fewer OHV Open acres (40,368) and slightly more OHV Limited acres (4,585,249). The potential exists for slightly fewer negative impacts to water and riparian resources with the PRMPA over Alternatives A, C, D, and No Action.

Issue 3

How would water and riparian/wetland areas be affected by reductions or elimination of livestock grazing due to (a) BLM receiving a voluntary relinquishment of a grazing permit, and (b) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met, or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to water and riparian resources from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, under "Standards of Rangeland Health and Grazing Management Guidelines" the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner.

Although all of the alternatives include management actions that allow improvement or maintenance of water and riparian conditions to meet Standards for Rangeland Health, the main difference is the timeframe in which the resources respond to management changes. Alternative B would have the greatest potential positive impact to water and riparian resources due to the longer period of time during which livestock grazing would be suspended. Alternative D would have the next greatest potential beneficial impact. Both alternatives B and D would have similar positive impacts to water and riparian resources at an accelerated timeframe, compared to the other alternatives.

Under the No Action Alternative, Alternatives A and C and the PRMPA, if Standards for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take appropriate action toward making progress toward achieving Standards. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards, including Standard 2 (Watershed Function-Riparian/Wetland Areas) and Standard 4 (Water Quality). Action that is designed and implemented to improve aquatic wildlife function and condition would benefit water and riparian resources.

Impacts to water and riparian resources resulting from reducing or eliminating grazing from an area due to voluntary permit relinquishment would be similar to suspending grazing due to Standards for Rangeland Health not being met. Similar to the analysis in the Aquatic Wildlife section (Environmental Consequences, Issue 3 of Section 3.7.11), Alternative B would result in the greatest beneficial effects to water resources and riparian/wetland areas, followed by Alternative D due to the elimination or reduction of livestock grazing and the resulting beneficial impacts to streams and wetlands. However, the extent and magnitude of beneficial impacts depends on the amount of land that is suspended from grazing as well as the proximity of that land to riparian areas.

Overall, potential reductions or elimination of livestock grazing that could occur under the PRMPA, No Action Alternative, and Alternatives A and C as a result of the implementation of current Standards for Rangeland Health and voluntary permit relinquishment policy could benefit water and riparian resources where it occurs. Under the PRMPA, there could be a small increase in beneficial impact over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management to address areas where Standards for Rangeland Health are not met, regardless of causal factor, and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative, and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to

another resource or resource use when a voluntary permit relinquishment is received, and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to water and riparian resources. These added beneficial impacts would be less than those identified in both Alternatives B and D.

Water Resources and Riparian/Wetland Areas Cumulative Effects

The cumulative effects analysis area for water resources and riparian/wetland areas is the set of Geographic Management Areas within the planning area. Managing riparian areas as an integral part of healthy vegetative communities is an integral part of BLM-administered land management on the Vale District. This Section will address any additional effects to water resources and riparian/wetland areas from reasonably foreseeable actions. These effects are in addition to ongoing effects to the resource described in the affected environment section and the effects of the actions of each of the alternative on the resource noted above.

Reasonably foreseeable future actions (Table 3-1) that have the potential to affect water and riparian/riparian resources are listed below. These actions can have both beneficial and adverse effects to water quality and riparian/wetland areas. Such actions include juniper cutting and burning, fuel break mowing, mining, livestock grazing, transmission line construction, seeding and planting, and noxious and invasive weed control.

Mining and extraction of locatable, leasable, and saleable minerals (e.g., Grassy Mountain Gold Mine, lithium exploration, Agency Valley mineral material site development, Malheur Queen and Octagon gold mining projects), causes soil disturbance and typically removes the topsoil, resulting in slow or no revegetation. These activities can also cause an increase in sedimentation and/or decrease in available water and loss of habitat. These activities could cause surface water impacts, ground water impacts, and downstream impacts. These activities may cause highly localized adverse effects but minor long-term adverse effects to riparian areas across the planning area, even if appropriate management stipulations and rehabilitation requirements are applied.

The proposed Plan of Operation-level projects for lithium exploration proposes approximately 76 acres of surface disturbance (access routes for equipment, bore holes and staging in the 9160 acre project area) The two Notice-level exploration projects are in the same vicinity of the McDermitt caldera; these projects could have similar impacts as the Plan level, but are limited to 5 acres of disturbance before reclamation is authorized. The specific effects and mitigation measures would be addressed during the subsequent NEPA analyses in order to avoid unnecessary and undue degradation. exploration

The Octagon and Malheur Queen mining projects are proposed to develop previously disturbed (historic mining) areas, in limited (5-10 acre increments) in and near ephemeral or intermittent drainages, which could disrupt surface and near-surface flows temporarily. Mitigation would include sediment control, but would have long term hydrologic impacts. The Agency Valley mineral material site would expand an existing site, with reclamation following new disturbance after development; the site is off channel but could impact overland flows during development and on-site material stockpiling.

The Grassy Mountain gold mine operation would have long term impacts to surface water connectivity and may impact subsurface flows. Hydrologic studies and monitoring are ongoing and will continue through development and operations to identify subsurface impacts. The project proposes two long term mine tailings/settling ponds that will be lined to control subsurface seepage/infiltration, with long term monitoring. These settling ponds will disrupt natural drainages permanently. The BLM anticipates

completing the NEPA for the project in 2024 and will avoid undue or unnecessary degradation (43 CFR 3809).

Proposed transmission line construction (Boardman to Hemmingway and Owyhee Pump Storage) would have a short-term impact on riparian areas, but mitigation proposed with the analysis of each project would reduce long-term impacts.

In general, future foreseeable rehabilitation and restoration actions (Tri-state Fuels Reduction, Northwest Malheur County Greater Sage-grouse Habitat Restoration, and LCGMA Permit Renewal and Restoration projects) designed to respond to disturbances like wildfire or invasive species, and those that are designed to encourage natural function of soils, vegetation and hydrologic function would have the overall, long-term effect of maintaining and improving water quality and riparian/wetland areas in the planning area. These types of projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds and to stabilize soils and improve their functionality.

With regard to Issue 1, protecting lands with wilderness characteristics and considering past, present, and reasonably foreseeable future actions which impact water and riparian resources, the No Action Alternative and Alternative B would be similar and have the most beneficial effects because they have the highest level of restrictions on activities in protected lands with wilderness characteristics units. Alternative B would result in the BLM considering appropriate design features for restoration and rehabilitation projects if proposed in any of the 76 wilderness characteristics units and to meet the new objective (Appendix A, Alternative B) to maintain or improve wilderness characteristics, while meeting resource objectives. Actions proposed in the PRMPA and Alternative D would protect the next highest number of units and acreage in 33 wilderness characteristics units and would result in the next greatest level of restrictions on development and design features for proposed restoration and rehabilitation activities, which would benefit water and riparian resources. Alternative C would protect 27 units with wilderness characteristics, wherein restrictions and designs to maintain those characteristics would be implemented. Lands with wilderness characteristics units in Alternatives C, D and the PRMPA that are not identified for protection would be subject to less restrictions and, therefore, the potential for negative effects to water and riparian resources would be higher in those unprotected areas. Alternative A would not establish new protections for wilderness characteristics, and therefore, there would be a higher likelihood for impacts from reasonably foreseeable future actions to water and riparian resources under this alternative.

With regard to Issue 2, OHV area designations (Open, Limited or Closed), Alternative B could result in the greatest beneficial impact to water and riparian resources as a result of closing or limiting the most acres to OHV use. Under Alternative B, all public lands in the planning area would be OHV Closed or Limited, which would, when considering reasonably foreseeable future mining, energy or transmission development, would result in limitations on discretionary management actions to meet the new objective (Chapter 2 Section 2.2 and Appendix A) for protected wilderness characteristics. These actions would be required to be located outside of protected units, or be designed to avoid impacts, and would have the highest level of benefit to water and riparian resources.

The PRMPA would have the next greatest benefit to water and riparian resources where only 40,368 acres would remain open to OHV. Alternative C, followed by Alternative D would have the next greatest benefit to water and riparian resources, where Alternative C would designate 107,075 acres open to OHV. The No Action and Alternative A would not change OHV designations and the potential for impacts to water and riparian resources would be higher under these alternatives than under Alternatives B, C, D, and the PRMPA. The impacts from OHV use under the No Action and Alternative A, combined with the effects to water resources from the reasonably foreseeable actions, would result in the greatest potential impact to water and riparian resources.

With regard to Issue 3, changes in areas suspended or designated as unavailable to grazing, there were no discernable effects from any of the reasonably foreseeable future actions to water quality under any of the alternatives relative to livestock grazing, and therefore, there are no cumulative effects associated with this issue. For related cumulative effects information, refer to the Aquatics Section, 3.7.11.

3.7.6 General Vegetation

Key Point

The current condition of the vegetation, its resistance to disturbance and its resilience to invasive annual grasses are key to analyzing the effects of the alternatives on management of general vegetation. Disturbance to vegetation that is in an area of moderate or low resistance and resilience has the greatest effect on this resource, these areas often need some sort of restoration activity to maintain the desired vegetation community. The effects of noxious and invasive plants are discussed in Section 3.7.7 Invasive Species.

Affected Environment

Introduction

Vegetation serves multiple purposes on the landscape and provides many ecosystem services, including stabilizing soils, preventing erosion, sequestering carbon, increasing species diversity, and providing habitat and food for animals and products for human use. Many of the BLM's land management policies are directed toward maintenance of healthy plant communities. Geological and ecological processes as well as human activities have influenced the species composition and structure of the current plant communities within the planning area. Vegetation is typically characterized by ecological provinces and plant communities. The ecological provinces and plant communities discussed below are those that provide the most land cover across the planning area.

The planning area falls within three ecoregions (Wilken et al. 2011): the Northern Basin and Range, Blue Mountain, and Snake River Plain. Most of the planning area falls within the Northern Basin and Range Ecoregion. The topography consists of dissected lava plains, rolling hills, alluvial fans, valleys, and scattered long linear north-south trending mountain ranges.

Area-wide vegetation mapping for this analysis used remote sensing models from the Integrated Landscape Assessment Project (ILAP; https://ecoshare.info/ilap/products/models/; ILAP 2023) and the Northwest Regional Gap (ReGAP; USGS 2023; GAP/LANDFIRE National Terrestrial Ecosystems 2011 database; https://maps.usgs.gov/terrestrial-ecosystems-2011/). These data are most accurate at a regional scale and reduces in accuracy as the scale decreases. Although this General Vegetation Section includes estimates on the number of acres in each vegetation type analyzed, confidence in the accuracy of these estimates is moderate due to well documented issues with remote sensing of semiarid lands, however, this data is sufficient for the purposes of analyzing effects at this scale.

General Vegetation Community in the Planning Area

The current vegetation in the planning area falls into multiple general community types (See Appendix M Map VEG 1). Not all vegetation communities are described in this Section. For a description and analysis of riparian and wetland vegetation, see Section 3.7.5 Water Resources and Riparian/Wetlands Areas. Section 3.7.8 Forest and Woodlands describes and analyzes forest, juniper woodland, aspen, and mountain mahogany communities, and Section 3.7.7 Invasive Species describes and analyzes noxious weeds and invasive annual grasses. Table 3-15 displays the approximate acres of the dominant vegetation communities in the planning area.

Table 3-15. Acres of dominant vegetation communities in the planning area.

Vegetation Community	Acres
Annual Grass	1,152,381
Conifer Forest	10,739
Cool-Moist Sagebrush	212,047
Crested Wheatgrass	78,954
Juniper	70,428
Mountain Shrub	14,876
Salt Desert Scrub	150,121
Shallow-Dry Sagebrush	1,554,184
Warm-Dry Sagebrush	1,325,492

Cool-Moist Sagebrush

Cool-moist sagebrush is associated with moderately deep to deep soils with a frigid[24] temperature regime and xeric[25] moisture regime (Anderson et al. 1998; Kagan and Caicco 1992). As such, it is typically found at higher elevations where the average annual precipitation exceeds 12 inches annually, and on cooler, moister aspects at mid-elevations. Mountain big sagebrush (*Artemisia tridentate* ssp. *vaseyana*) is the most common big sagebrush subspecies, often with antelope bitterbrush (*Purshia tridentata*) as a co-dominant. Wyoming big sagebrush (*A. t.* ssp. *wyomingensis*) and basin big sagebrush (*A. t.* ssp. *tridentata*) can also be present, primarily in the ecotone between the cool-moist and warm-dry sagebrush. Low sagebrush (*A. arbuscula*) is dominant where soils are shallower and are saturated at least once every 10 years, precluding big sagebrush.

Idaho fescue (*Festuca idahoensis*) is one of the more common native grasses in cool-moist sagebrush, with bluebunch wheatgrass (*Pseudoroegneria spicata*) a common co-dominant. These sites are also forb rich, particularly when sagebrush cover is relatively low. Cool-moist sagebrush is considered to have high resilience from disturbance and other stressors in the absence of juniper encroachment (Chambers, Bradley, Brown et al. 2014). As juniper encroachment proceeds from phase I to phase III, resistance and resilience decline (Miller et al. 2005; Chambers, Miller, Board et al. 2014). The ecotone between cool-moist sagebrush and warm-dry sagebrush has moderate resistance to invasives and resilience to disturbances and other stressors (Chambers, Miller, Board et al. 2014).

Warm-Dry Sagebrush

Warm-dry sagebrush is typically found in shallow to moderately deep soils, with a mesic[26] soil temperature regime and aridic[27] moisture regime (Anderson et al. 1998; Kagan and Caicco 1992). This sagebrush type is typically in the low elevations, where the average annual precipitation is less than 12 inches, and on warmer, drier aspects at mid-elevations. Wyoming big sagebrush is the most common big sagebrush subspecies; low sagebrush is dominant on shallower soils that are saturated at least once every10 years, and mountain big sagebrush is present at the ecotone with cool-moist sagebrush. Deeper soils may support basin big sagebrush. Soils with a higher salt content typically include spiny hopsage (*Grayia spinose*), black greasewood (*Scarcobatus vermiculatus*), or shadscale (*atriplex confertifolia*). Warm-dry sagebrush is often intermingled with shallow-dry sagebrush.

Bluebunch wheatgrass and Thurber's needlegrass (*Achnatherum thurberianum*) are the most common native grasses. Warm-dry sagebrush supports the greatest number of invasive plant species, including the exotic annual grasses, and the highest proportion of crested wheatgrass seedings. Most of the area

[24]Mean annual soil temperature is between 32˚ and 46˚F at 20 inches below soil surface.
[25]Dry.
[26] Mean annual soil temperature is between 46˚ and 59˚F at 20 inches below soil surface.
[27] very dry.

impacted within this type is associated with the increased frequency of wildfire and slow recovery time following wildfire. Warm-dry sagebrush has low resistance to invasion by annual grasses and low resilience from a disturbance (Chambers, Bradley, Brown et al. 2014). However, maintaining healthy native communities can preserve resistance and resilience (Davies et al. 2009, 2010; Peterson 2012; Reisner et al. 2013; Boyd et al. 2014).

Shallow-Dry Sagebrush

Shallow-dry sagebrush is found on shallow to very shallow soils, with a mesic to frigid soil temperature regime and an aridic to xeric moisture regime (Anderson et al. 1998; Kagan and Caicco 1992). Shallow-dry sagebrush can occur at any elevation but is most common at lower elevations intermingled with warm-dry sagebrush. Low sagebrush is the most common sagebrush species, but black sagebrush (*Artemisia nova*) or stiff sagebrush (*A. rigida*) communities also occur. This type includes some very unproductive big sagebrush communities, such as basin big sagebrush communities in lava fields and on deep pumice, Wyoming big sagebrush communities on slightly deeper soils, and mountain big sagebrush communities on cold and slightly deeper soils. Saltier soils may include spiny hopsage, black greasewood, shadscale, and winterfat (*Krascheninnikovia lanata*).

Shallow-dry sagebrush is grass poor but forb rich. Sandberg's bluegrass (*Poa secunda*) is the most common native grass species, and bare ground can be extensive. Invasive plant species may also be present and can become dominant following fire. Because of its very low productivity, shallow dry sagebrush also has low resistance to annual grass invasion and low resilience to disturbance. As with warm-dry sagebrush, maintaining healthy native communities can help maintain resistance and resilience.

Mountain Shrub

The mountain shrub community typically develops in cooler, wetter sites than the cool-moist sagebrush community but can be intermingled with it. Site characteristics for the mountain shrub community are not well defined other than the soil temperature regime is frigid to cryic[28] and the soil moisture regime is at least xeric. Mountain big sagebrush is often a component of the mountain shrub community, but many other shrub species are also present, such as snowberry (*Symphoricarpos* spp.), curl-leaf mountain mahogany (*Cercocarpus ledifolius*), ninebark (*Physocarpus malvaceus*), serviceberry (*Amelanchier alnifolia*), and Rocky Mountain maple (*Acer glabrum*). Many of these species resprout following fire or other disturbances. Mountain shrub is considered to have high resilience from disturbance and other stressors and high resistance to invasive annual grasses (Chambers, Bradley, Brown et al. 2014).

Salt Desert Scrub

The salt desert scrub community develops in lower elevations and warmer, drier sites. Here, the salt content of soils is high enough to prevent most sagebrush species from surviving. Often, salt desert scrub is found on very old Pleistocene lakebeds and pond sites that do not have standing water except on rare occasions. Salt desert scrub typically grows next to warm-dry sagebrush communities. Common species are spiny hopsage, black greasewood, shadescale, fourwing saltbush, (*Atriplex canescens*), winterfat, and bud sagebrush (*Pictothamnus desertorum*). Bare ground tends to be extensive. Salt desert scrub is considered to have low resilience from disturbance and other stressors and low resistance to invasive annual grasses (Chambers, Bradley, Brown et al. 2014).

Crested Wheatgrass

In the 1960s and 1970s, extensive areas of degraded rangeland in the planning area were planted to crested wheatgrass (*Agropyton cristata, A. desertorum*) (Heady 1988; Pellant and Lysne 2005; Hagen

[28]Mean annual soil temperature is less than 32˚F at 20 inches below the soil surface.

2011). These sites had high shrub density, a high proportion of annual invasive plants, and little to no perennial grasses (Heady 1988). Crested wheatgrass is better able to compete with cheatgrass than most native bunchgrasses and is more tolerant of grazing (Heady 1988; Pellant and Lysne 2005).

The original intent of rangeland seedings with nonnative perennial species was to increase forage production. As rangeland practices evolved, seedings were used more as a tool to provide rest and deferment for the adjacent native vegetation communities. Additionally, seedings have been developed as a result of emergency fire rehabilitation on sites that were susceptible to erosion, repeated fire, and either invasion by noxious weeds or invasive annual grasses, or both. Crested wheatgrass is the dominant vegetation type on approximately 2% of the planning area (see Table 3-15 above).

Today, most crested wheatgrass seedings have limited establishment of sagebrush and few to no other herbaceous species (Heady 1988; Karl and Sadowski 2005). The reasons for this are poorly understood and are likely site-specific. In some locations, wind-derived soil crusts may limit the ability of other species to germinate or establish. In other locations, competition for water and nutrients by the established crested wheatgrass may restrict establishment of other species (Pellant and Lysne 2005).

Other Influences on Existing Condition

The low resistance and resilience of the warm-dry sagebrush, shallow-dry sagebrush, and salt desert scrub vegetation communities makes them more susceptible to invasion from invasive annual grasses after disturbance than the other communities present in the planning area. The most common large-scale disturbance in the planning area that affects these communities is wildfire. Post wildfire, the BLM assesses the need to treat the area taking into consideration the health of the vegetative community prior to disturbance, the ecological site description, soils, and success of any past treatments. Treatments may include aerial application of an herbicide to treat invasive annual grasses and seeding with native or desirable nonnative vegetation to retain the function of the community and greatly reduce the risk of the disturbed areas converting to invasive annual grasses. Seeding may also occur after other disturbances such as mining, ground disturbance associated with permitted Rights-of-way activities, road maintenance, and BLM facilities development or maintenance. These treatments help meet Veg Objective 1 of the SEORMP.

Climate change has the potential to alter species composition, favoring invasive plant species. However, current understanding on this subject is not clear. A study conducted by Bradley (2009) shows two differing scenarios for the planning area. Under the worst-case scenario, with decreased summer precipitation, the majority of the land base within the planning area is suitable for invasive annual grass expanding into native plant stands. The highest modeled summer precipitation quantity drastically reduces the land base that would be suitable for invasive annual grasses. The amount of summer precipitation is uncertain due to the complex topography and the difficulty in modeling El Niño. However, over the majority of the past eight years, the planning area has experienced below average summer precipitation, which leads the BLM to believe that future climate change would result in conditions suitable for the expansion of invasive annual grass into native plant stands for the majority of the planning area.

Activities within the planning area that impact vegetation include livestock grazing, wildfire suppression, fuel break projects, emergency stabilization and rehabilitation projects, wild horse and burro monitoring and population management, invasive species management, targeted grazing, and restoration activities.

Livestock grazing has occurred on most of the planning area for decades and has resulted in changes in plant communities, especially in the sagebrush communities. Grazing has a direct effect on herbaceous plants through selective cropping of palatable plants, some trampling, loafing, and deposition of urine and feces, and soil compaction. Rangeland health evaluations identify where Standards for Rangeland Health are not being met. As presented in Section 3.7.3, under “Standards of Rangeland Health and Grazing Management Guidelines” the objectives of the Healthy Rangeland Initiative is to understand the condition

of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner.

If existing livestock grazing is a significant causal factor, changes are required to be made to improve the conditions to make progress towards attainment of the Standards for Rangeland Health (BLM 1997, CFR § 4180.2).

Wildfire suppression and fuel break projects directly impact vegetation in the short-term by removing some vegetation to reduce fuels but in the long term these activities prevent further loss of vegetation from wildfires.

Ongoing emergency stabilization and rehabilitation projects result in beneficial effects to native vegetation as they reduce soil erosion, reduce abundance of invasive plants, and increase desirable perennial plant cover.

Wild horse and burro monitoring and population management identifies populations that are over AML and conducts activities to reduce herd sizes, this is beneficial to vegetation as it reduces the impacts of overgrazing from those animals.

Invasive species management and target grazing projects reduce abundance of invasive plant species, lessening resource competition, and improving the health of desirable plant communities.

Restoration activities including those associated with the ARMPA restore vegetation communities, provide habitat continuity for wildlife, and make communities resistant to invasion from invasive plants. Given the new policies on native seeding in the Great Basin—Secretarial Order 3336: *Rangeland Fire Prevention, Management and Restoration* (USDI 2015) and the *National Seed Strategy for Rehabilitation and Restoration* (Plant Conservation Alliance 2015)—and the interest in sagebrush restoration for Greater Sage-grouse, the level of native grass and forb seeding for habitat restoration will likely increase compared to historic levels, resulting in higher rates of native vegetation establishment and reduced rates of invasive plant spread. Severely degraded areas, especially at lower elevations and in low precipitation zones, where native seeding has a high probability of failure, may continue to be seeded with nonnative species and would result in areas having low species diversity and composition. Plantings of sagebrush and bitterbrush will continue to occur in the planning area, creating long-term benefits to vegetation communities.

Current condition of vegetation is assessed during the Standards for Rangeland Health process. Standard 1 addresses upland watershed health: the appropriate mix of deep-rooted perennial grasses and shrubs essential for water infiltration, moisture storage, and soil stability. Standard 3 addresses the ecological processes of energy flow and nutrient cycling. Often plants are the start of the food chain and energy flow through the ecosystem. Additionally, the vegetative community is critical to providing nutrients to the soil through decomposition. Standard 5 applies to native, threatened, and endangered species, and locally important species. Many of the species addressed in this standard, such as Greater Sage-grouse, have specific vegetation requirements for habitat and food. If Standards for Rangeland Health are not being met, BLM takes actions to improve the conditions, including closure of allotments or pastures to livestock grazing changing season of use, adjusting AUMs, or implementing rest-rotations grazing systems.

Standards for Rangeland Health processes have been completed on 41% of the planning area. Of the areas evaluated for Standard 1, 93% met the standard. Existing livestock grazing was determined to be a significant causal factor for 2% of the area not meeting Standard 1. For areas evaluated for Standard 3, 66% met the Standard, with existing grazing being a significant causal factor for seven percent of the area not meeting Standard 3. Standard 5 (Terrestrial habitats) is meeting for uplands on 67% of the planning area evaluated for this standard, with existing livestock grazing determined to be a significant causal factor for 11% of the areas not meeting Standard 5 (Terrestrial). Common non-livestock causal factors for not meeting OR/WA Standards 1, 3, and 5 are wildfires and invasive annual grasses. Further discussion

on Standards for Rangeland Health and Grazing Management Guidelines can be found in Section 3.7.3 Livestock Grazing and Rangeland Management.

Through Standards for Rangeland Health assessments, Emergency Stabilization and Rehabilitation planning, and resource monitoring, the need for restoration, rehabilitation and fuels reduction treatments are identified and designed to address specific resource conditions present in a project area. Project objectives are developed to tailor appropriate management actions to circumstances in the project area. Depending on project objectives, treatment method options are considered based on: site potential, geography, available resources (including staffing, funding, and equipment), resource designations (e.g., sage-grouse or other critical habitat or special designations or management areas), and policy/legal stipulations. Where necessary, treatments are modified or designed to address these considerations. Since entering into the 2010 Settlement Agreement, where restoration and rehabilitation needs are identified in lands with wilderness characteristics, certain treatments have been modified or designed to meet both ecologic objectives and to ensure that the wilderness characteristics are protected. See Section 3.7.9 Fire and Fuels Management for more discussion on restoration, rehabilitation, and fuels reduction projects.

Environmental Consequences

Analytical Methods

Data sets used for the analysis in this Section are vegetation community mapping derived from ILAP and ReGAP, Resistance and Resilience models, and invasive annual grass infestation models. These data sets were used because they provide data for the entire planning area.

Indicators

- Total acres which can receive appropriate restoration activities (Issue 1)
- Change in weed introduction and vegetation connectivity (Issue 2)
- Time period for vegetation recovery (Issue 3a)
- Change in abundance of invasive annual grass (Issue 3b)

Assumptions

- For the wilderness characteristics analysis, the BLM would conduct restoration activities in annual grass vegetation communities and would not conduct restoration activities in crested wheatgrass communities.
- For this analysis it is assumed drill seeding could be used on every acre. However, it is recognized that there are portions of the planning area where geographic limitations or resource concerns occur that would limit the use of drill seeding.
- For the General Vegetation section, use of the term OHV Limited refers to limited to existing roads and primitive routes.
- The BLM would not use hydroseeding due to high costs and limited area where this method is feasible.
- The majority of primitive roads are unimproved two-tracks with a natural surface and vegetation between the tracks.
- The BLM would take corrective or restorative measures where Standards for Rangeland Health are not met, and existing livestock grazing is a causal factor (Issue 3a).

- The PRMPA, No Action Alternative, Alternative A, and Alternative C would likely continue to authorize livestock grazing if a permit were to be relinquished. Grazing management could change to improve vegetative conditions where livestock grazing continues after voluntary relinquishment.

Issue 1

How would vegetation be affected by BLM management actions that would prioritize protection of lands with wilderness characteristics?

Managing for wilderness characteristics would limit the methods that can be used for seeding vegetation. Vale District uses drill seeding and aerial seeding methods. Drill seeding uses a rangeland drill to create a furrow with a disc and drop the seed through a tube into the furrow, creating a linear row of vegetation. A chain behind the disc covers the seed, incorporating it into the soil. A no-till drill can also be used for drill seeding; the method of seeding is similar to a rangeland drill in that a linear row of vegetation is created. The method varies slightly in that the no-till drill creates a very narrow furrow and uses a packer wheel to incorporate the seed into the soil. References to the effects of drill seeding that follows, include both till and no-till methods. Aerial seeding uses an aircraft to apply the seed in a random pattern with no incorporation into the soil. Seed that has been incorporated into soil typically has higher rates of germination and establishment (Whitacre and McCoy 2003). To incorporate the seed into the soil, aerial seeding must be followed up with a second treatment such as a tractor pulling a cultipacker or dragging a chain, tires, tree, or harrow. However, dragging methods can bury seed too deeply, preventing emergence from the soil after germination (Jensen et al. 2001).

Drill seeding typically creates straight rows of vegetation, similar to an agricultural setting, thereby reducing naturalness and potentially failing to meet VRM Class II. To mitigate that effect, drill seeding within areas where wilderness characteristics are protected would need to use the same types of dragging methods as with aerial seeding and with the same risks of burying the seed too deep. These design features would increase costs, potentially reduce the area of coverage leaving untreated gaps, and result in slower treatment rates for the time expended (reduce production rates). Aerial seeding typically creates a random pattern of vegetation initially, thereby preserving naturalness and maintaining VRM Class II. Drill seeding has higher establishment rates for seeded species than aerial seeding (Beyers et al. 2013). However, terrain, size of the area needing seeding, and soil characteristics, such as degree of rockiness, can limit or prohibit the use of drill seeding, requiring aerial seeding, this would be analyzed when site specific seeding projects are proposed. The type of seed to be used is decided on a case-by-case basis to create a seed mix that will be most successful given the environmental and ecological conditions of the areas and the objectives of the seeding treatment. Seeding mixes are consistent with the decisions set by the Southeastern Oregon Resource Management Plan Record of Decision (BLM 2002, 40) as amended by the Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment ROD, page 2-13 (BLM 2015d).

Because of its higher costs and lower success rate, aerial seeding typically is used only in areas where drill seeding is not feasible and in large areas that cannot be seeded quickly enough with rangeland drills in the weather window available for that type of work. In areas managed for wilderness characteristics, rows of vegetation created through the use of a rangeland drill likely would not achieve VRM II objectives to “retain” the visual nature of the landscape without added design features. In these areas drill seeding would need to be followed with a dragging treatment to disperse the seed, eliminating rows of vegetation, and creating a random placement of the seed, but at the risk of burying the seed too deep, thereby reducing treatment success.

A review of research and monitoring data from drill and aerial seeding shows drill seeding to be more successful than aerial seeding (Beyers et al. 2013). Success is equated to how many plants survived. The review found that the amount of precipitation received was a critical factor for seeding success. When

precipitation was below average aerial seeding had a greater failure rate than drill seeding, though drill seeding was also impacted by low precipitation conditions.

To increase the success of aerial seeding, seed is spread at twice the rate as a drill seeding. For example, if an area was seeded at a rate of 10 pounds of seed per acre with a drill, the same area seeded aerially would require a rate of 20 pounds of seed per acre.

The cost of the differing seeding methods varies as well. When looking at only the application costs, aerial seeding is the least expensive method followed by aerial seeding with seed incorporation, drill seeding, and drill seeding with dragging being the most expensive. See Table 3-16 for a cost comparison of the methods. Adding the cost of the seed changed which treatment is least expensive. The Vale BLM five-year average cost of seed is $100 per acre for drill seeding and $200 per acre for aerial seeding. When including the seed as part of the cost of the treatment, drill seeding becomes the least expensive method, followed by drill seeding with dragging, aerial seeding, and aerial seeding with seed incorporation being the most expensive method. Aerial seeding costs approximately $70 more per acre than drill seeding. The cost of the aerial seeding may limit the amount of acres that can be treated.

Table 3-16. Drill and aerial seeding cost comparison.

Treatment	Alternative A cost/acre	Protecting Wilderness Characteristics Unit cost/acre
Drill Seeding	$43 ($143 with seed)	$63[a] ($163 with seed)
Aerial Seeding	$13 ($213 with seed)	$13 ($213 with seed)
Aerial Seeding Plus Seed Incorporation	$33 ($233 with seed)	$33 ($233 with seed)

[a]Includes dragging method to remove drill rows. (Based on Vale BLM Cherry Road [2016] and Owyhee [2013] ESR drill seed treatments).

There are consequences to seeding failures and not treating areas at risk of annual grass invasion. If a sufficient amount of native and desirable nonnative vegetation is not present in the community, cheatgrass and other invasive annual grasses may invade an area and outcompete the native and desirable nonnative vegetation. An annual grass community does not meet the desired future conditions for vegetation as identified in the 2002 SEORMP and ROD (BLM 2002) or in the 2015 Greater Sage-Grouse ARMPA BLM 2015d). Drill seeding is the most cost effective and successful method currently available to apply seed to the project area.

If areas managed for wilderness characteristics need to be seeded to maintain native or desirable vegetation, seeding methods would be limited to aerial seeding or drill seeding with a dragging treatment. The higher costs of aerial seeding may limit the number of acres that can be treated with the available funding. Given the lower success rates of aerial seeding and drill seeding with a dragging treatment, areas managed for wilderness characteristics would face higher risks of increase in invasive plants, especially annual grasses, as compared to areas not managed for wilderness characteristics.

Table 3-17 (see below) displays the major vegetation communities analyzed in this Section and the number of acres of those communities within areas proposed to be managed for wilderness characteristics. Vegetation communities with low resistance and resilience, as well as annual grass communities are likely to need restoration activities such as drill seeding to maintain a desired community following disturbance, such as wildfire. Conversely, communities with a high or moderate resistance and resilience, as well as crested wheatgrass communities are likely to not need restoration activities following disturbance. There are physical limitations to where drill seeding can be used, such as steep terrain and rocky surfaces. As restoration activities are proposed, site specific analysis would analyze where it is appropriate to use drill seeding and aerial seeding. For this analysis it is assumed drill seeding could be used on every acre as it is not practical to perform an acre-by-acre analysis of the wilderness characteristics.

Table 3-17. Acres of major vegetation communities in areas managed for wilderness characteristics by alternative.

Vegetation Community	No Action Alt. (acres)	Alt. (acres)	Alt. B (acres)a	Alt. C (acres)	Alt. D (acres)	PRMPA (acres)	Vegetation Community Resistance and Resilience[b]
Annual grass	258,060	0	258,060	20,283	57,486	57,486	varies depending on site
Cool-Moist Sagebrush	62,797	0	62,797	9,474	20,446	20,446	moderate
Crested Wheatgrass	12,143	0	12,143	1,353	3,130	3,130	varies depending on site
Mountain Shrub	1,573	0	1,573	83	684	684	high
Salt Desert Scrub	24,035	0	24,035	1,513	8,173	8,173	low
Shallow-Dry Sagebrush	466,871	0	466,871	63,969	192,133	192,133	low
Warm-Dry Sagebrush	375,918	0	375,918	60,931	121,209	121,209	low

[a] Alternative B acres should be lower than the No Action due to setbacks, they are displayed the same due to the size of pixels that provide the vegetation community information.
[b] (Chambers, Bradley, Brown et al. 2014).

Given vegetation communities in Table 3-17, the No Action Alternative and Alternative B have approximately 1,124,884 acres (total acres of low resistance and resilience plus annual grass communities) that would likely need drill seeding after disturbance that are within areas proposed for management of wilderness characteristics. The PRMPA and Alternative D have 379,001 acres, and Alternative C has 146,696 acres. Alternative A has zero acres as this alternative proposed no management of wilderness characteristics.

The No Action Alternative and Alternative B would result in the greatest level of constraints to retaining or establishing desirable vegetation treatments potentially resulting in cheatgrass and other invasive annual grasses invading an area and outcompeting the native and desirable nonnative vegetation. An annual grass community does not meet the desired future conditions for vegetation as identified in the 2002 SEORMP and ROD (BLM 2002) or in the 2015 Greater Sage-Grouse ARMPA (BLM 2015d).

Issue 2

How would vegetation be affected by BLM management actions that would change OHV area designations across the planning area.

Lands Open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Locations where OHV use would be limited in areas with wilderness characteristics and would be closed to cross country OHV travel, would protect vegetation from short-term trampling and long-term damage from unauthorized trails. Areas with wilderness characteristics that are prioritized for protection would be designated as OHV Limited to existing routes and be closed to cross country OHV travel, protecting vegetation from short-term trampling and long-term damage from unauthorized trails. These areas would have the same short- and long-term benefits as described for OHV Limited use, plus reduced risks of invasive plant dispersal along the primitive routes and increased vegetation connectivity. It is assumed the majority of primitive routes that would be closed are four-wheel drive tracks that are unimproved, with a natural surface and, commonly with vegetation in the middle. Four-wheel drive tracks are less of a weed vector than paved or improved roads (Gelbard and Belnap 2003). The level of weed introductions from four-wheel drive tracks is likely not greater than the combined vectors of wind, water, wildlife, and livestock (BLM, professional observations). The soil compaction on primitive routes limits the amount of natural vegetation recovery and increases the time for this recovery to occur (Bolling and Walker 2000). In the short term, in closed areas, the primitive routes would remain unchanged while long-term benefits would be improved vegetation connectivity due to reduced OHV traffic.

Alternative B has the greatest benefit to vegetation through less weed introduction and more vegetation connectivity in the long-term because it has the most OHV Closed acres (2,513,842 acres) and least acres of OHV Limited (2,127,603 acres) and Open (zero acres) to OHV use. Alternatives A, C, D, and the No Action, and the PRMPA have the same number of acres closed (15,829 acres) to OHV use and varying levels of OHV Limited and OHV Open. As compared to Alternative B: the PRMPA has 40,368 more acres OHV Open, 2,457,646 more acres OHV Limited, and 2,498,013 fewer acres OHV Closed; Alternative C has 107,075 more acres OHV Open, 2,390,938 more acres OHV Limited, and 2,498,013 fewer acres OHV Closed; Alternative D has 325,686 more acres OHV Open, 2,172,324 more acres OHV Limited, and 2,498,013 fewer acres OHV Closed; and the No Action Alternative and Alternative A have 359,869 more acres OHV Open, 2,138,144 more acres OHV Limited, and 2,498,013 fewer acres OHV Closed.

Issue 3a

How would vegetation conditions be affected by BLM management actions that would reduce livestock grazing due to Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to vegetation from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, “Standards of Rangeland Health and Grazing Management Guidelines” subsection, the objectives of the Healthy Rangeland Initiative is to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessments and evaluations disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

Upland vegetation communities such as those described in this Section inform OR/WA Standards 1, 3, and 5. After the BLM evaluates the Standards for Rangeland Health — and if guidelines for grazing management are being followed — in each allotment, and. BLM determines that existing livestock grazing is a causal factor for failure to attain OR/WA Standards 1, 3, or 5, an analysis of what changes are needed to restore ecological functions occur; removal of grazing is a part of this analysis.

An imbalance in the vegetation community could be behind the failure to meet Standards for Rangeland Health. If OR/WA Standards 1, 3, or 5 are not being met it is likely the Vegetation Objectives 1 and 2 of the SEORMP ROD and many vegetation objectives in the Greater Sage-Grouse ARMPA (see Appendix K for both) are not being achieved as well. While the PRMPA and the alternatives provide an opportunity to restore, protect, and enhance vegetation communities, and manage big sagebrush to meet the life history requirement of sagebrush-dependent wildlife, there is a difference in how quickly the vegetation responds to management actions. Under existing policy if Standards for Rangeland Health are not being met and existing livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards.

The key difference among the alternatives is the closure of allotments or pastures to livestock grazing. With the No Action Alternative, Alternative A, Alternative C, and the PRMPA if Standards for Rangeland Health are not being met due to existing grazing, site specific NEPA analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but it is one of many management actions than could be used to improve conditions.

BLM data (see Table 3-13 in Section 3.7.3 Livestock Grazing) indicate that there are reasons (i.e., causal factors) other than existing livestock grazing that may lead to the non-attainment of OR/WA Standards 1, 3, and 5. If Standards for Rangeland Health are not being met and existing livestock grazing is identified as a causal factor, Alternatives B and D would have similar positive impacts to vegetation as the No Action Alternative, Alternative A, Alternative C, and the PRMPA, but the time scale of improvement would be accelerated. Livestock grazing would be suspended for either the life of the plan (RMP) in Alternative B, or temporarily for the duration of the permit or until monitoring shows significant progress toward meeting Standards for Rangeland Health is made in Alternative D. When livestock grazing is removed, plants have more biomass throughout the entire growing season. This leads to more seed added to the seed bank, more litter on the ground, and more biomass for nutrient cycling. In the short term, changes to the vegetation would not be noticeable among the alternatives because the vegetation communities described in this Section respond to change slower than riparian communities (Dwire and Kauffman 2003). In the long term, Alternative B would likely improve the vegetation condition in a shorter timeframe than Alternative D because livestock grazing could be suspended for a longer period.

Under the No Action Alternative, Alternatives A and C and the PRMPA, if Standards for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take action to make progress toward achieving Standards. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action(s) to make progress toward meeting Standards1, 3 and 5. Action that is designed and implemented to improve vegetative function and condition would benefit vegetation condition and function.

Under the PRMPA, impacts to vegetation resulting from reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, there may be a small increase in beneficial impacts to vegetation over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of

direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Issue 3b

How would vegetation be affected by BLM management actions that would reduce or eliminate livestock grazing due to BLM receiving a voluntary relinquishment of a grazing permit?

The impacts to vegetation due to the elimination or reduction of[29] livestock grazing upon a voluntary relinquishment of a grazing permit is highly variable and dependent on the condition of the vegetation community, the resistance to invasive annual grasses, and the resilience to disturbance. While there are many indicators available to assess the condition of vegetation, invasive annual grasses and resistance and resilience condition class will be used in this analysis as this information is available for the entire planning area. In the short term, changes to the vegetation communities would not be noticeable among the alternatives as the vegetation communities described in this Section have a slower response to change than riparian communities (Dwire and Kauffman 2003). Table 3-18 (below) shows the long-term change in vegetation condition with grazing, no grazing, before wildfire, and after wildfire in the six alternatives.

Professional observations by BLM staff have shown vegetation communities with a moderate to high abundance of invasive annual grasses and a moderate to low resistance and resilience experience an increase in invasive annual grasses post fire. When resistance and resilience are high and invasive annual grasses are low to moderate the abundance of invasive annual grasses stays relatively the same or slightly decreases (Chambers et al. 2007; Strand et al. 2014).

If a fire were to occur, the abundance of invasive annual grasses would not increase if there was no to low invasive annual grasses present before the fire, or if there was a moderate abundance of invasive annual grasses and high resistance and resilience. Under all other conditions post fire the abundance of invasive annual grasses would increase. Treatments may occur to reduce the abundance and spread of invasive annual grasses.

Before a wildfire, the vegetation condition with no grazing would not change except when there is a moderate abundance of invasive annual grasses and a low resistance and resilience. In that circumstance, the abundance of invasive annual grasses likely would increase. If a fire were to occur the abundance of invasive annual grasses would increase under all vegetation conditions except where there is no to low invasive annual grasses and high resistance and resilience. Treatments may occur to reduce the abundance and spread of invasive annual grasses.

[29] Grazing would be reduced in situations where a permittee relinquishes a portion of a grazing permit or where the relinquished permit occurs in a common (multiple operators) allotment. Grazing would be eliminated in situations where a permittee relinquishes their entire grazing permit for an "individual" (one operator) allotment or where pastures are designated for use by individual in "common" allotments. See Appendix G, Table G-3 for scenarios associated with individual and common allotments.

Table 3-18. Vegetation condition with and without fires or grazing.

Resistance/Resilience Class	Condition in No Action, Alt A, Alt C, and the PRMPA with continued grazing before wildfire	Condition in No Action, Alt A, Alt C, and the PRMPA with continued grazing after wildfire	Condition in Alt B or D with reduced or eliminated grazing before wildfire	Condition in Alt B or D with reduced or eliminated grazing after wildfire	Alternative B Acres through relinquishment that would reduce or eliminate grazing	Alternative D Acres through relinquish-ment that would reduce or eliminate grazing
Existing Condition: No to Low Invasive Annual Grasses						
High	static	static	static to upward	static	86,486	51,073
Moderate	static	static	static to upward	downward	142,045	97,327
Low	static	static	static	downward	437,772	291,424
Existing Condition: Moderate Abundance of Invasive Annual Grasses						
High	static	static	static	downward	218,305	48,400
Moderate	static	downward	static	downward	230,404	105,979
Low	static	downward	downward	downward	1,330,899	666,104
Existing Condition: High Abundance of Invasive Annual Grasses						
High	static	downward	static	downward	554	0
Moderate	static	downward	static	downward	6,876	14
Low	static	downward	static	downward	92,057	6,952

Notes: Upward = invasive annual grass abundance decreases. Static = no increase or decrease in abundance of invasive annual grasses. Downward = invasive annual grass abundance increases.

Table 3-18 shows the maximum number of acres by vegetation condition if a permit were to be relinquished in Alternatives B or D that would have grazing reduced or removed. Given the changes to vegetation condition with/without grazing and before/after wildfire, management under the No Action Alternative, Alternative A, Alternative C, and the PRMPA would retain more acres in a static condition than Alternatives B or D. Alternative B has more acres that would have an increase in the abundance of invasive annual grasses than D. If treatments were to occur to reduce the abundance and spread of invasive annual grasses, there may be no difference between the alternatives.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas could result in an increase in beneficial effects to vegetation if the area where the relinquishment occurred was in good vegetative condition but could result in increased levels of invasive annual grasses if the area is in a low or moderate resistance and resilience category. These impacts would be less than those identified in both Alternatives B and D.

General Vegetation Cumulative Effects Summary

The following is a summary of direct and indirect impacts described in the preceding sections.

Issue 1: Prioritizing protection of wilderness characteristics constrains seeding treatments that can be used after disturbance to retain or establish desirable vegetation in areas of low resistance and resilience, potentially resulting in cheatgrass and other invasive annual grasses invading an area and outcompeting the native and desirable nonnative vegetation. Alternatives with the least acres managed for wilderness characteristics would have the greatest benefit to vegetation. The order of alternatives from most beneficial to least beneficial would be A, , C, D and the PRMPA (same 33 units protected), B and the No Action. Alternative B and No Action have a similar number of acres managed for wilderness characteristics.

Issue 2: Areas closed to OHV have the most benefit to vegetation because they have the least trampling and removal of vegetation related to OHV travel as well as increased vegetation connectivity and reduced risks of invading plants. Alternatives with the most acres closed to OHV would have the greatest benefit to vegetation. The most beneficial Alternative would be B. The PRMPA, A, C, D, and No Action are equal and are less beneficial than B.

Issue 3a: Suspending permitted livestock grazing when Standards for Rangeland Health are not being met is beneficial to vegetation because plants would have more biomass throughout the entire growing season, which leads to more seed added to the seed bank, more litter on the ground, and more biomass for nutrient cycling. Alternatives with the longest suspension of permitted grazing would have the greatest benefit to vegetation when considering Standards for Rangeland Health. The most beneficial to least beneficial alternatives would be B, followed by D. The PRMPA may provide greater benefits to vegetation than the No Action Alternative and Alternatives A and C because BLM would consider a broader range of management responses where Standards are not being met, including changes in livestock grazing management. The No Action Alternative and Alternatives A and C would have the same impacts to vegetation.

Issue 3b: The impacts of reduced or eliminated livestock grazing due to BLM receiving a voluntary relinquishment of a grazing permit are least beneficial in communities with low resistance and resilience because they are at greatest risk of invasion from invasive annual grasses. Given changes to vegetation conditions with/without grazing and before/after wildfire, alternatives with the least acres of reduced or eliminated grazing due to voluntary relinquishment would have the greatest benefit to vegetation. If treatments were to occur to reduce the abundance and spread of invasive annual grasses, there may be no difference between the alternatives. The most beneficial to least beneficial alternatives would be PRMPA, A, C, No Action, D and B. PRMPA, A, C, and No Action Alternatives have the same impacts to vegetation.

Overall, the impacts to vegetation communities vary both by the alternative considered and the proposed actions in each. The following summarizes this variation.

- Alternative A would have the greatest benefit to vegetation with Issues 1 and 3b. Conversely, this alternative has the least benefit to vegetation with Issues 2, and 3a.
- The PRMPA would have the greatest benefit to vegetation with Issue 3b and is less beneficial with Issue 1 when compared to Alternative A. This alternative has the least benefit to vegetation with Issues 2 and 3a.
- Alternative C would have the greatest benefit to vegetation with Issue 3b and is less beneficial with Issue 1 when compared with PRMPA. This alternative has the least benefit to vegetation with Issue 2 and 3a.
- Alternative D would not have the greatest benefit with any of the Issues and is the least beneficial with Issue 2.
- Alternative B would have the greatest benefit to vegetation with Issues 2 and 3a and is the least beneficial with Issues 1 and 3b.
- The No Action Alternative would have the most benefit to vegetation with Issue 3b and is least beneficial with Issues 1, 2, and 3a.

Cumulative Effects to General Vegetation

In general, reasonably foreseeable future actions that are designed to restore or rehabilitate degraded areas would have the overall effect of maintaining and improving vegetation communities. Projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds. Specific impacts from RFFAs to develop mineral resources or provide energy production or delivery have short term impacts during construction and long-term impacts during implementation and may negatively impact vegetation communities. While the RFFAs do impact vegetation communities, the incremental impacts would be the same among the alternatives as those described above.

The following discussion addresses the additional effects to vegetation from reasonably foreseeable actions. These effects are in addition to the ongoing effects to vegetation (juniper cutting and burning, fuel break mowing, mining, livestock grazing, transmission line construction, seeding and planting, and noxious and invasive weed control) described in the affected environment section and the effects of the actions of each of the alternatives on vegetation noted above. The cumulative effects analysis area for general vegetation is the planning area, as activities outside this area would not have an impact on vegetation. Managing vegetation is an integral part of the BLM-administered land management on the Vale District.

Reasonably foreseeable future actions that have the potential to beneficially affect vegetation include the Tri-state Fuels Management Project, the LCGMA Permit Renewal and Restoration Treatments, and Northwest Malheur County Greater Sage-grouse Habitat Restoration. These projects benefit vegetation in many ways through efforts to restore properly functioning vegetation communities and their services (moisture retention, soil surface and erosion protection, decreasing negative impacts of fire on the landscape, habitat protection and enhancement, etc.).

The Tri-state Fuels Management Project would use a combination of mowing, seeding of native and non-native species, targeted grazing, prescribed burning, and herbicide treatments to modify vegetation in order to create fuel breaks within 200 feet on either side of proposed roads. In the short-term there would be disturbance to vegetation but in the long-term there is a benefit to vegetation through reduced size of wildfires.

Additional ground disturbing actions included with the Tri-state Fuel Breaks are road maintenance and the development of four wells and four gravel pits that equate to 82 acres of new surface disturbance.

These 82 acres would remain permanently disturbed resulting in both short- and long-term, adverse effects to upland vegetation resources.

The LCGMA Permit Renewal and Restoration Treatments address the renewal of livestock grazing permits and the restoration of upland and riparian vegetation communities that are not meeting Standards for Rangeland Health. The resulting actions could include the construction of fencing and water sources for improved livestock management. Livestock grazing permits could include terms and conditions that could allow for grazing while promoting attainment of Standards for Rangeland Health. Restoration treatments could use herbicide application, seeding, and shrub planting to reduce invasive grasses, prevent erosion, and establish perennial vegetation communities. Mowing, prescribed burning, or herbicide may be used to reduce sagebrush density where it is too high to benefit Sage-grouse. These restoration actions may have short-term impacts to vegetation caused by implementation of the treatments, but vegetation benefits in the long-term through improved health of desirable vegetation communities. Constructing fence and development of water sources create both short- and long-term disturbance through removal of vegetation, though the scale of the disturbance would be minimal. RMP and Sage-grouse objectives for vegetation would continue to be met with implementation of this project.

The Northwest Malheur County Greater Sage-grouse Habitat Restoration project focuses on juniper removal which increases soil moisture that was being removed by juniper, making it available for other plants. Burning juniper piles removes existing, above ground biomass in the burned area, followed by seed germination and regrowth of plants existing on the site, but also temporarily sterilizes the site under individual piles. These burn pile sites may then be very susceptible to invasive plants, though design features such as herbicide treatments and seeding reduce this impact. Juniper treatments are designed to improve vegetation health—typically causing short-term negative effects to vegetation but increased vigor of understory plants over the long term. The project also improves forested communities by reducing fuels and diseases trees making the community less susceptible to high intensity wildfires. Other proposed actions create fuel beaks to improve the ability to control wildfires and reduce the acres of sagebrush communities burned. All these activities have a long-term benefit to vegetation by improving or maintaining community health. The Northwest Malheur Mineral Material Site Development project, associated with the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, would have short- and long-term impacts on vegetation through development of up to seven mineral development sites and temporary staging sites. The long-term benefit of the project would be reduced wildfire size and less vegetation burned.

Reasonably foreseeable future projects that may have a negative impact on water and riparian resources are: Boardman to Hemingway 500-kV transmission line (approximately, Grassy Mountain Gold Mine (500 acres), lithium exploration, the Malheur Queen and Octagon gold mines (approximately five acres active, followed by reclamation), Owyhee Pump Storage Energy Development (40 acres), Agency Valley Free Use Saleable Mineral Pit Development (five acres), Vale to Drewsey Transmission Line ROW Modification and Renewal (pole-specific construction and access along 26 mile project), and the Residential Trespass Resolution (six acres).

Mining and mineral pit development causes vegetation disturbance and typically removes the topsoil, resulting in disturbed or no revegetation, which varies depending on the environmental conditions of the area. This may cause highly localized adverse effects but minor long-term adverse effects to vegetation across the planning area as areas are reclaimed. Potential effects from lithium exploration would be similar to those described in Soils Section 3.7.4. Ground disturbing RFFAs that clear soils and vegetation before operations and during implementation would have longer term impacts to both vegetation and habitat; these project are, however, implemented with stipulations for stockpiling material to be used during reclamation.

Proposed transmission line construction would have a short-term impacts during construction on vegetation, but proposed revegetation would reduce long-term impacts. Where permanent access roads for

maintenance or infrastructure are constructed to support the transmission line, there would be long-term removal of vegetation, but the effects would be localized resulting in minor long-term adverse effects to vegetation across the planning area. The Boardman to Hemmingway 500-kV transmission line would have a short-term impact on soils across 2,234 acres of ROW corridor, but proposed mitigation would reduce long-term impacts. There would be long term negative impacts to soils for permanent (life of operation of the project) structures and facilities and those negative impacts cover approximately 100 acres (permanent access routes, buildings and towers/poles). The Owyhee Pump storage energy development would have similar long-term effects but on a smaller scale (approximately 40 acres) as it is a smaller project.

The residential trespass resolution would change six acres from LTZ 1(retain or acquire) to either Zone 2 (disposal) or 3 (land exchange). In the short-term there would be no impact to vegetation but in the long-term there could be disturbance to vegetation if the land is disposed of or exchanged. This long-term impact would be highly localized and diminutive on the planning scale.

If the Idaho District Court's preliminary injunction remains in effect and implementation of the Key RNA decisions in the 2015 *Oregon Greater Sage-grouse ARMPA* (BLM 2015d) moves forward, up to approximately 27.2 miles of new fencing could be constructed to exclude livestock from these areas. This could result in approximately an additional 16.5 acres of ground disturbance associated with fence construction and potential development of livestock trails adjacent to the new fences. This impact could have a diminutive impact in the short- and long-term as it affects significantly less than 1% of the vegetation in the planning area.

If the injunction is lifted and the 2019 *Oregon Greater Sage-grouse ARMPA* (2019d) is implemented, approximately 9,354 acres would become available for livestock grazing once again. Under this scenario the potential for fencing described above (and the associated ground disturbance) would not occur.

Livestock management actions under the PRMPA, No Action Alternative and Alternatives A and C allow for flexibility in grazing management options to address areas not meeting Standards for Rangeland Health due to any causal factor, including due to existing grazing management. There are a range of management responses to address existing livestock grazing management when found to be a significant causal factor to not meeting one or more Standards for Rangeland Health such as either reducing AUMs, temporary closing areas to grazing, or changing seasons of use, or any combination. Implementation of range improvements could continue with site-specific analysis and adherence to design features to limit impact to vegetation. These management options allow for sustainable health of the rangelands as well as public land grazing. Under the PRMPA, No Action, Alternative A and Alternative C, options for adjusting livestock grazing management are variable, and do not automatically result in the suspension of grazing.

In general, reasonably foreseeable future actions that are targeted at restoration or rehabilitation of degraded areas would have the overall effect of maintaining and improving vegetation communities in the planning area. Projects that are ground disturbing typically have design features to revegetate with native or desirable nonnative seed to reduce introduction of noxious and invasive weeds. The incremental beneficial and negative effects to vegetation from these reasonably foreseeable actions do not vary by alternative.

3.7.7 Invasive Species

Key Points

- Access for surveys and treatment is critical for successful implementation of invasive species control projects.
- Successful restoration activities are required for invasive competition; proper functioning plant communities, as discussed in 3.7.6 General Vegetation, are the best deterrent to invasive species invasion and spread.
- Proper livestock grazing management has positive effects on invasive species control.
- The term "invasive plants" is used in this section to include listed noxious weeds (BLM 2010c, xix):

Noxious weeds are a subset of invasive plants that are county, state, or federally listed as injurious to public health, agriculture, recreation, wildlife, or any public or private property.

Invasive plants are nonnative aggressive plants with either the potential to cause significant damage to native ecosystems or cause significant economic losses, or both.

Affected Environment

The BLM faces a wide array of invasive plant species and noxious weeds due to the diversity of vegetation types and conditions in the planning area. Many factors influence the establishment and spread of invasive plants, including community structure, proximity to currently infested areas, and biological traits of the invading species. The amount of pre-existing invasive plants, precipitation amount and timing, soil characteristics, disturbance type and severity, slope, aspect, and seed viability of both native and invasive plant species all have contributing influences from site to site. In general, vegetation types with frequent gaps in plant cover, such as sagebrush-steppe, woodlands, and dry forests, are more susceptible to invasive plant establishment than vegetation types with relatively closed plant cover (BLM 2016e, 90). Dominance by invasive plants can cause displacement of native vegetation; reduction in habitat and forage for wildlife and livestock, including habitat for federally listed and other Special Status species (SSS); increased soil erosion; reduced water quality; reduced soil productivity; reduced wilderness and recreation values; and changes in the intensity and frequency of fires (BLM 2010c, 7). As discussed in Section 3.7.6 General Vegetation, climate change has the potential to alter species composition, favoring invasive plant species.

Noxious Weeds

The planning area has 40 invasive species of concern, in addition to many species of lesser importance. (See Other Invasive Species, below). Of those species of concern, either 37 are county or state-listed invasive plant species listed as noxious weeds, or both. Cumulatively, these species occupy over 200,000 documented acres (Table 3-19 below). Unless otherwise noted, Table 3-19 uses the Oregon Department of Agriculture noxious weed classifications (ODA 2017). The BLM has not intensively surveyed all of the planning area and believes estimations of invasive annual grasses, such as medusahead and ventenata, are low. Early detection and rapid response (EDRR) is practiced across the planning area as well as monitoring of known sites. Project level *National Environmental Policy Act* (NEPA) incorporates site specific invasive species surveys into the EA/EIS plans. DEIS MAP-VEG 3 (Appendix M of the DEIS, BLM 2019a) shows some, but not all, known locations and some of the past treatments within the

planning area. Invasive annual grass information was compiled from Landsat Thematic Mapper spectral imagery data capture and is illustrated in MAP-VEG 2[30] in DEIS Appendix M.

Table 3-19. Summary of key invasive species, including listed noxious weeds, present in the planning area.

Common Name Scientific Name	Noxious Weed Classification	Estimated Project Area Acres	Common Habitat	Primary Locations
Armenian blackberry *Rubus armeniacus*	B[31]	<1 acre	Riparian, roadside	N Malheur Co. Sagebrush Reservoir
Black henbane *Hyascyamus niger*	NL[32]	4 acres	Uplands, riparian benches	Malheur River, Grasshopper Flat road
Bouncingbet *Saponaria officinalis*	NL	1 acre	Old homesteads, benches above high-water mark	Succor Cr
Buffalobur *Solanum rostratum*	B	200 acres	Uplands	N Malheur County, Alkali Flat, Cow Hollow
Bull thistle *Circium vulgare*	B	300 acres	Riparian, springs, seeps, forest	Widespread across project area
Canada thistle *Circium arvense*	B	300 acres	Riparian, springs, seeps, forest	Widespread across project area
Dalmatian toadflax *Linaria dalmatica*	B	100 acres	Uplands, roadsides	Hwy 78, Castle Rock, Rail Canyon
Diffuse knapweed *Centaurea diffusa*	B	800 acres	Roadsides, uplands, riparian benches	Widespread across project areas
False indigo bush *Amorpha fruticosa*	B	5 acres	Riparian	Snake and Owyhee Rivers
Field bindweed *Convolvulus arvense*	B	35 acres	Uplands, roadsides	Widespread across project area
Halogeton *Halogeton glomeratus*	B	2,575 acres	Roadsides, disturbed areas	Widespread across project area
Houndstongue *Cynoglossum officinale*	B	50 acres	Uplands, riparian, roadsides, forest	Castle Rock, N Malheur County
Jointed goatgrass *Aegilops cylindrical*	B	150 acres	Roadsides, uplands	Widespread across project area
Kochia *Kochia scoparia*	B	25 acres	Uplands, roadsides, disturbed areas	Throughout the project area

[30] Landsat is a joint effort of the US Geological Survey (USGS) and the National Aeronautics and Space Administration (NASA).

[31] Noxious Weed Classification B: A weed of economic importance, which is regionally abundant, but which may have limited distribution in some counties. Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method (ODA 2017).

[32] NL means "not listed" and indicates the species is nonnative and recognized as a threat to ecosystem health but is not listed by state or county.

Common Name Scientific Name	Noxious Weed Classification	Estimated Project Area Acres	Common Habitat	Primary Locations
Leafy spurge *Euphorbia esula*	B	50 acres	Uplands, riparian benches	N Malheur Co – Willow Creek, Sheaville, Jordan Creek
Mediterranean sage *Salvia aethiopis*	B	50 acres	Uplands	Kingsbury Gulch, Vines Hill, Hwy 20
Medusahead rye *Taeniatherum caput-medusa*	B	100,000 acres	Uplands	Widespread across the project area
Musk thistle *Carduus nutens*	B	110 acres	Valley bottoms, disturbed areas	Highway 20, Antelope and Cottonwood Creeks
Myrtle spurge *Euphorbia myrsinites*	B	7 acres	Roadsides, uplands	Lytle Boulevard
Oxeye daisy *Leucanthemum vulgare*	Baker County listed	2 acres	Meadows, forests	Ironside Mountain
Perennial pepperweed *Lepidium latifolium*	B	2,500 acres	Uplands, riparian benches, valley bottoms, roadsides	Widespread across the project area
Poison hemlock *Conium maculatum*	B	55 acres	Riparian, dry benches	Malheur River, Owyhee River
Puncturevine *Tribulus terrestris*	B	150 acres	Roadsides, recreation, administrative sites	Widespread across the project area
Purple loosestrife *Lythrum salicaria*	B	1 acre	Riparian, springs, seeps	Brogan-Willow Creek, Leslie Gulch
Rush skeletonweed *Chondrilla juncea*	B	55,000 acres	Uplands	Widespread N of Leslie Gulch road, Caviatta Ridge
Russian knapweed *Acroptilon repens*	B	1,700 acres	Uplands, riparian benches, roadsides	Widespread across the project area
Russian olive *Elaeagnus angustifolia*	NL	8 acres	Riparian, ephemeral streams	Kane Springs, Bogus Creek, isolated sites across project area
Scotch thistle *Onopordum acanthium*	B	20,000 acres	Uplands, roadsides, loafing areas,	Widespread across the project area
Spiny cocklebur *Xanthium spinosum*	B	<1 acre	Meadows, forests, roadsides, disturbed sites	Mine tailings near Twin Springs
Spotted knapweed *Centaurea stoebe*	B	200 acres	Forests, roadsides, uplands, riparian benches	Ironside Mountain, Castle Rock
Squarrose knapweed	A[33]	<1 acre	Uplands, roadsides	Hwy 20—Malheur River

[33] Noxious Weed Classification A: A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent. Recommended action: Infestations are subject to eradication or intensive control when and where found (ODA 2017).

Common Name Scientific Name	Noxious Weed Classification	Estimated Project Area Acres	Common Habitat	Primary Locations
Centaurea virgate				
St. Johnswort *Hypericum perforatum*	B	1 acre	Roadsides, riparian benches	Dry Creek, Juniper Gulch trailhead
Sulfur cinquefoil *Potentilla recta*	B	<1 acre	Uplands, forest, riparian benches	Dearey Pasture
Tamarisk/saltcedar *Tamarix ramosissima*	B	6,225 acres	Riparian, ephemeral/seasonal streams	Owyhee and Snake River and tributaries
Tree of heaven *Ailanthus altissima*	B	1 acre	Recreation, roadsides, administrative sites	Snake River
Ventenata *Ventenata dubia*	B	3,700 acres	Roadsides, uplands, valley bottoms	Widespread across the project area
Whitetop *Cardaria draba (Lepidium draba)*	B	10,000 acres	Uplands, valley bottoms, riparian, roadsides	Widespread across the project area
Yellow flag iris *Iris pseudocorus*	B	<1 acre	Riparian	Owyhee Below the Dam
Yellow starthistle *Centaurea solstitialis*	B	1,700 acres	Uplands, valley bottoms	Sage Creek, Pasqual seeding
Yellow and white sweetclover *Melilotus officianalis, M. alba*	Malheur County listed	55 acres	Roadsides, uplands, disturbed sides, riparian benches	Highways 20, 95, 78, numerous streams and ephemeral streams

Many invasive species sites established in response to disturbances and water availability. Most commonly, they are located along improved roads and in riparian areas, recreation sites, mining areas, livestock water development sites, and other previously disturbed areas. Other sites are scattered and more isolated, introduced via one or more distribution vectors, including, but not limited to, wind, water, wild and domestic animals, and public land users.

Noxious weed invasion has many detrimental effects, including the loss of rangeland productivity, increased soil erosion, reduced species and structural diversity, reduced crop yields, and loss of wildlife habitat. Economic losses from noxious weeds are considerable and often not fully recognized. Some species pose a significant threat to multiple-use management of public land as well as impact crop production on private lands at the interface between private and public lands.

In Oregon, as well as other western states, the state legislature declared noxious weeds a menace to public welfare (ORS 570.505). Failure to control these weeds can lead to public hazards and economic losses, as is emphasized in the *Plant Protection Act* (Public Law 106-224). *The Carlson-Foley Act* (Public Law 90-583) and the *Federal Land Policy and Management Act* (Section 302[b]), as well as state and county laws, state that the federal government has a responsibility to control invasive plants on federal lands. Several federal laws and policies provide direction for control of invasive species, including plants, on federal lands.

Invasive Annual Grasses

Specific areas where invasive annual grasses are dominant, as well as areas at risk for invasion, have been identified in the planning area as either Category 5 or 6. Category 5 rangelands have native plant communities that are still functioning ecologically, but are at risk of losing that function due to: increasing invasive annual grass densities, the increased risk of wildfire these invasive annual grasses create, and the ability of these grasses to outcompete native plants following wildfires. Category 5 plant communities can recover if the invasive annual grasses are controlled. Category 6 communities are considered to be so infested with invasive annual grasses that the native plant community, if it exists at all, has ceased to be the controlling factor for ecological function. Restoration of these invasive annual grass monocultures would be desirable but is usually low priority compared to other Categories because the chance of rehabilitating these sites is lower and costs are higher (BLM 2016e, 39). Within the planning area, invasive annual grasses are present within the understory on more than 3.5 million acres (Category 5; Ibid., 37–39) and the primary species on an additional 400,000 acres (Category 6).

Cheatgrass is present throughout the planning area, ranging from low density (areas at risk for conversion) to monoculture (dominant species). At high densities, invasive annual grasses increase the frequency and severity of rangeland wildfires, which in turn threatens sagebrush and other native habitats, and promotes further spread of invasive annual grasses (Whisenant 1990; Miller and Tausch 2001; Pellant et al. 2004; Boyte et al. 2016). Rehabilitation or restoration treatments, such as seeding burned or otherwise disturbed areas with native or nonnative perennial (Evans and Young 1978) vegetation, reduces the potential for introduction and spread of noxious weeds and invasive plants.

Medusahead rye is the most problematic of the invasive annual grasses in the planning area. Well-established infestations tend to be very competitive as few plant species appear able to germinate under or emerge through its thatch. These core infestations are usually surrounded by a halo of low to moderate infestation that can be extensive and spreading. Over the past 15—20 years, field observations have noted that the infestations are expanding into and displacing previously cheatgrass-dominated areas. In some areas, medusahead has also been observed moving into healthy bluebunch wheatgrass communities. Many vectors, such as wind, wildlife, vehicles, people, wild horses, and livestock, spread medusahead seeds, creating new satellite populations.

Observations of ventenata, another aggressive invasive annual grass, have increased dramatically in the planning area since 2012. There are sites in the planning area where it has germinated and emerged through dense medusahead thatch. In central Oregon, downy brome (cheatgrass), medusahead, and ventenata can be found coexisting in rangelands, and in some areas ventenata is displacing the two other species. (Sbatella and Twelker 2013).

Other Invasive Species

Additional invasive plants not listed in Table 3-19 (above) are known to be present within the planning area but are generally not inventoried because they are currently a low priority for treatment. These plants do not usually cause as much ecologic or economic harm as invasive plants in the other categories. However, in the future these plants may become problematic in specific conditions. If this occurs, they would require additional treatments (e.g., common teasel could become a localized problem near spring developments due to available moisture and soil disturbance).

These species take advantage of disturbed sites. Many of these species are interspersed in invasive annual grass sites, especially the annual mustard species and Russian thistle (the iconic tumbleweed in older western movies). Tumble mustard and Russian thistle are problematic as they dry out in the fall, break off at ground level, become windblown, and roll across the landscape, scattering seed and eventually piling in heaps along fences or other barriers, in canyons, and in other low spots. They can amass each year and

become quite dense, creating a fire hazard as fire torches the piles or fencelines and then fire runs down the amassed plants into unburned areas.

Since 2002, a number of changes have occurred that affect invasive plant management on public lands:

- Additional herbicides have been approved for use on public lands and are hereby incorporated by reference (BLM 2010c, 2016h).
- In 2016, the Vale District signed a decision to implement an Integrated Invasive Plant Management (BLM 2017e) program which tiered to a statewide EIS and a national EIS that expanded the suite of herbicides available to BLM districts (BLM 2010c, 2007c).
- Yearly treatment acres across the planning area fluctuate with funding and average between 300–500 acres. Acres have not changed significantly due to additional herbicides. However, improved herbicide selectivity and efficacy equates to less off-target plant damage and fewer retreatments which decreases the amount of herbicide per site. Acres may fluctuate significantly in years with large ESR treatments following wildfires or due to Fuels projects. New NEPA allows for integrated invasive plant management which includes other land restoration/rehabilitation actions, such as ESR/Fuels treatments or other rangeland projects, including seedings, to augment herbicide treatments. Such actions lead to healthier vegetative communities which discourage invasive plant spread and establishment.
- National policies established protection and restoration of sagebrush landscapes and habitat as a priority and through the ARMPA, in the planning area ESR and Fuels ongoing and proposed actions will help improve the resilience of vegetation communities by reducing the spread of noxious weeds and lessening competition from invasive annual species.
- All of these national initiatives are indicative of BLM's effort to try to reduce the spread of invasive species on public land.

Many activities intend to improve the health of the vegetative communities. Tree cutting and pile burning create niches for invasive species establishment. For example, whitetop is sometimes present in a juniper understory prior to juniper reduction treatments and can proliferate following project actions. Spotted knapweed mostly grows in forested areas and could be spread by forest treatments. Pre-treatment surveys and post-treatment monitoring of disturbed sites, followed by either herbicide treatment of invasive species or seeding with desirable species for competition (or both), where needed, would help control invasive plants following fuels and forestry projects. Long-term benefits of these types of treatments include establishing competitive, desirable vegetation to use the released moisture, nutrients and sunlight following removal of tree species.

Wildfires can increase the spread and abundance of invasive plants dramatically, but stabilization and rehabilitation projects would reduce soil erosion, the abundance of invasive plants, and ultimately increase desirable perennial plant cover.

Historical livestock grazing has been, and current grazing can be, the cause of changes from healthy, functioning rangelands to nonfunctioning rangelands infested in varying degrees by invasive plants. Poorly managed livestock grazing can negatively impact the structure of competitive vegetative communities, allowing invasive species to proliferate. Properly managed grazing can maintain functioning plant communities. Grazing when invasive annual grasses are green and desired species are brown allows perennial grasses to reoccupy the sites (Smith et al. 2012, 1) and can reverse damage on nonfunctioning areas resulting in a long-term positive effect.

Mining activities create soil and vegetation disturbance that provide opportunities for invasive plant spread. Mining equipment can also introduce invasive plants into disturbed sites. Effects can be long-term due to impacts to, or loss of, topsoil which makes revegetation difficult and often unsuccessful. However, the locatable mining claims in the planning area are generally less than five acres, with most being one to

three acres. Few of these ever make it to the restoration stage as a majority of them are inactive or they are kept in family holding or sold to other individuals and thus are either not being disturbed or are in a perpetual state of minor disturbance where vegetation is constantly disturbed. Observations of the few (notably Bretz mine near the Nevada border west of McDermitt) that have been reclaimed, show the seedings to have had no, poor, or spotty success likely due to poor and generally rocky soil conditions that also impeded establishment of most invasive species, resulting in a barren area that slowly filled in with hardy forbs such as buckwheats, woody aster, squirreltail, and whatever invasive grass was established nearby. The degree of invasive invasion is generally no greater, and often less, than the density in closest proximity to the activity.

The BLM uses acres infested as a measure of invasive species, including noxious weeds. The desired conditions for noxious weeds may be measured by total acres found to be free of weeds. Although acres of a given species might be increasing in known infested areas, if new infestations of that species are not found or are not known to be expanding into weed-free areas, then it could be determined that desired conditions are being met.

Environmental Consequences

Analytical Methods

- OHV and access issues were analyzed with considerations of the impacts on invasive species survey and control, including maintenance on routes to move large aerial treatment equipment.
- Management actions to protect wilderness characteristics were analyzed with consideration of the impacts on restoring competitive vegetation for invasive species control.
- Grazing permit relinquishment (analyzed as livestock grazing reduction or elimination) was analyzed with consideration to impacts on the control and spread of invasive species.

Indicators

- Acres of desirable competitive vegetation successfully established within areas managed for wilderness characteristics (Issue 1).
- Changes in total acres of lands protected for wilderness characteristics from Category 5 condition to Category 6 (Issue 1). Category5 and 6 are fully defined under Invasive Annual Grasses in the Affected Environment section.
- Acres open or closed to OHV and miles of routes limited or closed (Issue 2).
- Decrease in number of new invasive species sites reported by non-BLM (Issue 2).
- Increase or decrease in acres economically feasible to treat aerially due to added costs from ferry distance (Issue 2).
- Number of acres of new infestation within previously uninfested areas and acres of expansion of existing populations (Issue 2).
- Change in acres of Categories 5 and 6 due to increased wildfire potential from fine fuel buildup in Category 5 in the absence of livestock grazing, trending acres to Category 6 (Issues 3a and 3b).

Assumptions

- The management of invasive plants is similar across all alternatives, driven by policy, funding, and resource priority. Treatment methods and priorities vary by location, species, potential to spread, and effectiveness of treatment options.
- New introductions of invasive species would continue to occur and spread into and out of the planning area.
- The level of introduction, spread and potential for establishment of invasive species corresponds to the amount of disturbance on the landscape, including acres impacted by wildfires, success of invasive species treatments, and success of restoration actions to establish competitive vegetation.
- Public land livestock grazing can be managed to limit the spread of invasive annual grasses and augment other treatments to control invasive species.

Issue 1

How would the management of invasive species be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

To meet the Great Basin Greater Sage-grouse management priority (Management Direction MD-VEG 3, 2–12), stated in the 2015 GRSG ARMPA (BLM 2015d) to protect and restore sagebrush landscapes and habitat, one or more integrated pest management (IPM) treatment methods may be required, such as mechanical control, biological control, herbicide spraying, and seeding desirable species (BLM 2016e, 29). In areas that require seeding of desirable species as part of the restoration, establishing effective seedings of desirable perennial species that will compete against invasive species is critical for successful control.

Reestablishing functioning vegetation communities is a priority for BLM's vegetation treatments. Whether treatment needs are located in sensitive or protected areas, a range of techniques are considered to address degraded conditions. Since 2010, the BLM has implemented a diverse set of restoration and rehabilitation actions within lands with wilderness characteristics, while meeting the provisions of the 2010 Settlement Agreement to neither, "diminish the size or cause the wilderness characteristics unit to no longer meet the criteria for wilderness character".

As hotter and drier conditions in the planning area persist (see Section 3.7.22 Climate Change), rangeland fires have increased in size and intensity (Section 3.7.9 Fire and Fuels Management) to a significant extent as a result of invasive annual grasses. In response, the BLM has increased our investment in restoration treatments, notably in the reduction of fine fuels. These management actions are designed, in part, to restore degraded conditions and are identified and designed to address specific resource conditions present in a project area. Project objectives are developed to tailor appropriate management actions to circumstances in the project area. Treatment method options are considered based on site potential, geography, available resources (including staffing, funding, and equipment), resource designations (e.g., Sage-grouse or other critical habitat or special designations or management areas), and policy/legal stipulations. Where necessary, treatments are modified or designed to address these considerations. Since entering into the 2010 Settlement Agreement, where restoration and rehabilitation needs are identified in lands with wilderness characteristics, certain types of treatments have been modified or designed to meet both ecologic objectives and to ensure that the wilderness characteristics are protected.

As described in the Affected Environment section above, establishing desirable vegetation in degraded areas is one of the most effective treatments in reducing the prevalence, and limiting the expansion of

invasive species. Seeding desirable species, often with pre-treatments like herbicide applications and post-treatments like grazing rest or re-seedings, are effective in reducing invasive annual grasses under appropriate conditions. Seedings are commonly considered a fundamental restoration or rehabilitation action throughout the planning area and are tailored to the site-specific conditions and constraints of a project area. In particular, modifications to ground disturbing activities like drill seeding or use of less-disturbing seeding methods like broadcast seeding have been used to protect wilderness characteristics and their effectiveness evaluated.

Seeding can be implemented through various techniques, with varied seeding success. Design features in protected wilderness characteristics units, such as modification of rangeland drills or selecting aerial or broadcast seedings to reduce unnatural linear features to protect naturalness and meet VRM Class II objectives, can decrease the chance of attaining healthy, successful seedings, and increases costs. Seeding depth of grasses is crucial to germination success. Most grass seeds should be planted no deeper than ¼—½ inch. Most small legumes and forbs establish effectively when planted only ⅛ to ¼ inch. Since resources that promote seedling development (i.e., water and nutrients) are generally lacking on dryland sites, accurate seed placement is required (Jensen et al. 2001).

Rangeland drills are designed to place the seed in the bottom of a furrow, lightly covered with soil from a drag chain. The furrow serves as a micro water catchment with each subsequent rain or snow event holding moisture in the furrow to aid the seed in germination. Once germinated, the furrow holds moisture to aid in the seedling's emergence from the soil and establishment. A no-till drill can also be used for drill seeding; the method of seeding is similar to a rangeland drill in that a linear row of vegetation is created. The method varies slightly in that the no-till drill creates a very narrow furrow and uses a packer wheel to incorporate the seed into the soil. References to the effects of drill seeding that follows include both till and no-till methods. Methods such as dragging or harrowing out drill rows (furrows) to minimize or avoid impacting naturalness and to meet VRM Class II could easily bury the seed too deep. Having, conversely, no furrow could deprive seeds of needed moisture for germination and seedling survival. Cheatgrass can emerge from greater depths than desirable perennials, however, giving the annual grass a greater chance of survival following treatments such as dragging or harrowing. Cheatgrass seedlings emerge rapidly from the top one inch of soil and a few plants may emerge from depths of up to three inches (Amundson 2015).

The BLM may also consider non-surface disturbing restoration or rehabilitation methods for establishing desirable competitive species to avoid or reduce impacts to protected wilderness characteristics units. These modified methods are also considered in areas which are difficult or infeasible to treat with ground-based methods, as well, such as rocky, shrubby, or severely irregular landscapes; however, these modifications would be implemented more regularly in protected wilderness characteristics. In these situations, aerial seed broadcasting, followed by some type of packing or chaining to incorporate seed into the soil surface may be required. These methods usually result in a significant reduction in seedling establishment and require a higher seeding rate than with drill seeding (Jensen et al. 2001).

Seeding success is especially important to maintain and improve rangelands with a high probability of success in restoring ecologic function. Category 5 rangelands have native plant communities that are still functioning ecologically but are at risk of losing that function due to: increasing invasive annual grass densities, the increased risk of wildfire these invasive annual grasses create, and the ability of these grasses to outcompete native plants following wildfires. Category 5 plant communities can recover if the invasive annual grasses are controlled (BLM 2016e, 39). Category 6 is considered to be so infested with invasive annual grasses that the native plant community, if it exists at all, has ceased to be the controlling factor for ecological function. Increases in annual grass infested acres can decrease fire return intervals, more fully discussed in Section 3.7.9 Fire and Fuels Management.

For example, following the 2012 Long Draw fire, where modified drills were used, 39% of 100 monitored plots achieved objectives of two deep-rooted perennial grass plants per square meter. Unmodified

rangeland seeding drills resulted in an average of 76% of monitored plots achieving two plants per square meter. The BLM now sets objectives for successful establishment of three plants per square meter for seedings. Cost differences for modifying rangeland drills are not available, but each drill that is retrofitted for depth bands and adding drags to diminish visual impacts require additional staff, time, and materials.

Design features that may be necessary to avoid or minimize impacts on wilderness characteristics can increase costs and decrease success of seedings. Descriptions of aerial and drill seeding methods, equipment types, and comparison of costs and success rates are more thoroughly discussed in Section 3.7.6 General Vegetation.

In each alternative, the total acreage and individual lands with wilderness characteristics units contain varying percentages of invasive annual grasses (Table 3-20). Category 5 represents acres that would likely need restoration, including seeding, in the event of wildfires and that have the potential to respond favorably to seedings. The key difference between all alternatives is the number of acres in Category 5 that could have seeding extent and success impacted by design features to meet VRM Class II objectives.

Effectiveness monitoring would determine the need for follow-up seeding which may be necessary to achieve restoration objectives. In the event of wildfires, lands within wilderness characteristics units would likely need reseeding to maintain a strong, competitive perennial plant community.

Table 3-20 shows that between 63,296 (PRMPA) and 942,439 (No Action Alternative) acres of lands with wilderness characteristics protected in each alternative (Category 5) may require additional designs that could reduce seeding success, be limited to fewer acres that could be treated due to the cost of potentially less effective seeding methods or due to added design features or require multiple seeding treatments. Poor restoration success on Category 5 lands could result in missing restoration windows and result in a downward spiral of ecological condition toward Category 6 (see DRMPA/DEIS Map VEG 2 in Appendix M).

Modified restoration practices which may lead to either increased acres or density of invasive grasses, or both, can also impact adjoining landowners. Although state, private, and other land managers may be using the best available seeding methods, they could experience failed or poor success due to high invasion risk from the vast seed source on BLM-administered lands.

Table 3-20. Acres of Category 5 and 6 invasive species within protected lands with wilderness characteristics.

PRMPA and Alternatives	Acres Protected for Wilderness Character-istics	Acres of Category 5 in Protected units	Acres of Category 6 in Protected Units	Total Acres 5 and 6 in Protected Units	Percent of Acres in Protected Units in Category 5	Percent of Acres in Protected Units in Category 6	Percent of Total Acres in Protected Units in either Category 5 or 6[a]
PRMPA	417,190	253,471	6,958	260,429	61%	2%	62%
No Action	1,236,907	942,439	78,780	1,021,219	76%	6%	83%
Alternative A[b]	0	0	0	0			
Alternative B	1,206,780	920,922	75,660	996,582	76%	6%	83%
Alternative C	167,709	130,666	800	131,466	78%	<1%	78%
Alternative D	417,196	253,471	6,958	260,429	61%	2%	62%

[a] Percentages in this table reflect the (rounded) percentages of the planning area in each category within protected units.

[b] Alternative A would not provide specific protections for lands with wilderness characteristics; treatments in Category 5 and 6 lands in these areas would following existing best management practices.

The No Action Alternative and Alternative B would protect wilderness characteristics on over 1.2 million acres. Of those two alternatives, 76.2% (942,439 acres) and 76.3% (920,922 acres), respectively are identified as invasive annual grass Category 5. Alternative D would manage 417,196 acres for wilderness characteristics with 61% (about 253,471 acres) in Category 5. In protected wilderness characteristics units, Alternatives B and D would require consideration of treatment strategies that, under certain conditions have a reduced potential of seeding success, while still meeting VRM Class II objectives and protecting wilderness characteristics.

Conversely, in the event of wildfire or other disturbance, Alternative A, followed by Alternative C would require modified seeding designs on the fewest acres while meeting VRM Class II objectives and to protect wilderness characteristics. Seventy-eight percent (130,666 acres) of protected wilderness characteristics units under Alternative C possess Category 5 levels of invasive annual grasses. Restoration and rehabilitation efforts in protected wilderness characteristics under the PRMPA and Alternative C would be subject to design features that have the potential to impact seeding success. No additional design features to protect wilderness characteristics would be applied in Alternative A; treatment actions would be designed to address restoration and rehabilitation objectives other than wilderness characteristics. As with Alternative D, under the PRMPA, 61% (253,471 acres) of the 33 protected unit acres are identified as Category 5 lands.

Under all alternatives, areas not in either Categories 5 or 6 are presumed to be in good ecological condition with little to no invasive species present. Where restoration or rehabilitation needs are identified in these areas, restoration, and rehabilitation objectives to establish desirable vegetation to compete with invasion of annual grasses are expected to occur creating no new surface disturbance.

Issue 2

How would invasive species management be affected by BLM management actions that would change OHV area designations across the planning area?

Affect to Early Detection and Rapid Response to Invasive Species

Transportation routes are recognized as vectors/conduits for invasive plant movement. Limiting motorized use of primitive routes would somewhat reduce the amount of lands susceptible to weed introduction from vehicles transporting weed seed and propagules, and from weed establishment along roads. However, Gelbard and Belnap (2003) found that increases in plant cover and species richness was associated with road construction, road maintenance and vehicle traffic and was most abundant along paved roads. Their research showed that all exotic species were least abundant or showed <1% cover in verges (areas) adjacent to unimproved four-wheel drive tracks. This research reinforces professional opinion from over 20 years of surveying and monitoring on two-tracks across the planning area where very few new weed infestations have been discovered on such routes.

OHV travel on primitive routes is but one vector and invasive plant movement would still occur via wind, other public land users, animal movement, and other vectors which could deposit seeds/propagules into naturally occurring ground disturbances created by burrowing animals, soil cracks, frost heaves, etc. Like weed occurrences along two-tracks, these would be few. However, invasive plants growing along roads are easy to detect and control, whereas in remote, roadless areas, survey and treatment are more difficult. Motorized, primitive routes provide many vantage points to see into those remote, roadless areas.

Limiting access on existing routes to only approved administrative use could curtail travel for county, state, other BLM partners, and other responsible public land users, who report weed sites to the district. These are sites that would otherwise go unnoticed. The benefit of EDRR is to respond quickly to each new weed report while the site is small, has not spread outside of the immediate area, has not yet caused unnecessary ecosystem damage, and can be easily and economically treated. Travel on primitive routes

(often two-tracks) also keeps them visible due to occasional use; nonuse from limited access would cause routes to become undetectable or unusable over time. Administrative use alone often does not occur frequently enough to maintain a detectable or usable route.

The key difference across all alternatives is OHV access on primitive routes. Alternative B would have the most negative impact on detection and treatment of invasive plants because it closes all wilderness characteristics units and WSAs to OHV travel. Alternative B would provide the most protection from new invasive species introduction from vehicles, however, as noted above, weed species are uncommon along four-wheel drive (primitive) routes. Within the planning area, combined wilderness characteristics units and WSAs would close 54% of the planning area to OHV travel in Alternative B. Over half of the area could become roadless in the future due to disappearance of two-track roads as a result of little to no use. These areas could become susceptible to weed introductions from vectors other than vehicles (wind, wildlife, livestock, foot traffic, etc.) that could go undiscovered. Overall, there would be long-term, moderate, adverse impacts across the planning area from nonuse or limited use on primitive routes.

The PRMPA, No Action Alternative, Alternative A, and Alternatives C and D would each retain the current level of areas closed to OHV travel (less than 1%) across the planning area. OHV area restrictions limiting OHV travel to existing primitive routes in areas protected for wilderness characteristics under Alternative C would apply to approximately 5% more of the planning area than would Alternative D. The PRMPA proposes limiting OHV travel to primitive routes on the most acres, after Alternative B. Because there are minimal acres closed to OHV travel on existing primitive routes across these alternatives (excluding Alternative B), there would be little impact to early detection and treatment of invasive plants where continued access along primitive routes is authorized.

Wilderness Study Areas were designated as OHV Limited to existing routes through the 2002 SEORMP and ROD; these routes continue to be available for OHV use. These routes would still result in some level of continued use (until completion of Travel Management Planning determines the continued use or nonuse for each route or Congress designates them as wilderness or releases them from further wilderness study). Each alternative would have varying degrees of OHV area designations (Open, Limited, Closed) as described in Section 3.7.2 Travel Management.

Affect to Feasibility of Air-based Invasive Species Treatments

Aerial herbicide treatments to control invasive annual grasses requires substantial ground support resources and equipment to facilitate the applications. Aerial herbicide spraying occurs most frequently following wildfires as part of emergency stabilization and rehabilitation (ESR), as planned restoration projects, or as other resource treatments, and often occur across thousands of acres of rangeland annually. As shown in Table 3-20, 942,439 acres of the total 1,236,907 acres of lands with wilderness characteristics are identified as Category 5 for invasive annual grasses, which is the category most likely to be aerially treated. Project development for each treatment would identify existing special considerations (special management area constraints, plant and animal species concerns, etc.) and would be designed to have the smallest possible footprint or effect on other resources, while meeting project objectives.

Because of rugged terrain and lack of areas suitable for fixed-wing aircraft landing and takeoff, most treatments are via helicopter, which require much less landing space. However, all aerial operations require movement of several pieces of large support equipment (5,000–7,000-gallon water tenders, a fuel truck, 30-foot mix/load trailer plus a heavy truck to pull it, etc.) Much of the equipment needed to set up mix/load stations and maintain the spray operations requires an access road and staging areas that can accommodate large, heavy vehicles with wide turning radius (commonly up to 60 feet in length with dual wheels and tandem axles). Many two-tracks are traversable by the large equipment if turns are not too sharp, and crossings are not deep or washed out. Spot treatments can enable the equipment to move closer

to project sites and enable water, fuel and herbicide to be hauled to nurse the station. Pre-site visits identify naturally barren areas for turnarounds and staging areas next to and on the roads.

When treatments occur long distances from improved roads and there is no option to make spot improvements to primitive routes in areas managed to protect wilderness characteristics to accommodate support equipment to move closer to the project, costs increase dramatically. Additionally, the greater the distance to improved roads, the greater the likelihood that potential contractors will not respond to solicitations for treatment projects.

Ferry costs—flight period between loading and the application site—are incurred, per acre, for each mile flown between the load site and the application site. As the distance increases, the cost per acre increases. Depending upon the gallons delivered, ferry cost alone can add between $2 and $12 per acre (3 to 12 miles on ferry). The majority of aerial herbicide treatments occur in a very small window after most desirable plants have senesced and target invasive species have not yet germinated. The longer the ferry flight time, the fewer acres that can be treated in a day and the greater the risk that the narrow favorable window for herbicide application will close before the work is completed. The ecological cost of missing a window and not being able to complete a project is clearly defined in Section 3.7.6 General Vegetation Issue 1 analysis.

Cost increases and failed contract solicitation awards can be commensurate with increases in the areas managed as OHV Closed or Limited. Although all alternatives allow administrative access, the key difference is the option to make spot improvements for heavy equipment access which would not be allowed on routes in OHV Closed areas. Therefore, the greater the OHV motorized vehicle restrictions, the greater the cost of treatments. Costs would be highest with Alternative B, where all lands with wilderness characteristics and WSAs would be designated as OHV Closed. All other alternatives would have nearly identical acres in OHV Closed or Limited designations; therefore, costs would be similar for the PRMPA, No Action Alternative, and Alternatives A, C and D.

Issue 3a

How would invasive species management be affected by BLM management actions that would reduce livestock grazing due to Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to invasive species from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, under “Standards of Rangeland Health and Grazing Management Guidelines” the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner.

Removal of livestock would eliminate one source of weed introduction and spread and should allow those areas with intact, functioning plant communities with minimal invasive species within a pasture or allotment not meeting standards to improve. However, disturbance areas such as reservoirs and bed grounds (livestock rest or overnight areas) would likely fill in with invasive annual species that were present prior to livestock removal, such as various mustards, annual grasses, and chenopods. In areas of the pastures not meeting standards that are dominated by invasive annual grasses (Category 6), removing livestock could be detrimental because the grasses would be allowed to reseed and persist, increasing fine fuels and contributing to wildfire risk. Cheatgrass, in particular, forms semi-persistent seedbanks (Pilliod et al. 2017), along with many invasive forbs and will germinate once the grazing pressure is removed. In

addition, propagule pressure can overwhelm normally resistant perennial grass communities adjacent to Category 6 areas (Von Holle and Simberloff 2005; Fensham et al. 2013).

With the closure of allotments or pastures to livestock grazing, weeds would continue to be introduced into rangelands and spread via vectors such as wind, humans, and other animals. Noxious weeds are spread by animals other than livestock, including big game and rodents. Weed spread by livestock is confined to pastures; other vectors, including big game and rodents, are not confined by fences. Many weeds' seeds pass unharmed through digestive tracts of animals such as livestock, deer, rabbits, and other herbivores and spread the seeds far and wide (Illinois Wildflowers 2018). Besides being consumed and moved through the gut of animals many weeds have seeds or seedpods that cling to the fur of animals and the clothing of humans as a result of sticky hairs, hooked spines, or barbed awns. Physical features of invasive species within the planning area include rough awns on medusahead seeds, barbed seeds of houndstongue, or sticky latex in leafy spurge—including the seed capsules. These features allow the seeds to attach to migratory animals and be carried off site beyond pasture or allotment boundaries. Migratory birds carry seeds such as perennial pepperweed and saltcedar stuck to feathers or mud on webbed feet from one waterbody to another.

Many of the most troublesome weed species are dispersed via wind. Utah State University's "The Great Basin and Invasive Weeds" (Utah State University 2018) notes that bull thistle, Canada thistle, and rush skeletonweed, like the common dandelion, have a fluffy umbrella-like structure (pappus) that will carry seeds in the wind. Within the planning area, species can be wind-dispersed varying distances from several feet (thistles and knapweeds) to many miles (skeletonweed). Public land users can carry invasive plant propagules on their vehicles and attached to shoes, gear, pets, and recreational livestock such as horses, mules, goats, and llamas.

The key difference among the alternatives is the removal of livestock and the length of time livestock grazing is suspended. Under the PRMPA, No Action Alternative, Alternative A, and Alternative C, if Standards for Rangeland Health are not met due to existing livestock grazing, site specific NEPA would continue under existing processes wherein the BLM analyzes options to improve the conditions, including change of season of use, pasture rotation, removal of livestock grazing, etc. Where livestock are determined to be a causal factor to not meeting Standards for Rangeland Health, changes in grazing timing, duration and/or reduction in AUMs that are intended to improve plant communities would likely be more beneficial to invasive species control than removal of livestock. Under these alternatives, improved grazing practices would be applied to the permitted use to decrease annual grass buildup, lessening propagule pressure and fire return intervals by decreasing fine fuel buildup. "Green and Brown" grazing can be used to manage annual grasses: graze when invasive annual grasses are green and desired species are brown. (Smith et al. 2012). The PRMPA, No Action Alternative, Alternative A, and Alternative C provide the most flexibility for livestock management to respond to conditions in the affected allotments and pastures.

In Alternatives B and D, livestock grazing would be suspended for either the life of the plan (RMP) in Alternative B, or temporarily suspended until significant progress toward meeting Standards for Rangeland Health is made in Alternative D. Removal of livestock would eliminate one source of weed introduction and spread and should allow those areas with intact, functioning plant communities with minimal invasive species within a pasture or allotment not meeting standards to improve. However, in those areas that are dominated by invasive annual grasses (Category 6), removing livestock would be detrimental because the grasses would be allowed to reseed and persist, increasing propagule pressure, as well as allowing the buildup of fine fuels and increasing the likelihood of wildfires, which exacerbates invasive plant spread. Alternative B would have the greatest potential reduction in grazing among the alternatives where Standards for Rangeland Health are not being met and grazing suspended for the life of the plan (RMP), and thus have the greatest detrimental effect on invasive species management, followed by Alternative D due to the more limited time period (duration of the term permit) under which grazing

would be reduced. The PRMPA, No Action Alternative, and Alternatives A and C would continue existing processes and management responses when Standards for Rangeland Health are not met due to existing livestock grazing. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved—regardless of causal factor—BLM would consider taking action to make progress toward meeting Standards, including Standard 1 (Watershed Function-Uplands) and Standard 3 (Ecological Processes). The PRMPA would benefit invasive species management by implementing action that is designed to trend areas toward more healthy plant communities and their function, and increase these areas' resistance and resilience to invasion and further conversion to non-native communities. Under the PRMPA, there may also be a small increase in beneficial impacts to invasive plants over the No Action and Alternatives A and C as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Issue 3b

How would invasive species management be affected by BLM management actions that would reduce livestock grazing due to BLM receiving a voluntary relinquishment of a grazing permit?

Section 3.7.3 Livestock Grazing and Rangeland Management noted that voluntary relinquishments of grazing permits are not expected to occur for the planning area over the life of the plan (RMP) based on trends identified in that section. Therefore, very few, if any, impacts to the spread or introduction of invasive plant species are expected.

As discussed above in Issue 3a on Standards for Rangeland Health, closing pastures or allotments with areas dominated by invasive annual grasses (Category 6) would allow the annual grasses to reseed and persist in the absence of livestock grazing which can lead to increased occurrence and intensity of wildfire. Category 5 plant communities are still functioning ecologically, but the perennial plant communities are at risk due to increasing pressure from annual grasses. Annual grasses would be more likely to increase in density and litter (fine fuel) accumulation each year in the absence of grazing. Ungrazed perennial bunchgrasses also build up crown biomass and litter each year. Heavy fine fuel loading increases wildfire intensity. Complete exclusion of livestock grazing compared to moderate (30–40% utilization) livestock grazing would increase the probability of post fire exotic plant invasion by increasing the risk of fire-induced mortality of perennial bunchgrasses. (Davies et. al. 2010) This research is borne out within the planning area, where wildfire has burned through 30 +/- year old grazing exclosures (which were erected as study plots to monitor effects of nongrazing on both native and nonnative seedings) and burned-out craters were left where decadent bunchgrass crowns and roots were destroyed by fire. Intense fires, driven by fine fuel buildup, burning through Category 5 areas have the potential to trend those areas toward Category 6.

Davies et al. (2016) found that moderate pre-fire grazing reduced maximum temperature and duration of elevated temperatures (heat loading) at the meristematic crown of perennial bunchgrasses during a fire. Reduced temperatures and less heat loading during a fire decrease the likelihood of fire-induced mortality of perennial bunchgrasses (Wright and Klemmedson 1965; Wright 1970; Odion and Davis 2000; Pelaez et al. 2001).

If funding were available for ESR or other restoration projects within the relinquished pastures or allotments, there would be some benefit to treatment or seeding success from extended rest due to nongrazing. However, over a period of years with no grazing, the negative conditions outlined in Davies 2010 and 2016 research would likely begin to build up.

Introductions of new noxious weed species are rare to the planning area and usually occur in highly visible recreation areas or along improved roads or waterways, transported by transient visitors. They are generally discovered quickly and EDRR is practiced to control or eradicate them. If the BLM determines that the best use of relinquished grazing permits is considered to be retained as grazing

allotments/pastures, a permittee from out of the area (or state) could secure the permit. Vehicles and livestock moved from the new permittee's old base of operation pose a threat of introducing new invasive species or could move species back and forth if the new permittee has multiple operations.

The PRMPA, No Action Alternative, Alternative A, and Alternative C

Pastures or allotments would likely not be closed under the PRMPA, No Action Alternative, Alternative A, and Alternative C, as there is no change to the current processes associated with voluntarily relinquished permits. If all rangeland health and other criteria for the allotment(s) associated with the permit are meeting the requirements outlined in 3.7.3 Livestock Grazing and Rangeland Management, grazing allotments would be assigned to a different qualified applicant. Conflicts between grazing and other resource values would be addressed through grazing prescription changes reflected on the new permit's terms and conditions.

Under these alternatives, little change would be expected to invasive species spread or introduction if the new permittee is local to the area. However, a permittee from out of the area (or state) could have a negative impact through introductions of new invasive species by livestock, vehicles, or equipment. Overall, positive effects would be expected with continued grazing to control fine fuel buildup and moderate grazing on perennials to alleviate crown mass build up. Effects are similar among the PRMPA, No Action Alternative, Alternative A, and C, with an elevated attention in Alternative C and the PRMPA to resource values and uses identified in Table 2-4, Chapter 2 "Resource use considerations in evaluating permit relinquishment in the PRMPA (see also Table A-3, in Appendix A for Alternative C). Consideration of these other resource values and uses would specifically be evaluated for compatibility with livestock grazing under the PRMPA (see Figure G-4 in Appendix G for the voluntary relinquishment process that would be implemented under the PRMPA and Figure G-3 for Alternative C).

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas could result in a reduced rate of spread of invasive species if the area where the relinquishment occurred was in good vegetative condition but could result in increased levels of invasive annual grasses if the area is in a low or moderate resistance and resilience category.

Alternatives B and D

Impacts to spread of invasive annual grasses would be greatest under Alternative B as long-term elimination or reduction of livestock grazing through voluntarily relinquished permits could potentially occur across a greater extent of the planning area (see areas affected in Alternative B in Appendix A, Table A-2). Long-term absence of grazing on annual grasses in those areas would allow them to reseed and proliferate causing a buildup in fine fuels. Left ungrazed for long periods, crown mass on perennial grasses builds up and litter accumulates increasing continuity of fuels, creating heavy fine fuel loads. In the event of wildfires, heavy fine fuel loads increase fire intensity leading to higher perennial grass mortality, setting the stage for annual grass expansion following wildfires. Alternative D impacts would be the same but across a smaller portion of the planning area (see areas affected in Alternative D in Appendix A, Table A-4). Under Alternatives B and D, there would be no out-of-area introductions from new permittees' livestock, equipment, or vehicles which would be a positive, beneficial impact.

Summary of the Issues and Effects by Alternative

Issue 1: Issues and effects for invasive species are nearly the same as in the general vegetation section. Managing for wilderness characteristics constrains seeding treatment that can be used after disturbance to retain or establish desirable vegetation in areas of low resistance and resilience potentially resulting in cheatgrass and other invasive annual grasses invading an area or expanding already existing populations in some areas and outcompeting the native and desirable nonnative vegetation. Alternatives with the least acres managed for wilderness characteristics would have the greatest benefit to maintaining the existing functioning—or improving weakened—vegetative communities through restoration activities, including invasive annual grass treatments to maintain or improve vegetation, as well as drill seeding the weakened sites with desirable species. The order of alternatives from most beneficial to least beneficial would be: A, C, D and the PRMPA (both protecting the same areas), B, and the No Action Alternative.

Issue 2: Limiting or closing OHV travel restricts the ability to survey, monitor and treat for invasive species. Restrictions can greatly increase treatment costs, especially aerial applications. Alternatives with the most routes closed to OHV use have the least benefit to invasive species management. Alternatives with the fewest routes closed to OHV would be more beneficial to invasive species management. As described above, while cross-country OHV travel can introduce invasive species, the effectiveness of the BLM's invasive species management is most affected by the loss of EDRR opportunities through motorized access to remote sites by the BLM, our partners and responsible publics. Comparing the effect of the different OHV designations among the alternatives is a balance between the introduction of species from cross-country OHV use and the ability to access the public lands. Overall I most beneficial to least beneficial alternatives would be the No Action and Alternative A (same access levels), and Alternatives C, D, PRMPA and B. The PRMPA, A, C, D, and No Action Alternatives are similar in OHV Closed and Limited area designations, with the PRMPA having the highest level of OHV Limited.

Issue 3a: Suspending permitted livestock grazing in pastures or allotments within pastures or allotments with functioning plant communities and minimal invasive species could be expected to improve conditions initially. However, in areas of the pastures/allotments not meeting standards that are dominated by invasive annual grasses (Category 6), removing livestock could be detrimental because the grasses would be allowed to reseed and persist, increasing invasive seed bank, fine fuels, and contributing to wildfire risk which would then threaten functioning areas of pastures/allotments. The most beneficial to least beneficial alternatives for invasive species management would be the PRMPA, No Action Alternative and Alternative C. The least beneficial alternatives for invasive species would B and D. Alternatives PRMPA, No Action, A, and C would continue existing processes and management, when Standards for Rangeland Health are not met due to existing livestock grazing.

Issue 3b: As with Issue 3a, reduction or elimination of livestock grazing due to BLM receiving a voluntary relinquishment of a grazing permit could initially improve areas of permitted grazing with functioning plant communities and little invasive species presence. However, invasive species in areas with a heavier presence would be at greater risk of further invasion or dominance from invasive annual grasses. If treatments, including aerial spraying and seeding, were to occur to reduce the abundance and spread of invasive annual grasses, effects from longer term grazing reductions would benefit treated areas and show less difference across alternatives. The most beneficial to least beneficial alternatives would be PRMPA, No Action, A, C, D and B.

Invasive Species Cumulative Effects Summary

The cumulative effects analysis area for invasive species is the planning area plus a four-mile surrounding area. Four miles has been the norm established for multiple Emergency Stabilization and Rehabilitation (ESR) efforts following wildfire, written in cooperation with neighboring districts. It is considered a reasonable estimate of where most invasive species' introductions would occur from adjacent lands via

most vectors. Because invasive species could move into and out of the planning area through many vectors, the BLM works closely with numerous partners to control invasive plants. Many activities have the potential to introduce invasive species and facilitate their establishment when soil and vegetation are disturbed, or they are allowed to proliferate. Invasive plant spread is reduced not just by EDRR which may include manual or herbicide treatments and release of biological control agents, but by prevention measures, such as seeding deep-rooted, desirable perennial species which out-compete invasive species, and cultural practices, including proper livestock grazing and timing of use.

As mentioned in the Affected Environment section, mining activities create soil and vegetation disturbance that provide opportunities for invasive plant spread. Mining equipment can also introduce invasive plants into disturbed sites. The Grassy Mountain, Octagon and Malheur Queen Gold mine operations, the lithium exploration (Plan and Notice-level projects), and the, leasable and saleable mineral actions (material site development and hot springs energy project), all have the potential to increase the spread of invasive plants in the planning area. Design features are or will be incorporated into the NEPA analysis of these actions to avoid or mitigate impacts or undue and unnecessary impacts, including to reduce the opportunities for the spread of invasive species. Because the mining operations (Grassy Mountain, Octagon and Malheur Queen, and the leasable and saleable mineral actions) are often long-lived, the effects of many of these types of operations would likely extend beyond the life of this plan Amendment.

Consideration of reasonably foreseeable future actions (see Table 3-1, Section 3.4 "Reasonably Foreseeable Future Actions Considered in Assessing Cumulative Effects") and their influence on invasive species management is fundamental to understand the cumulative impacts of the alternatives and are described below.

Proposed Tri-state Fuels Management, Northwest Malheur County Greater Sage-grouse Habitat Restoration, and the LCGMA Permit Renewal and Restoration Treatments are multi-step actions designed to either protect or restore (or both) at-risk rangelands to functioning vegetation communities which are capable of resisting or repelling introductions of invasive species. In the short term (one to four years), soil disturbances from restoration actions such as brush beating, juniper cutting/burning, or drill seeding may create niches for invasives to occupy. However, in the long-term (over four years), positive results from proposed actions, separately or collectively, would decrease impacts from invasive species by reducing wildfire size and frequency and establishing competitive deep-rooted perennials. Improvements to roads would also benefit invasive species treatment actions, especially aerial projects, by providing better access for large support equipment. Tri-state Fuels treatments could increase weed introductions, but treatments are along road systems with on-going disturbance from upkeep and regularly monitored and treated for invasive species. Therefore, cumulatively, the increase would be negligible.

Ground disturbance from the Northwest Malheur Mineral Development actions, associated with the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, would affect up to 40 acres at approximately six sites (fourteen sites were surveyed for adequate material content) and expand one existing pit. The pits are scattered across approximately 258,000 acres and several miles apart on a system of roads within the area. Potential invasion of disturbed areas is limited by proximity of existing weed sources. All but the pit proposed for expansion are in relatively weed-free rangeland with intact vegetation and would be buffered by aa mile or more of weed-free road . Cumulative negative impacts would be negligible. Road improvements through the use of the gravel would be a benefit to invasive species management as access, especially by large support equipment required for aerial operations, is improved with better roads.

The Owyhee Pump Storage Energy Development would likely have a negative impact to invasive species management as it would create ground disturbance and store pumped water on the plateau above the reservoir. The proposed area is in an area heavily infested with invasive annual grasses and a perennial, long-lived noxious weed. It is small in size compared to the planning area, but negative impacts to

invasive species management could be greater than size indicates. Measures and designs would be incorporated to minimize the opportunities for expansion of invasive species.

Proposed construction or modification of transmission lines would cause disturbances with effects commensurate with the type of vegetation they cross. As has been observed on the 500 kV transmission line that crosses the northern end of the planning area, east to west, and the pipelines/fiber optic lines ROW corridor that parallels Interstate 84, it is expected that transmission line construction/modification would cause short-term impacts to healthy rangelands with good perennial vegetation and no-to-light invasive species presence which would recover quickly and revert back to pre-existing vegetation with little chance for invasion by invasive species. Impacts to areas with moderate to heavy invasive species presence would be more difficult to revegetate, would recover slower, and have a more long-term adverse effect.

Construction of access roads and other needed infrastructure would also result in varying degrees of impact according to pre-existing rangeland condition and plant community type affected. All areas would be adversely affected short-term, but with different degrees of potential invasive species establishment. When design features established through the NEPA are followed, generally, effects would be kept to transmission Rights-of-way and access roads. Proposed modification actions such as the Vale to Drewsey Transmission Line mostly stay within a highway ROW or the existing powerline ROW which both have design features in place to rehabilitate any new disturbances and control invasive species introductions. However, design features for projects such as Boardman to Hemingway 500 kV line, which is proposed to traverse areas that are so historically degraded that they have totally converted to invasive species, are limited to defensive measures to quell the spread of existing invasive species off of sites. Such projects will require long-term monitoring of construction disturbances to assure new invasive weeds do not populate the sites.

The foreseeable actions listed in Table 3-1 generally include design features intended to meet invasive species objectives, as part of the district's IIVP.

The Vale District Weed Prevention Schedule prescribes prevention measures for ground disturbances created by the various programs and activities addressed (BLM 2016e, Appendix D). The weed prevention program includes risk assessments for proposed projects and prescribes prevention measures (BLM 1992). Risk assessments consider the likelihood and consequences of invasive plant introduction and spread and can result in project modification and monitoring if the risk is moderate or high. Even with these measures in place, introduction and spread of invasive plants would continue due to the number of other vectors and circumstances over which the BLM has little or no control.

Cumulative Impact Analysis Comparison by Alternative

In consideration of the past, present and reasonably foreseeable future actions, protection of wilderness characteristics would result in the highest level of restrictions on successfully implementing invasive species management in Alternative B, followed by Alternative D for several reasons. The addition of design features to reduce or avoid impacts to naturalness, and to meet VRM Class II objectives, as a result of limiting surface disturbing activities greatly reduces efficacy of treatments and increases costs. Restrictions to meet invasive species management objectives would be applied to all 76 units with wilderness characteristics in the No Action and Alternative B (over 1.2 million acres protected with 942,439 acres of Category 5 condition rangeland in No Action and 920,922 acres in Alternative C subjected to design features that negatively affect seeding success). There are 33 wilderness characteristics units in Alternative D and the PRMPA (over 417,000 acres protected), of which 253,471 acres in Category 5 would be subject to design features negatively affecting seeding success. Alternative C would protect fewer acres (27 units protected totaling 167,709 acres of which 130,666 Category 5 acres where seeding success would be reduced due to design features). There would be no change from current management of invasive species under Alternative A. The effect of incorporating design features to

reduce or avoid impacts to wilderness characteristics would be slower recovery due to less effective treatments and reduced acres treated due to increased costs of implementation.

Cumulative impacts resulting from changes to OHV use designations would have the greatest negative impacts where access is denied to informed members of the public and other partners who may identify and make observations on expanding invasive species populations or new infestations. Lack of travel on primitive routes also results in the future loss of routes' visibility for treatment and survey of invasive species. Because Alternative B closes all wilderness characteristics units and WSAs to OHV use (including on primitive routes), fewer members of the public and partners would provide this information and the routes' visibility would become lost most quickly because 54% of all acres in the planning area would be closed to OHV access. Alternative B would have a minor positive impact due to a reduction in access by motorized vehicles which would remove one vector (motorized use).

The PRMPA, No Action Alternative, Alternatives A, C and D, each retain the current level of areas closed to OHV travel (less than 1%) across the planning area. The No Action Alternative and Alternatives A and D have similar planning area-level OHV Limited designations and would have similar impacts to invasive species management and loss of road visibility. All wilderness characteristics units would be OHV Limited to existing routes in Alternative D and the PRMPA. The PRMPA would have a beneficial effect to invasive species control by retaining access to the existing primitive route network in all currently OHV Open areas and by limiting cross country travel in these areas, with the exception of 40,368 acres in two areas near the city of Vale, Oregon.

Additionally, cumulative impacts from changes to OHV use designation would have the greatest level of negative impacts to EDRR in Alternative B, because closure of all routes in wilderness characteristics units and WSAs would result in an inability to maintain or make spot treatments to primitive routes for access by over-sized support equipment required for large aerial treatment projects in wilderness characteristics units. Lack of access increases distance to projects which increases treatment costs and decreases treatment acres.

All other alternatives would have identical acres of OHV Closed and similar levels of OHV Limited area designations and therefore costs would be similar for the PRMPA, No Action, and Alternatives A, C, and D.

With regard to reductions in grazing, cumulative impacts to invasive plant species management would have the greatest potential negative effect due to the length of time the reductions are imposed under Alternative B, followed by Alternative D. While removal of livestock would eliminate one source of weed introduction and spread and could benefit functioning plant communities in the short term, this would be detrimental overall, especially in poorly functioning areas with a high presence of invasive annual grasses. In the absence of grazing, annual grasses would reseed and persist, ultimately becoming a wildfire hazard. In the long term, even desirable perennials would build up biomass and add to annual grass fine fuels and increase likelihood of wildfires.

The effect of changes in grazing management on invasive species is similar among the PRMPA, No Action, Alternative A, and C where the BLM has multiple management options to respond to Standards for Rangeland Health when existing livestock grazing is determined to be a significant causal factor for non-attainment. The PRMPA and Alternative C would provide the most positive impact on invasive species management when a permit is relinquished because the BLM would implement critical review of specific resource considerations (Table A-3, Appendix A) in determining alternative allocations of resources to uses in the determination of future livestock grazing.

3.7.8 Forest and Woodlands

Key Points

- Forested areas are limited to the northwest corner of the planning area.
- Only one wilderness characteristics unit, West Fork Bendire, encompasses forested areas.
- Issue 1 (protection of wilderness characteristics) is analyzed separately for forested areas (Issue 1a) from woodlands (Issue 1b) in the Environmental Consequences section.

The effects under the PRMPA, No Action Alternative and Alternatives B, C and D would be similar. Of the 6,067 acres of BLM-managed forest within the planning area, approximately 1,267 acres of forest are within the West Fork Bendire wilderness characteristics unit which is located in the northwest portion of the planning area. Although prioritizing protection of this wilderness characteristics unit would not preclude active timber management (pre-commercial and commercial thinning), it would increase costs and complexity to maintain wilderness characteristics through design features explained in the cumulative effects.

Under Alternative A, active forest management would continue without increased limitations. This alternative would allow the most forest management (commercial and pre-commercial thinning, site prep, road maintenance and building, tree planting, etc.) with the fewest restrictions and would likely benefit these fire-prone forests and woodlands the most through less restricted fuels reduction and restoration activities to restore historic stand structure, composition, density and function.

Affected Environment

Effects from climate change continues to exert effects on conditions in forested and woodland areas. Decreasing precipitation and increasing temperatures are trending forest and woodland areas to slower growth and more stressed systems, providing inroads for pests, disease and wildfire. Decreased available water is likely to alter forest species composition towards xeric species while reducing stocking densities. As discussed above in Sections 3.7.5 Water and Riparian/Wetlands and 3.7.6 General Vegetation, continued trends have the potential to continue to favor invasive species and expansion of the area of juniper species.

Mixed Conifer Forests

The planning area contains approximately 6,067 acres of coniferous forests, predominantly within northwest Malheur County. The majority of these stands are hot-dry ponderosa pine-dominated forests spread across lower elevations. Historically these stands were characterized by pure stands of open-grown, large diameter ponderosa pine with occasional Douglas-fir, western larch on topography-driven sites. These stands of fire-resistant species were maintained by frequent, low-intensity fire. Ponderosa pine forests and woodlands burned every 12 to 23 years historically (Agee and Maruoka 1994), which is Fire Regime Condition Class (FRCC; Hann et al. 2008) I (high frequency, low to mixed fire severity). Historically, frequent and low-intensity fire reduced excess regeneration, later seral species such as true fir, and fuels in general. The larger, thicker-barked, mature trees were left to flourish in a more fire-resistant setting that had only minor inter-tree competition for water, light, and nutrients. This type of stand structure represents the classic late seral, or “old growth,” pine forest.

All forested lands (see Maps FORS-1 and FORS-2M in SEORMP and ROD) in the planning area are managed using timber harvest in conjunction with pre-commercial thinning, prescribed fire, and other techniques to achieve site-specific objectives for restoring and maintaining forest health, biodiversity, and wildlife habitat. In current wilderness characteristics units, timber harvest is permitted if identified values

could be protected or enhanced. Approximately 1,267 acres of forest are within the West Fork Bendire wilderness characteristics unit. Aside from setbacks, this is the only unit affected by the different alternatives.

Due to a century of fire suppression, changes in forest landscapes from pre-European conditions include the loss of a mature, scattered, overstory of pine, western larch, and Douglas fir; a general trend toward increased densities of young trees; and a shift from a dominance of low intensity/high frequency fire regimes (FRCC 1) toward higher intensity/lower frequency (FRCC 3–indicates ecosystems with high (>66%) departure from reference conditions) (Powell 2004, Agee & Skinner 2005, Hessburg et al. 2005). Wildlife habitat characterized historically by large fire tolerant trees has declined as increasing abnormal densities due to fire suppression and lack of management have altered historic forest structures. These changes, along with the impacts of climate change (increasing occurrence of drought and temperatures, reduced snowpack, and potential changes in the overall precipitation regime) have predisposed forest landscapes to larger scale disturbances than would naturally occur with endemic fire, insect, and disease. Restoring prescribed fire onto the landscape is a priority. Without preparation such as thinning overabundant fuels, wildfire would result in very high tree mortality and endanger fire fighters. Through a combination of fuels activities and prescribed fire, conditions akin to pre-European settlement can be achieved. Without these activities it is likely these remnant dry, slow growing forests will be lost due to stress-induced insect epidemics and abnormally large, stand replacing wildfires driven by excessive fuel buildup. These large, hot fires are likely to cause forest stand replacement and excessive erosion that would take centuries to recover.

Currently, the 2015 Northwest Malheur County Greater Sage-grouse Habitat Restoration Project is implementing 1,053 acres of forest treatments in the planning area. The last forest management project was in 2008, which salvaged 122 acres from the NW corner of Malheur County. In 1996, 75 acres were cut near Ironside, OR. The only other harvest in the planning area was in 1981 when 185 acres were cut near Ironside Mountain. Future activities will likely be limited to small scale salvage opportunities and small forest health treatments (<3000 acres) because forests are scattered and limited in the planning area.

Invasive weeds are a concern in the forest and woodlands (Table 3-19 above) and monitoring will continue. Generally, forests are more resistant and resilient to invasive weeds, although timber harvest may have short-term increases after harvest (1,053 acres currently planned for NW Malheur County on BLM). These negative impacts are usually short term due to the resilience of forested environments, and active juniper stands may see an influx of invasive annuals as natives decrease from juniper encroachment. Historical fire frequencies would maintain juniper encroachment and aid in resiliency of annual invasive conversion (Miller et al. 2000). Weed control will have a short- and long-term positive effect on the forest and woodlands.

Recreation is an increasingly important resource as the public further explores and discovers the planning area. Recreation can have a short-term, adverse negative effect on forest and woodlands through increased unauthorized OHV trails and habitat disturbance and increased movement of weeds. Careful planning and limiting of unauthorized OHV use can negate this negative impact.

Wildfires are an unpredictable act of nature or humans that occur throughout the planning area. Low intensity, frequent fires tend to have a small, short-term adverse effect by killing patches of mature trees, but a long-term, positive effect through fuels reduction, natural thinning and release of nutrients into the soil. High intensity, less frequent fires tend to have a large, long-term adverse effect by completely killing stands, causing erosion. Emergency stabilization and rehabilitation activities, such as herbicide spraying and tree planting, are used to maintain native trees and the forest community's post-fire.

Aspen and Mountain Mahogany

There are approximately 1,210 acres of aspen in the planning area. Most aspen stands are small (less than 10 acres) and isolated, typically growing in moister sites, such as swales where snow tends to persist. The distribution and health of quaking aspen stands have decreased in the past 100 to 200 years, due to some combination of reduced fire, severe browsing of suckers by livestock and big game, the expansion of other tree and shrub species, the loss of suitable habitat following management-induced changes in stream morphology and water tables (Crowe 1996), and natural flooding. Many quaking aspen stands support large trees but few sapling or pole-sized trees. Where fires have burned aspen stands, the species has generally responded well through suckering. Healthy, reproductive quaking aspen stands provide biodiversity, wildlife habitat, and other uses such as recreational camping. Current management and future management actions include fencing aspen patches, prescribed burning, and coppicing non-regenerating trees to induce suckering.

Several large stands (greater than 40 acres) and many isolated pockets of curlleaf mountain mahogany are scattered throughout the planning area. This species tends to occur on rocky areas that have little moisture and full sun. Conifers are displacing mountain-mahogany in some areas. Mountain mahogany provides microhabitats for bird species and important forage for deer and elk. Besides the several large stands of curlleaf mountain mahogany, the pockets are typically less than a half-acre in size and are scattered throughout the area, often located along the edges of the mixed conifer stands or on scattered ridges within conifer stands. To date, little to no restoration work on aspen or mountain mahogany has occurred in the planning area.

Western Juniper

The planning area currently supports approximately 763,717 acres of western juniper (Table 3-21). Western juniper woodlands in Oregon have expanded four-fold from 1.5 million acres in 1930 to greater than six million acres due to climate change, rising temperatures, intensive livestock use, decreased wildfire and increased fire suppression (Rowland et al. 2008). Western juniper has increased in distribution and density throughout its range, expanding into open meadows, grasslands, sagebrush steppe communities, quaking aspen stands, riparian/wetland communities, and forestland. At high densities, western juniper reduces herbaceous production (Bates et al. 1994), diversity and cover of associated plant species (Miller and Angell 1987), reduces habitat for animal species dependent on those plant communities, and may increase soil erosion (Buckhouse and Mattison 1980).

Table 3-21 (below) shows the number of acres of western juniper by percent cover. Areas with greater than 10% cover would most likely be treated using mechanical or hand (felling) treatments. Successive treatments associated with western juniper treatments would include, cutting by hand or mechanical, hand or mechanical piling, prescribed fire, herbicide application to control invasive plants and seeding treatment to stabilize burn scars.

Table 3-21. Acres of western juniper in the planning area by tree cover classes.

Percent Tree Cover	Acres
Present at < 4% Tree Cover	114,416
4-10% Tree Cover	408,005
10-20% Tree cover	123,528
20-50% Tree Cover	87,639
≥50% Tree Cover	30,128
Total	**763,717**

Environmental Consequences

Analytical Methods

Impacts were analyzed by first determining the acres of forest and woodlands within wilderness characteristics units and by comparing the acres of forest and woodland that will be available for active management between all alternatives. Approximate costs of management were also compared across all alternatives. Note that Issue 1 below is broken into 1a (Forest Management) and 1b (Woodlands Management) in the analysis below.

Indicators

- Total acres of forests and woodlands protected for wilderness characteristics.
- Miles of roads or primitive routes closed to motorized vehicles and limited to spot maintenance.

Assumptions

Forest management actions related to maintaining forest health and restoring forest stand structures and function to pre-settlement conditions in areas with wilderness characteristics would include maintaining access to forest stands via roads, implementing appropriate fuels reduction activities, and maintaining road infrastructure that is adjacent to proposed activities. Assumptions used in this component of the analysis include:

- Forest management activities such as thinning and prescribed burning decrease wildfire size and intensity.
- Forest management activities such as thinning and prescribed burning can improve forest health.
- Forest management activities such as thinning and prescribed burning can be implemented to comport with lands with wilderness characteristics and VRM Class II Objectives.
- A lack of road access increases forest management costs.
- Design features to protect and enhance wilderness characteristics will increase implementation costs and time.
- Elimination of livestock grazing would increase fine fuel loading. It is assumed that this would lead to greater fire intensity and frequency.

Issue 1a

How would forest management be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Of the 6,067 acres of BLM-managed forest within the planning area, approximately 1,267 acres of forest are within the West Fork Bendire wilderness characteristics unit (see Map FOR 1 in Appendix M). Current access into this parcel is limited to the Castle Rock Road (a boundary road to the unit) and several primitive routes within the West Fork Bendire wilderness characteristics unit. Under the No Action Alternative and Alternatives B–D and the PRMPA, temporary roads to conduct forest and woodland management would be considered after appropriate layout and design to meet the wilderness characteristics and project objectives and be appropriately rehabilitated after project completion. To protect wilderness characteristics under the No Action Alternative and Alternatives B–D and the PRMPA,

additional design features for forest management operations would consist of managing stump height, camouflaging flush cut stumps with dirt or slash, minimizing pre-marked skid trails and distances, which would increase the costs of management approximately 2.5 times over traditional methods. In all alternatives there would be a short-term negative effect on the wilderness characteristics of forests, although the design features will mitigate any long-term effects. In fact, the thinning on BLM land should result in a pre-European structure and function while restoring missing ecological processes such as fire, which will result in a long-term positive effect on wilderness characteristics. Likewise, forest management in all alternatives can have a short-term adverse effect to the forest through increased soil erosion and compaction. This is easily negated by the short- and long-term positive effects on fuels reduction, reducing the possibility of large scale, stand replacing fires; restoring historic stand structure, function, and densities; improved forest health; and socioeconomic effects for the local community.

In the West Fork Bendire unit under Alternative A, there would be no land use planning-level change in management actions, and additional design features would be unnecessary specifically to reduce or avoid impacting wilderness characteristics. Forest management under Alternative A would operate under the 2002 SEORMP and ROD as amended. Under this direction the effect to the forest in this area would be actively managed to reduce hazardous conditions and increase forest health. Access through the use of temporary roads would still be authorized. This alternative gives the greatest flexibility in forest management and restoration activities.

The West Fork Bendire unit would be protected in the PRMPA, Alternatives B, C, D. There would be a continuation of existing management under the 2010 Settlement Agreement under the No Action alternative. The impacts to forest and woodlands management would be identical among the PRMPA, Alternatives B, C, and D, and only slightly different from the No Action alternative (no setbacks). In all five of these alternatives, the unit is prioritized to protect wilderness characteristics. Under these alternatives, forest and woodlands management could be implemented, but would incorporate design features to limit the visual impacts to meet VRM Class II objectives. New access routes to conduct forest management would be of a temporary nature and rehabilitated as soon as practicable after operations conclude. The addition of these design features would increase costs associated with forest management due to decreased access, increased planning and layout efforts, and special design features to minimize impacts to, and maintain or enhance, the wilderness characteristics. The costs associated with forestry actions would increase 2.5 times. With limited funding, there is also a potential that fewer acres could be treated with the additional design features, thus reducing meeting objectives as rapidly as without the additional protections for wilderness characteristics. The overall effect to the forest in this area from these alternatives would be a decrease in forest management actions that are currently being used to restore forests to historic, pre-fire suppression conditions. A reduction in periodic commercial harvest and pre-commercial thinning would reduce the restoration of historic forest structure and ecosystem processes. These processes promote a natural fire cycle and maintain the relevant and important values where the Castle Rock ACEC overlaps those areas. Although commercial sized trees may still be removed, the forested land would be managed for pre-fire suppression forest characteristics through activities such as pre-commercial thinning, thinning from below and prescribed fire but with increased design features and restriction. Forests are also managed for other products, such as firewood and posts, on a case-by-case basis.

Issue 1b

How would woodlands (aspen, juniper and mountain mahogany) management be affected by BLM management actions that would emphasize protection of wilderness characteristics?

Impacts associated with woodlands management would be similar to those associated with forest management: (a) increased costs to plan, layout, develop and implement design features to protect and enhance protected wilderness characteristics units, and (b) a potential reduction in acres treated with limited funds and lower levels of success with standard treatment designs.

Costs to manage Western juniper, aspen and mountain mahogany would increase almost 75% within wilderness characteristics units. This increase in cost is the result of design features such low stumping (felling trees as low to the ground as possible). Table 3-22 shows a cost per acre based on the Juniper cutting contract in the West Fork Bendire wilderness characteristics unit. Increased cost would also reduce the acres treated in any given project within a wilderness characteristics unit. Table 3-23 shows the acres of juniper within wilderness characteristics units by alternative. Alternative A would have the lowest impact of reducing treatment success followed by the PRMPA, Alternative C and D. Alternative B and the No Action would have the greatest impact of reducing treatment success.

Table 3-22. Juniper treatment costs.

Juniper Treatment	Alternative A cost/acre	Protecting Wilderness Characteristics Units cost/acre
Juniper cutting/hand piling	$450	$715*

*Includes flush cutting, scarifying, and putting dirt on the stump to improve VRM II (Based on Vale BLM NW Malheur County Restoration juniper treatments).

Table 3-23. Western juniper acres of percent cover by alternative within protected wilderness characteristics units.

Percent Cover	No Action	Alternative A	Alternative B	Alternative C	Alternative D	PRMPA
Present at <4% cover	75,282	0	73,785	10,178	16,827	16,827
4-10% cover	15,635	0	15,328	4,826	3,416	3,416
10-20% cover	15,600	0	15,326	5,927	4,073	4,037
20-50% cover	8,711	0	8,572	5,062	2,729	2,729
>=50% cover	2,998	0	2,928	2,525	2,530	2,530

The No Action Alternative and Alternative B emphasize protection of wilderness characteristics on all 76 units; management actions to reduce the presence and expansion of juniper would be most restricted in these alternatives. Additional design features would be considered to restore or otherwise treat quaking aspen and mountain mahogany stands. While treatments could occur, they would require additional planning, layout, development of appropriate designs to meet site characteristics, and implementation that may reduce the success of treatments, or the number of acres treated due to limited funding. This would ultimately result in the continued expansion of western juniper into the sagebrush steppe ecosystem. Alternative D, followed by Alternative C would protect fewer units with wilderness characteristics which would necessitate considering additional project designs to both protect/enhance wilderness characteristics, while meeting restoration objectives such as restoring forests to pre-fire suppression characteristics. Alternative A would not add any specific design features to protect wilderness characteristics. The PRMPA would protect the same 33 units as analyzed under Alternative D.

Forests and Woodlands Cumulative Effects Summary

The cumulative effects analysis area is the planning area plus the area included within watershed boundaries (US Geologic Service [USGS] 5th Field Hydrologic Units) that touch the planning area boundary. This Section will address any additional effects to the wilderness characteristics resource from reasonably foreseeable actions. These effects are in addition to ongoing effects to the wilderness characteristic resource (juniper cutting, forest thinning, prescribed fire, grazing, invasive plant control, recreation, and wildfires) described in the affected environment section and the effects of the actions of each of the alternative on the resource noted above.

Forest and woodland management and Juniper encroachment removal projects include the Northwest Malheur County Greater Sage-grouse Habitat Restoration Project treatments (within the planning area), nearby treatment areas on the Malheur National Forest and multiple private land juniper treatments in the planning area which are co-funded through NRCS. The Northwest Malheur restoration project proposes restoring Sage-grouse habitat by removing encroaching juniper. Approximately, 1053 acres under this plan will be implemented in forested areas. This action is likely to have short term negative effects on erosion and wildlife through disturbance. It will have long term positive effects on restoring historic conditions of healthy, fire resilient forests. Cutting juniper increases soil moisture and makes it available for other plants. Several thousand acres of juniper reduction projects have been completed or are funded with assistance from the NRCS in the planning area. These projects, in combination with other actions to protect wilderness characteristics and restore historic vegetation communities, can impact the cumulative effects of the alternatives.

Juniper treatments will positively affect forests and woodlands by restoring historic densities and acreage. Reducing juniper in aspen and mountain mahogany is an important activity to restore these woodlands, which are important wildlife habitat.

No Action Alternative

The No Action Alternative would require consideration of appropriate design features to protect wilderness characteristics and could result in fewer acres being treated (due to limited funding) and may result in lower success of restoration treatments (greater investment in follow up treatments like piling, flush cutting, etc.). This alternative does not have setbacks. Although a very small portion of the total acreage these setbacks could play a vital role in reducing large stand replacing fires.

Alternative A

Alternative A does not protect the West Fork Bendire area for its wilderness characteristics and, as a result, the restoration efforts would be least restrictive and would likely result in a greater benefit to forest health through a reduction of fire-prone, unhealthy, over stocked stands while restoring them to pre-fire suppression conditions.

Alternatives B, C, D, and PRMPA

The PRMPA, Alternatives B, C, and D would require consideration of appropriate design features to protect wilderness characteristics and will result in fewer acres being treated (due to limited funding) and may result in lower success of restoration treatments (greater investment in follow up treatments like piling, flush cutting, etc.).

3.7.9 Fire and Fuels Management

Key Points

- Managing to protect wilderness characteristics and meet VRM Class II objectives has the potential to reduce the amount of acres treated on the landscape because of increased cost and time needed to incorporate and develop design features to reduce or avoid impacts to wilderness characteristics.
- As described in Section 3.7.7 Invasive Species, areas invaded by invasive annual grasses and identified as Categories 5 or 6 are susceptible to rapid growth of wildfire and would benefit from both proactive fuels reduction restoration and post-fire rehabilitation invasive annual grass treatments. Areas degraded by invasive annual grass species like cheatgrass may continue to degrade without active ecological restoration or stabilization.
- Restoration and rehabilitation actions are typically prioritized in areas of low and moderate categories of resistance and resilience. Areas of high resistance and resilience are expected to recover with a lower level of management intervention and have a better chance of natural recovery.
- Annual grass conversion trends are expected to continue without active competitive treatments. Converted lands can lead to increasing fire size and frequency. Proposed treatments in protected wilderness characteristics units would be evaluated and may potentially modified to meet wilderness characteristics protection objectives. Design features to meet both objectives can result in increasing the cost and time needed to complete fuel reduction tasks and may ultimately reduce the success of the rehabilitation/restoration treatments. Because most treatments are used in combination or as a series of treatments, successive treatments may not happen due to funding or timing limitations. Impacts from fire Suppression may require additional rehabilitation to meet VRM Class II objectives.
- In general elimination or reduction of grazing would increase fine fuels in the short term and ultimately increase wildfire risk. In the long term, a change in fire risk would be highly variable. Timing of grazing, amount of utilization and the condition of the existing fuel bed would affect fuel continuity, fuel loading, species composition and species richness.
- If grazing was removed or decreased within the planning area due to Standards for Rangeland Health not being met due to existing livestock grazing or voluntary permit relinquishment, there would be negative indirect effects to fire suppression. Lack of use of roads or primitive routes to manage livestock would diminish motorized access necessary for a rapid and effective fire response. These impacts would vary by alternative.

Affected Environment

Analysis of a broad range of management actions are considered in this section. Fire suppression, hazardous fuels reduction, post-fire rehabilitation, and ecological restoration management actions are described. These resource management issues are included in the Fire and Fuels Management section because a majority of implemented actions have historically occurred within the Vale District BLM Fire and Fuels programs, in line with agency priorities. These priorities have been further emphasized since the 2015 Greater Sage-Grouse Approved RMP Amendment and Record of Decision (BLM 2015d).

Desired Conditions

The BLM uses a combination of data to measure vegetation degree of departure from historic reference conditions. Analysis of this data could result in changes to key ecosystem components such as vegetation characteristics, fuel composition, fire frequency, fire severity and pattern, and other associated disturbances such as insects, disease, and invasions. Historically, the BLM used fire regime groups (FRG) and a combination of vegetation condition class (VCC) and vegetation departure (VDEP) data, previous fire regime condition class (FRCC) and the FRCC departure Index, to classify existing ecosystem conditions to determine priority areas for treatment, as mandated by national direction. However, the VCC and FRCC does not accurately capture the departure of ecosystems outside of forested areas. Due to the fragile nature of the sage steppe environment and the dynamic changes associated with disturbance, especially wildfires, we developed an additive model to capture the ecosystem departure that more accurately describes what is observed on the landscape (MAP FF 3 in Appendix M). For this analysis, the BLM's vegetation departure model is based on fire occurrence, presence of annual invasive grasses and the concept of resistance and resilience (Chambers, Pyke, Maestas et al. 2014). More information about the vegetation model can be found in Appendix C under vegetation criteria for Alternative D. Resilience is the capacity of an ecosystem to regain its fundamental structure, processes and functioning when altered by stresses and disturbances. Resistance is the capacity of an ecosystem to retain its fundamental structure, processes, and functioning despite stressors, disturbances, or invasive species. Resilience and resistance are highly correlated with soil temperature and moisture regimes (see MAP FF1 in Appendix M, and Chambers, Pyke, Maestas et al. 2014).

In general, more frequent burning is associated with less intense or severe wildfires. Conversely, infrequent burning generally leads to high-severity fires that consume much of the aboveground live and dead vegetation—the principal fuels in a wildfire. High-severity fires arise naturally from the accumulation of fuels between events, absent of any other disturbance or activity that reduces it. Ecologists use the concept of fire regime and fire regime group ([FRG], shown in Table 3-24) to characterize the relationship between fire frequency and fire severity and their ecological implications (Barrett et al. 2010).

Table 3-24. Fire regime groups.

Group	Frequency	Severity	Severity Description
I	0 to 35 years	Low/mixed	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; these can include mixed-severity fires that replace up to 75% of the overstory
II	0 to 35 years	Replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation
III	35 to 200 years	Mixed/low	Generally mixed-severity fires; these can also include low-severity fires
IV	35 to 200 years	Replacement	High-severity fires
V	200+ years	Replacement, Any Severity	Generally, replacement severity; these can include any severity type in this frequency range

Source: Landfire Fire Regime Groups Data Dictionary (Landfire Data Dictionary; Landfire 2022a).

Desired conditions would show the following:

- an improvement to infrastructure (water developments, transportation routes, etc.) that enhances wildfire management actions;
- a reduced percentage of lands classified as moderately departed and severely departed; and
- an upward trend (fewer acres) toward the range of historic variability in areas identified with low resistance and low resilience to disturbance.

Current Conditions

Current conditions in terms of fire ecology can best be described by the departure of vegetation from the historical range of variability. MAP FF 3 in Appendix M captures vegetation departure across the planning area and within wilderness characteristics units. Table 3-25 shows the number of acres of each departure category within wilderness characteristics units and the associated resistance and resilience category (Table 3-26).

Table 3-25. Vegetation departure model acres by departure class.[a]

Departure Class	Acres within Wilderness Characteristics Units	Acres within Resource Area (All Ownership)
Largely Intact	236,100	2,287,540
Moderately Departed	794,079	3,322,486
Severely Departed	205,723	846,903
Total	**1,236,902**	**6,456,929**

[a] Acres shown in Tables 3-25 and 3-26 are calculated using cell-based (raster) data, which calculates an acre value for each cell. These values are used to estimate the vegetation departure for lands with wilderness characteristics. This estimate by vegetation departure class does not precisely total acres in the planning area but is rather a close approximation.

Table 3-26. Resistance/resilience acres by class[a.]

Class	Acres within Wilderness Characteristics Units	Acres within Resource Area (All Ownership)
Low	867,194	4,650,354
Moderate	175,632	834,720
High	194,439	924,314
Total	**1,237,264**	**6,461,379**

Fire occurs at various intervals (fire return intervals) in different vegetation types. Intervals between fires are longer in warm, dry sites (where the presence of only a small amount of fuel limits fire spread) and cool, wet sites (where burning conditions are limited despite the large amount of fuel). The shortest fire return intervals occur where there is an optimal combination of flammable fuel and ignition source. Studies performed on fuels similar to those in the planning area have estimated fire return intervals as shown in Table 3-27 (below). More information about these ecosystems can be found in 3.7.6 General Vegetation and 3.7.8 Forest and Woodlands.

Table 3-27. Estimated fire return intervals.

Vegetation	Fire Return Interval in Years[a]	Citation
Wyoming Big/perennial grass	30–100, 35–100	Crawford et al. 2004, Brown and Smith 2000
Low sagebrush	>150, 100–200	Miller and Rose 1999, Crawford et al. 2004
Mountain Big/perennial grass	15–25	Crawford et al. 2004
Mountain Big/western Juniper	12–15, 12–25, 12–15	Miller and Rose 1999, Miller and Tausch 2001, Crawford et al. 2004
Ponderosa pine	15–25	Taylor and Skinner 1998
Mixed conifer	5–25	Beaty and Taylor 2001

[a] Multiple intervals refer to each cited reference located in the "Citation" column.

Factors that determine fire regimes include the long-term frequency, intensity, and extent of fire events, which are all largely dependent on climate and weather patterns. Alterations in natural fire regimes have greatly influenced the distribution, composition, and structure of rangeland and forest vegetation. In many locations, the frequency of fire has decreased because of fire suppression activities and removal of fine

burnable fuels (grasses) by grazing. Changes resulting from decreased fire frequency include the following:

- encroachment of conifers, including ponderosa pine and Douglas fir, into non-forested vegetation at forest-steppe boundaries;
- increased tree density in former savannah-like stands of western juniper and ponderosa pine;
- and increased density or coverage of big sagebrush and other shrubs, with an accompanying loss of herbaceous vegetation.

In contrast, fire frequency (see Map FF 2 in Appendix M) has increased in drier locations where invasive annual grasses have established themselves (see Invasive Species 3.7.7). These changes in fire regimes have caused greater homogeneity of many landscapes.

Wildfire Suppression

The planning area's wildland fire season generally occurs from June through September. Since 1980, the planning area has had 1,460 fires burn approximately 3.3 million acres. This averages 81,340 acres each year (Appendix L, Fire History). Of these fires, lightning caused 70%, humans caused 22%, and the cause of the remaining 8% is undetermined. In 2012, the Vale District experienced record acres burned with two fires, Long Draw (563,337 acres) and Holloway (459,556 acres) combining for more than one million acres burned. The Holloway fire started in northern Nevada and burned into the planning area.

Response to wildfire is based on threat to life and property, fire danger (including concurrent incidents at the time of a new fire start), location, time of year, and values at risk. Suppression priority is given to fires threatening life, property, and resources at risk, in decreasing order of importance. Firefighter and public safety is the first priority in every fire management activity. Values at risk from wildland fire depend on the size, intensity, and fire behavior of each individual incident. Impacts to these values are analyzed through the use of the Wildland Fire Decision Support System (WFDSS) as required by the *BLM Manual Section 9200 Fire Program Management* (BLM 2015c) and the guidance found in the *Interagency Standards for Fire and Aviation Operations* (BLM, NPS, USFWS, BIA, USDA-FS; 2018f).

The location and number of suppression resources is determined by the *2018 Vale District Fire Management Plan* (FMP) (BLM 2018e), values at risk, and objectives identified in resource management plans. Fire modeling programs using historical fire occurrence and weather data assist in determining the location and mix of suppression forces necessary to meet management objectives described in Appendix M of the 2002 SEORMP and ROD.

Fuels Management

On January 5, 2015, the Secretary of the US Department of the Interior signed *Secretarial Order Number 3336, Rangeland Fire Prevention, Management, and Restoration ("Order", USDI 2015)*. The order requires actions to enhance the protection, conservation, and restoration of a healthy sagebrush-steppe ecosystem and addresses important public safety, economic, cultural, and social concerns. This effort builds upon the experience and success of addressing rangeland fire and the broader wildland fire prevention, suppression, and restoration efforts to date.

Fuels management within the planning area began following the implementation of the National Fire Plan in 2001. The focus since then has been on vegetation management, resource protection, and hazardous fuels reduction projects in conjunction with prescribed fire, with emphasis in the wildland urban interface (WUI), Sage-grouse habitat, and areas not meeting desired future conditions as described in the 2002 SEORMP and ROD.

Ecological Restoration

Alterations to the historic fire ecology of the area due to the introduction of nonnative invasive species have resulted in larger fires occurring at shorter return intervals. When the interval becomes too short, native shrub and perennial bunchgrasses cannot recover and energy reserves become depleted resulting in an area dominated by invasive annual grasses. Conversely, when intervals become too long, native shrubs become overly dense and decadent and reduce the health and productivity of the native herbaceous understory (Chambers et al. 2007; Mensing et al. 2006; Miller and Heyerdahl 2008). Vegetation management projects designed to restore native plant communities and composition can counter these effects by implementing restoration and rehabilitation treatments in areas that have been experiencing disturbances outside the vegetation's natural range of historic variability (Blank and Morgan 2012; Booth et al. 2003).

Mechanical treatments that are commonly used within the planning area's forests and woodlands include cutting with chainsaws, shearing, chipping, mowing, etc. (see Section 3.7.8 Forest and Woodlands). Mechanical treatments that may be used in shrublands include plowing, mowing, beating, drill seeding and disking. Additionally, opportunities that arise from the development of mechanical equipment may be utilized.

Mechanical treatments involving western juniper are typically accompanied by prescribed fire to reduce fuel created by juniper treatments. Prescribed fires are usually planned for periods before and after wildland fire season, depending on weather conditions and can be used to meet fire management and other resource objectives, including stimulation of plant growth, changes in species composition, or reduction in amounts of other fuels and slash. Historic use of prescribed fire throughout the planning area has been minimal.

Herbicide can be used in invasive plant management to prevent or slow the invasion of annual grasses following a wildfire. Herbicides used in conjunction with other fuels management treatments would be performed in accordance with local, state, and national policies including analyses under the *National Environmental Policy Act* (NEPA).

Resource protection through the development of fuel breaks is used to improve safety and provide protection, primarily in the wildland urban interface, but also along specific motorized routes to facilitate emergency operations. The reduction of fuel adjacent to roadsides reduces risk to firefighters and increases access for wildfire suppression (Syphard et al. 2011; Maestas et al. 2016; Moriarty et al. 2015). Fuel breaks are constructed by mowing, disking, and green stripping adjacent to designated roads, strategically placed on the landscape to reduce wildfire risk.

Hazardous Fuels

Hazardous fuels removal is completed by reducing fuel loading in areas of high wildfire risk. Fuels along fencelines, roadsides and waterways are reduced to provide resource protection and ecological restoration. Fuels are reduced by mechanical treatments and prescribed fire. Table 3-28 (below) shows the acres of hazardous fuels treatments completed from 2001–2015 within the planning area.

Table 3-28. Fuels treatments within the planning area in acres.

Year	Thin	Cutting	Machine Pile and Burn	Hand Pile and Burn	Jackpot Burn	Broad-cast Burn	Lop and Scatter	Mowing	Disk/ Plow	Total (acres)
2001	-	-	-	-	211	-	-	4,835	-	5,046
2002	-	607	-	-	-	6,878	-	-	1,592	9,077
2003	-	1,555	-	-	-	-	-	4,261	1,083	6,899
2004	-	-	-	972	613	3,462	-	-	-	5,047
2005	-	1,750	-	-	2,431	782	-	2,111	687	7,761
2006	-	3,510	-	-	2,310	1,006	-	1,214	888	8,928
2007	-	1,403	149	69	1,438	62	-	2,803	888	6,812
2008	-	1,629	-	49	554	425	-	4,640	687	7,984
2009	-	6,252	-	387	490	579	84	727	521	9,040
2010	-	8,523	248	214	1,547	-	22	1,097	1,042	12,693
2011	-	12,302	-	-	1,088	-	-	1,129	1,033	15,552
2012	-	6,421	86	161	571	-	394	1,069	888	9,590
2013	-	-	-	-	-	-	-	1,069	852	1,921
2014	210	14,440	-	11	521	-	-	947	201	16,330
2015	-	3,881	715	708	-	-	2,312	2,563	888	11,067
Total	**210**	**62,273**	**1,198**	**2,571**	**11,774**	**13,194**	**2,812**	**28,465**	**11,250**	**133,747**

Source: This table is identical to Table 3-4 in the 2016 *Integrated Invasive Plant Management for the Vale District EA* Chapter 3 (p. 92) except 2015 data has been added to this table, 3-28 (BLM 2016e).

Post Fire Rehabilitation

Emergency Stabilization and Burned Area Rehabilitation, commonly referred to as ES&R, projects occur after a wildfire has burned (BLM 2007b). The goal of these projects is to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, and to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Rehabilitation treatments are implemented to encourage or accelerate recovery of fire-damaged lands. Following a wildfire, specialists decide whether ESR activities are warranted based on vegetation condition, soils, fire size and intensity, stream condition, slope, improvements burned by wildland fire, with emphasis placed on the resistance and resilience model (Department of the Interior 2017; Department Manual 620 DM 3 Wildland Fire Management).

Currently, emergency fire rehabilitation activities are implemented after a written and approved emergency fire rehabilitation plan is completed. Common activities may include seeding native or nonnative plants, noxious weed control, erosion control, and repairing infrastructure such as fences that were burned or building new temporary management fences.

Restoring and maintaining biologically and structurally diverse rangeland communities would lead to a more natural role of fire across the landscape, improve the overall rangeland health, provide for better wildlife habitat, and prevent or slow the invasion of nonnative annual grasses.

Fire and Fuels Management Activities in Wilderness Characteristics Units

As hotter and drier conditions in the planning area persist, and rangeland fires have increased in size and intensity, the BLM has increased our focus and investment to pre-suppression fuels reduction and restoration activities, and post-wildfire rehabilitation efforts. These management actions are designed, in part, to shift resource conditions toward more resistant and resilient vegetation communities. As described in Sections 3.7.6 General Vegetation, 3.7.7 Invasive Species, and 3.7.22 Climate Change, these restoration, rehabilitation, and fuels treatments are identified and designed to address specific resource

conditions present in a project area. Project objectives are developed to tailor appropriate management actions to circumstances in the project area. Depending on project objectives, treatment method options are considered based on: site potential, geography, available resources (including staffing, funding, and equipment), resource designations (e.g., Sage-grouse or other critical habitat or special designations or management areas), and policy/legal stipulations. Where necessary, treatments are modified or designed to address these considerations. In all cases, restoration and rehabilitation treatments are designed to meet resource objectives. Resource objectives, along with funding, staffing, and equipment availability factor into the prioritization of the treatments. Since entering into the 2010 Settlement Agreement, where restoration and rehabilitation needs are identified in lands with wilderness characteristics, certain types of treatments have been modified or designed to meet both ecologic objectives and to ensure that the wilderness characteristics are protected.

Design features that have been developed to meet resource objectives and protect wilderness characteristics, include, but are not limited to:

- Modified rangeland drills for shallow tilling
- Dragging chains or tires to smooth drill rows and diminish visual impacts
- Flush-cutting juniper
- Hand piling and burning
- Selecting broadcast (no seeding furrows) seedings
- Rubber tired equipment versus tracked vehicles
- Contouring treatments and orienting treatments to parallel roads to reduce visual appearance
- Manual plantings
- Designing treatments as a mosaic as opposed to linear treatments

BLM's restoration or rehabilitation projects are developed to address specific resource conditions and needs. Each project is unique and is planned with design features tailored to those needs and implemented with best management practices to achieve desired results and to meet project objectives. Additional design features are incorporated as needed to achieve those objectives. Where restoration or rehabilitation treatments are identified in protected wilderness characteristics units design features may be employed to provide the highest probability of success while maintaining or enhancing those characteristics. As explained in this and other sections of Chapter 3, modified treatment designs may result in additional costs and tradeoffs.

The following are two examples of designs that have been implemented to accomplish restoration and rehabilitation objectives while protecting wilderness characteristics:

- Modified juniper reduction treatments (which typically include ground-level or flush cutting, lopping branches, piling, and burning) are designed to maintain naturalness and limit or avoid impacts outstanding opportunities for primitive recreation activities. These additional design features can add an estimated $200/acre to these types of treatments, based on contracted project implementation. This estimate does, not include the costs associated with the additional time specialists require to plan and monitor these treatments.
- Rangeland drill seedings methods modified to reduce or avoid long term impacts to naturalness can include retro-fitting rangeland drills with either or both, depth-limiting "bands" or adding "drags" or rollers to smooth drill furrows (additional descriptions provided in Section 3.7.7 Invasive Species). Retro-fitting rangeland drills is estimated by BLM to require an additional 3 hours for each drill; normally, three drills are towed behind machinery.

If drags or rollers are added, additional transport and installation time and resources are required.

As provided in Section 3.7.7 Invasive Species, these additional design features can also impact the success of a treatment. Following the 2012 Long Draw fire, where modified drills were used, 39% of 100 monitored plots achieving objectives of two deep-rooted perennial grass plants per square meter. Use of unmodified rangeland seeding drills resulted in an average of 76% of monitored plots achieved two plants per square meter. The BLM now sets objectives for successful establishment of three plants per square meter for seedings. Cost differences for modifying rangeland drills are not available, but each drill that is retrofitted for depth bands and adding drags to diminish visual impacts require additional staff, time, and materials.

An additional impact of modifying treatment designs to protect wilderness characteristics can include the cost of delay. The additional time invested in planning, layout, and modifying equipment can lead to missed opportunities in acquiring resources. Equipment and seed can become unavailable and treatment windows can be missed, particularly where restoration efforts in other BLM Districts are occurring simultaneously.

While additional design features can have an impact on treatment costs and effectiveness in areas where these modifications are necessary, the BLM does not reduce planned targets of acres proposed for treatments based on land allocation or protection status. Actual acres treated may, however, be lower than planned due to limitations on funding and additional costs associated with design features, equipment modifications, and staff time.

Trends

Because the predominant fuel types in the planning area are grass and brush, the number of fires and the amount of land burned can be directly linked to the amount and timing of spring moisture. Higher levels of spring precipitation result in increases in vegetative growth, leading to increases in fuels present during the summer fire season. Fuel continuity also plays an important role in fire size. Invasive annual grass conversion is changing a historically perennial bunchgrass fuel bed to an annual grass fuel bed. The result is landscapes with continuous fuels that are more susceptible to large fire growth (Balch et al. 2012).

Since 2012, the planning area has experienced the top three largest fires dating back to 1980. Long Draw (563,337 acres), Holloway (170,359 acres within the planning area), and Saddle Draw (270,027 acres within the planning area) combined to approximately one million acres burned. Actual wildfire trends throughout the planning area have shown an increase in average fire size and total acres burned. From 1980-2000, the average acreage burned is approximately 47,235 ac, from 2000–2020 the average acres burned per year increased to 117,150 ac. Many studies indicate that climate change will intensify wildfire risk particularly in the summer and extend the wildfire season from spring to winter (An et al. 2015), calling for more effective wildfire management strategies.

Environmental Consequences

Analytical Methods

Fire management actions include developing water sources, increasing access by building or improving roads, implementing prevention activities, and building infrastructure such as guard stations.

These actions were analyzed collectively and because specific locations of the suppression actions are unknown, it is assumed the development of water sources, increasing access, implementing prevention activities, and building infrastructure would be within the planning area and potentially within a wilderness characteristics unit prioritized for wilderness protection.

Indicators

- Fire Cost—This indicator evaluates the effectiveness of management actions that reduce the final size of wildfires. Typically, as size increases, so do the costs associated with management of the wildfire, resource damage, and rehabilitation.
- Acres of vegetation departure in each category
- Ecological site conditions
- Acres of resistance/resilience in each class
- Miles of primitive routes within a protected unit that would be unavailable for regular maintenance.

Assumptions

Fire and fuels management actions that affect final wildfire size and therefore cost were used to evaluate the impacts on fire and fuels management. These actions include implementing fuels treatments, developing water sources, improving access for wildfire response (such as building or improving roads), implementing prevention activities, and building infrastructure such as guard stations.

Assumptions used in this component of the analysis include:

- developing water sources increases wildland fire suppression efficiency and decreases fire size.
- increasing travel route conditions decreases response time, decreases fire size, and therefore, fire cost.
- design features to protect and enhance wilderness will increase implementation costs and time.
- elimination of grazing that would result in limited maintenance of water developments because maintenance, which would revert back to the BLM (typically the responsibility of the permittees under maintenance agreements). It is assumed that this would have a negative impact to fire suppression.
- elimination of grazing that would result in reduced use of roads, primitive routes (in Wilderness Study Areas, formerly referred to as "ways"), and trails to manage livestock, and may diminish motorized access along existing routes. It is assumed that this would increase response time to wildfire incidents.
- elimination of grazing that would increase fine fuel loading. It is assumed that this would lead to greater fire intensity.

Issue 1

How would fire suppression and fuels management be affected if lands with wilderness characteristics were managed to emphasize protection of those values?

Fuels

Protection of GRSG habitat and reducing invasive plant species are the top resource priority for fire management. Invasive annual grass conversion and juniper encroachment have been identified along with wildfire to be major threats to GRSG and GRSG habitat (BLM 2015d, 1–7), and have become a primary focus for fire management within the planning area. Cattle grazing is authorized on 95% (see Table 3-12

in Section 3.7.3 Livestock Grazing and Rangeland Management) of public lands within the planning area. The long history of grazing management has resulted in extensive range improvements. These actions have reduced the percentage of land without human impacts in the planning area.

Fuels reduction projects are designed to either/both facilitate protection of resources or as a component of a restoration or rehabilitation program in a project area. Areas burned by wildfire or prescribed burning of areas with invasive annual grasses are often used in conjunction with other restoration or rehabilitation actions to increase effectiveness. Site preparation, including fire, is recommended prior to either herbicide applications or seeding, or both.

Managing to protect wilderness characteristics under the 2010 Settlement Agreement has increased management planning, costs, and time and has reduced restoration efforts to maintain these wilderness characteristics. Fuels reduction projects proposed in wilderness characteristics units that are prioritized for protection would be designed to maintain or enhance those characteristics.

Fire is a natural disturbance, and it is logical to assume that a wilderness characteristics unit designated for protection will burn in a wildfire event at some point. Due to the low resistant low resilient nature of the planning area (Table 3-26), the post-burn area will eventually become dominated by exotic annuals (Stewart and Hull 1949; Chambers et al. 2007; Davies 2011). These fine fuels create continuous fuel beds allowing fire to spread more readily across the landscape (D'Antonio and Vitousek 1992). The transition to a degraded ecological state dominated by invasive plants leads to permanently higher wildfire frequencies and suppression costs (Chambers, 2005).

Many studies indicate that climate change will intensify wildfire risk particularly in the summer, extending the wildfire season from spring to winter (An et al. 2015). Invasive annual grasses are projected to spread and dominate where they are already well adapted and where climate changes could increase fire frequency (Abatzoglou and Kolden 2013; Boyte et al. 2016; Coates, Ricca, Prochazka, et al. 2016). Thus, causing further degradation across the landscape.

Adding design features associated with fuels management projects to protect wilderness characteristics and to meet VRM Class II objectives can reduce the number of acres treated on the landscape and impact the effectiveness of the fuels treatment. This occurs due to increased cost and time needed to incorporate and develop design features to reduce or avoid impacts to wilderness characteristics. As identified in the Affected Environment section above, there can also be a reduction in effectiveness of certain treatments like seeding desirable species.

In protected wilderness characteristics units where there is low or moderate levels of resistance and resilience, the BLM would emphasize active ecological restoration, rehabilitation, or stabilization actions, without which the areas have a higher risk of continuing to degrade. As a result of the additional investment in project designs to protect wilderness characteristics, particularly because most treatments are developed as a sequence of treatments and used in combination, successive treatments can also be impacted and the time to achieve restoration, rehabilitation and fuels reduction objectives may be delayed.

Indirect effects would include a reduced amount of land restored in areas of moderate and high resistance/resilience and have a greater chance of vegetation departure. Areas with lower resistance/resilience would have a higher risk of annual invasive grass conversion (Chambers, Pyke, Maestas et al. 2014). Ultimately restoration/rehabilitation treatments would improve ecological integrity and result in increased naturalness. Drill seeding deep-rooted perennial grasses with a rangeland or no-till drill no-till would reduce land degradation and be more resilient to disturbance from fire and cattle grazing (Chambers, Pyke, Maestas et al. 2014). Dragging behind drill seeding, which is what is used to reduce visual effects of drill rows, may reduce the success of the drill seeding and ultimately reduce the success of the project. Dragging may not be an option and may result in aerial seeding treatment. Aerial seeding has been proven to be less successful and more costly than drill seeding. Descriptions of aerial and drill seeding methods, cost comparison, and success rates are more thoroughly discussed in Section

3.7.6 General Vegetation. Cutting Juniper would increase potential Sage-grouse habitat and the visual effects of stumps would degrade over time. The more acres that can be treated on the landscape, the lower the risk of annual grassland conversion or juniper encroachment and greater likelihood of maintaining naturalness from an ecological standpoint. Description of cost comparison, and success rates are more thoroughly discussed in Section 3.7.8 Forest and Woodlands.

Areas with moderate to severe departure (Table 3-29) and low to moderate resistance/resilience (Table 3-30) are the places most in need of ecological restoration. Alternative A would allow for the greatest ecological restoration treatment success across the planning area as design features would not be required to prioritize protection of wilderness characteristics and to meet VRM Class II objectives. The PRMPA would be the second least restrictive followed by Alternative C then Alternative D.

Table 3-29. Vegetation departure model, acres by class of protected wilderness characteristics units by alternative.[a]

Class	No Action	Alt/ A	Alt. B	Alt. C	Alt. D	PRMPA
Largely Intact	236,100	0	231,413	46,886	99,402	99,402
Moderately Departed	794,079	0	776,369	95,452	272,691	272,691
Severely Departed	205,723	0	199,052	25,183	45,155	45,155
Total	1,236,902	0	1,206,834	167,521	417,249	417,249

[a]Acres shown in Tables 3-29 and 3-30 are calculated using cell-based (raster) data which calculates an acre value for each cell. These values are used to estimate the vegetation departure for lands with wilderness characteristics. This estimate by vegetation departure class does not precisely total acres in the planning area but is rather a close approximation.

Table 3-30. Resistance/resilience classes (acres) in protected wilderness characteristics units by alternative.[a]

Class	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMPA
Low	867,194	0	845,019	85,588	292,675	292,675
Moderate	175,632	0	172,326	35,728	69,870	69,870
High	194,439	0	190,163	46,114	54,772	54,772
Total	1,237,264	0	1,207,508	167,430	417,318	417,318

[a]Acres shown in Tables 3-29 and 3-30 are calculated using cell-based (raster) data which calculates an acre value for each cell. These values are used to estimate the vegetation departure for lands with wilderness characteristics. This estimate by vegetation departure class does not precisely total acres in the planning area but is rather a close approximation.

Although Alternative B would provide the most protection to wilderness characteristics, approximately 72% of the landscape of the proposed units for protection are in a low resistance/resilience class (Map FF1, Resistance Resilience). This percentage is essentially the same across the entire planning area (70%). The most effective restoration and rehabilitation treatments would be considered in protected and unprotected areas; however, outside of protected units, limited resources are expected to be applied more effectively and on more acres.

Areas that have low resistance and resilience would likely not recover naturally and have a high potential for annual grassland conversion. Over 80% of the landscape within wilderness characteristics units are already moderately or severely departed from the historical fire regime. Most of this landscape has already converted to an annual grassland or is threatened to conversion (see Categories 5 and 6 in the Invasive Species Section 3.7.7, Map VEG 2). The identification of areas with wilderness characteristics is not based on ecological integrity and invasive grasslands were not factored when wilderness characteristics units were determined. Protection of wilderness characteristics under Alternative B would

require the greatest number of acres needing special design features. The increased costs associated with special design features would lead to fewer acres treated. Among the alternatives, over the life of the plan, this could lead to the highest potential wildfire risk and least cost-effective opportunity for ecological restoration.

No alternative developed was solely based on ecologic integrity and therefore no correlation can be made between an alternative and the need for restoration treatments. Both Alternatives C and D expressly incorporate vegetative condition in their development. Alternative C specifically incorporated resistance and resilience, as well as invasion of annual grasses in each individual wilderness characteristics unit; Alternative D incorporated the vegetative condition in each unit. However, in both Alternatives C and D, additional factors were considered by the interdisciplinary team in identifying units for protection (see Appendix C, Methodology).

Design features needed to protect wilderness characteristics can increase treatment costs by as much as 30%, based on restoration and rehabilitation projects implemented in Vale District since 2010. Therefore, restoration/ rehabilitation treatments with additional design features could only cover 70% of the potential treatment footprint compared to without design features, particularly if budgets are limited. The No Action Alternative and Alternative B would protect all or a majority of the area within all lands with wilderness characteristics units and would therefore require the greatest investment in design features for protection. Alternative A would require the smallest investment in design features and would result in the largest ability to efficiently develop rehabilitation and restoration treatments throughout the planning area. After Alternative A, Alternative C would be the least restrictive and therefore second least costly approach to restoration, followed by Alternative D and the PRMPA which protect 33 units.

Fire Suppression

Fire suppression efforts often results in damages to resources, lands, and facilities through suppression strategies designed to protect life, property, and resources threatened by each wildfire. These strategies include direct and indirect fire line construction, use of heavy equipment, and the use of fire-retardant chemicals.

Suppression repair includes planned actions taken to repair the damages to resources, lands, and facilities resulting from wildfire suppression actions. These actions are usually implemented prior to or immediately after containment of the wildfire. Repairs may be completed to return the value to pre-wildfire management activity conditions but may not improve the condition beyond what was existing prior to the incident (BLM, NPS, USFWS, BIA USDA-FS 2018f, 257).

Protecting lands with wilderness characteristics would require additional suppression rehabilitation standards to meet VRM Class II objectives. Because of this, specialized equipment, additional resources, and time may be needed to accomplish these objectives increasing overall costs of a fire. Acres of VRM Class II by alternative is described in Table 3-2. The No Action Alternative and Alternative B would have the greatest need for additional suppression rehabilitation investment to meet wilderness characteristics objectives, followed by Alternatives D and the PRMPA (these two both protect the same acreage/number of units), and C. Alternative A would not require any additional suppression rehabilitation.

Issue 3

How would fire suppression and fuels management be affected by BLM management actions that would reduce livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

Fuels

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to fuels from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

In general, reduction of grazing would increase fine fuels in the short term and ultimately increase wildfire risk. In the long term, a change in fire risk would be highly variable. Timing of grazing, amount of utilization and the condition of the existing fuel bed would affect fuel continuity, fuel loading, species composition and species richness. Areas with utilization under 50% that were grazed in winter or early spring may not have any effect on species composition and richness and would most likely have higher annual fuel loads if left un-grazed. Degraded sites with annual-to-perennial ratios greater than 3:1 would also have higher fuel loads, increased continuity if left ungrazed and would not improve without active management (Davies et al. 2010; Strand et al. 2014). Areas that are relatively intact (MAP FF 3 in Appendix M), have higher utilization than 50%, and are grazed in the spring may see an improvement of perennial-to-annual ratios if left ungrazed. Although grazing may reduce fuel loads in the short term, fire risk may be reduced in areas that were over utilized (>50%). A reduction in fire risk would be achieved by reducing fuel continuity and increasing live fuel moisture of fine fuels by an increasing the ratio of perennials to annuals.

Alternatives B and D (to a lesser extent) have both identical long-term and short-term effects. In the short-term, elimination or reduction in grazing has the greatest potential of increasing wildfire risk due to an increase of fine fuels associated with annual rangeland production. However, long-term effects of both Alternatives B and D (to a lesser extent) may have the greatest positive effect of decreasing wildfire risk by reducing the disturbance of grazing from the landscape as long as perennial grasses are more prevalent than annuals.

If annual grasses fill in the interstitial spaces and create a continuous fuel bed, there will be a greater wildfire risk due to increases in fire intensities fueled by the buildup of perennial biomass leading to greater mortality in perennial bunchgrasses. In addition, increases in fine fuel volumes lead to faster fire spread and increased flame lengths a as fuel continuity increases (Davies and Nafus 2013; Davies et al. 2009, 2010; Zimmermann et al. 2010). If a fire were to occur under these conditions, there would be a higher likelihood of invasive annual invasion and expansion, leading to an increase in fire return intervals and future degradation. The higher the ratio of perennials to annuals, the less potential there is for large fire growth (Chambers, Pyke, Maestas et al. 2014; Pilliod et al. 2017). Alternatives B and D (to a lesser extent) would have the greatest negative impact on fuels management due increases in wildfire risk as a result of the higher level of grazing reduction, resulting in potential increases in fine fuels. The No Action Alternative and Alternatives A and C would have the same effects to wildfire risk. The impact of management actions under the PRMPA on fuels management and wildfire risk could provide slightly higher benefit than the No Action Alternative and Alternatives A and C because there would be greater flexibility to consider restoration and rehabilitation actions when Standards for Rangeland Health are not being achieved, regardless of causal factor.

Fire Suppression

As presented in Section 3.7.3, under “Standards of Rangeland Health and Grazing Management Guidelines” the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner.

The impacts to Fire Management as a result of a reduction or elimination of livestock grazing would be the same among the alternatives. Alternatives B and D have a greater potential reduction of grazing than the other alternatives. Under the No Action, Alternatives A and C, and the PRMPA, if standards for

rangeland health are not being met due to existing livestock grazing, the BLM is required to take action in making progress toward achieving Standards. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved—regardless of causal factor—BLM would consider taking action to make progress towards meeting Standards. Also under the PRMPA, there is direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions. Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur.

Under the PRMPA, if grazing were reduced or eliminated within the planning area due to Standards for Rangeland Health not being met or voluntary permit relinquishment, there could be an increase in fuel build-up in those areas where the reduction or elimination takes places. These impacts would be less than those identified in both Alternatives B and D. Use of roads, primitive routes, and trails to manage livestock would diminish, and may diminish access across the landscape. Additionally, increases in fuel accumulation, as described above, increases firefighter risk by increasing fire intensity, flame lengths, and rates of spread of wildland fires throughout areas where livestock grazing is reduced or eliminated.. These impacts to fire behavior have a direct correlation to wildland fire size and therefore costs. Alternatives B and D, do to the significantly larger area that would be subject to reductions in grazing would have a much greater potential negative impact to fire suppression access and firefighter safety, increases in annual grasses, and fire return, intensity and rate of growth.

While the routes would still be authorized for use in response to wildfire, the routes will become more rugged and less visible over time. Responding personnel would need to utilize alternate routes, travel cross country, or restrict heavy fire suppression equipment access to these remote areas. These actions would increase the response times to wildfires, complicate suppression tactics, and increase exposure to responding fire personnel.

Water sources within the planning area are numerous, but water abundance is limited to spring precipitation, reservoir storage and runoff from higher elevation. Under Alternatives B and D, lack of maintenance of developed water sources would have a negative effect on fire suppression. These developed water sources are essential for efficient suppression of wildland fires. Without the use of developed water sources, wildland fires may become more difficult to suppress or may require more resources to suppress each individual fire.

Under the No Action Alternative, Alternatives A and C, and the PRMPA, BLM would retain these developed water sources and maintain the current efficiency of wildland fire suppression resources. Under the PRMPA, management actions to improve vegetative conditions and function where Standards for Rangeland Health are not being achieved—regardless of causal factor—there would be beneficial impacts to Fire Management.

Fire and Fuels Management Cumulative Effects Summary

The cumulative effects analysis area for fire and fuels management is the planning area, and adjacent planning areas including the Burns and Boise BLM Districts. In order to accomplish the purpose of Secretarial Order 3336, many fuels management projects connect to or lie adjacent to neighboring BLM Districts. This helps to achieve consistent treatments across jurisdictional boundaries in an effort to reduce fire risk and improve restoration at a landscape level. This Section will address any additional effects to fire and fuels management from reasonably foreseeable actions. These effects are in addition to past and ongoing effects to fire and fuels management (juniper cutting, piling, and burning, fuel break

mowing, livestock grazing, seeding and planting, and noxious and invasive weed control) described in the affected environment section and the effects of the actions of each of the alternative on the resource noted above.

The reasonably foreseeable future actions that have the potential to benefit fire and fuels management include the Tri-state Fuels Management Project, the LCGMA Permit Renewal and Restoration Treatments, and the Northwest Malheur projects. In General, these RFFAs are designed to restore degraded areas through treatments that revegetate areas utilizing native or desirable nonnative seed to reduce introduction of noxious and invasive weeds, reduce conifer encroachment and hazardous fuel accumulations, creating a network of fuel breaks limiting wildland fire impacts to natural resources and communities across the landscape, and facilitating fire suppression activities and access. Vegetative impacts are addressed within Section 3.7.6 General Vegetation cumulative effects above. While the RFFAs do impact fire and fuels management, the incremental impacts would be the same among the alternatives as those described above.

Restoration treatments associated with the LCGMA Permit Renewal and Restoration Treatments and the Northwest Malheur County Greater Sage-grouse Habitat Restoration projects would provide long term benefit to fire and fuels management by restoring fire regimes to natural ranges of variation, reduce the fire risk by removing fire prone invasive annual grasses and increase fire resiliency by establishing perennial bunchgrasses and fire tolerant vegetation.

Impacts from materials (gravel) placement under the Northwest Malheur Mineral Material Site project would be the same across the alternatives and the PRMPA, if implemented. The project would have a minor positive impact by establishing route materials in closer proximity to routes identified for fire and fuels management projects. These proposed treatments will improve travel route conditions and therefore, increase efficiency of fire suppression resources and fuels management actions. If this project is not implemented, travel route material will still be delivered, but from a greater distance from ongoing actions defined in the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, decreasing the efficiency of actions, and increasing overall costs.

Fuels treatments associated with the Northwest Malheur projects and the Tri-state Fuels Management Project would also provide a long-term benefit to fire and fuels management. This would be achieved by addressing the hazardous fuels reduction and vegetation health within the larger sagebrush-steppe landscape and would help restore fire-resilient habitats, improve the vigor of fire-dependent areas while increasing the efficiency of fire suppression actions, decreasing cost, and impact of wildland fires. Additionally, the creation of a network of fuel breaks will increase firefighter and public safety, across the planning area, by enabling wildland fire suppression resources to more rapidly and effectively protect natural and cultural resources from wildfires. These fuel breaks are part of connected actions in Oregon, Idaho, and Nevada and increase the effectiveness of firefighting resources throughout the region while reducing overall fire cost and therefore size while limiting fire impacts to communities and natural resource values.

Cutting, piling, and burning juniper would reduce negative impacts to cold-moist mountain big sagebrush communities by increasing soil moisture and making it available to other plants. By removing juniper, mountain sagebrush communities should trend towards the historic fire regime range of variability. The No Action Alternative and Alternative B would have the most dramatic negative effect of providing the ability to treat juniper encroachment effectively, because of the special design features required to maintain wilderness characteristics, increased implementation planning, increased time to complete treatments and increased costs. Alternatives C and D and the PRMPA also would have negative effects but to a lesser extent. Alternative A provides the most opportunity and the highest potential of success to mitigate juniper encroachment.

Ongoing wildfire stabilization and rehabilitation projects would result in beneficial effects to native vegetation by reducing soil erosion, reducing abundance of invasive plants, and increasing desirable

perennial plant cover. The No Action Alternative and Alternative B would have the most dramatic negative effect of providing the ability to stabilize and rehabilitate lands after a wildfire because protecting wilderness characteristics reduces treatment success. Alternative C, D and the PRMPA also would have negative effects but to a lesser extent. Alternative A provides the most opportunity and the highest potential of success to stabilize and rehabilitate lands after a wildfire.

Restoration seeding projects and green stripping would have similar cumulative effects to wildfire stabilization and rehabilitation projects.

Fuel break mowing would have positive effects of stabilizing landscapes and reducing potential of cheatgrass conversion by increasing firefighter effectiveness and therefore reducing fire cost. Alternative A would provide the greatest potential of fuel break mowing success, followed Alternative C and then Alternative D and the PRMPA (these two protect the same area for wilderness characteristics in 33 units) The No Action Alternative would have the lowest potential of fuel break mowing success.

No Action Alternative

The No Action Alternative would have a dramatic negative effect of providing the ability to implement restoration efforts, treat juniper encroachment effectively, and implement fuel breaks associated with the above listed reasonably foreseeable actions. The number of acres requiring special design features required to maintain wilderness characteristics, increases implementation planning, time to complete treatments and costs. This would result in a decrease in the amount acres being treated (due to limited funding) and may result in lower success of restoration treatments.

Alternative A

Alternative A would have the greatest positive affect to fire and fuels management for all RFFAs and specifically for the Northwest Malheur projects and the LCGMA Permit Renewal and Restoration Treatments by providing the greatest number of acres available for landscape restoration treatments without special design features. These treatments are designed to restore historic fire regimes while providing the greatest ability to limit identified values from the impacts of wildland fires.

Alternative B

Alternative B would have a dramatic negative effect of providing the ability to implement restoration efforts, treat juniper encroachment effectively, and implement fuel breaks associated with the above listed reasonably foreseeable actions. The number of acres requiring special design features required to maintain wilderness characteristics, increases implementation planning, time to complete treatments and costs. This would result in a decrease in the amount acres being treated (due to limited funding) and may result in lower success of restoration treatments.

This alternative has the most acres that could result in reducing or removing grazing if voluntary grazing permit relinquishment were to occur. Given that a permit has never been voluntarily relinquished in the planning area, the likelihood of a voluntary relinquishment occurring in the future is low. However, as discussed above in Issue 3, this alternative has the greatest potential to negatively affect fire and fuels management with the elimination of grazing and the increased potential for wildland fire and invasive annual expansion.

Alternatives C, D, and PRMPA

Alternatives C, D, and the PRMPA would require consideration of appropriate design features to protect wilderness characteristics and could result in fewer acres being treated within protected units (due to limited funding) and may result in lower success of restoration treatments with greater investment in follow up treatments and monitoring.

3.7.10 Special Status Plant Species

Key Point

The majority of the proposed actions have no impact to Special Status plants because of protective measures already in place, see Appendix D: Alternatives Considered but Not Analyzed in Detail and Resources Not Affected by Issues Analyzed in the Alternatives. Limiting OHV activity has a positive impact on Special Status plants, with Alternative B being the most beneficial among the alternatives, and the No Action Alternative and Alternative A being the least beneficial.

Affected Environment

Introduction

Special status plants include rare and uncommon vascular plants, lichens, bryophytes, and fungi that are either federally listed, proposed for listing as threatened or endangered under the *Endangered Species Act* (ESA), or have been designated as BLM Sensitive Species by the State Director following BLM Manual 6840—Special Status Species Management Policy (BLM 2008c). The BLM's policy for special status species (including plants) is to (1) either conserve or recover, or both, threatened and endangered species and the ecosystems on which they depend so that the ESA protections are no longer needed, and (2) initiate proactive conservation measures that reduce or eliminate threats to BLM Sensitive Species to minimize the likelihood of, and need for, the listing of these species under the ESA.

BLM policy, found in Manual 6840, requires the BLM to identify strategies, restrictions, and management actions necessary to either conserve or recover, or both, listed species, as well as provisions for the conservation of BLM Sensitive Species, when it engages in the planning process, land use plans, and implementation plans (BLM 2008d). Determining which plants are thriving and which are rare, or declining is crucial for targeting conservation of the species, habitats, and the ecosystems in greatest need. The BLM 6840 policy also requires managers to determine, to the extent practicable, the distribution, abundance, population condition, current threats, and habitat needs for sensitive species and evaluate the significance of actions in conserving those species. Special status plants in the planning area are routinely surveyed as part of project clearances for proposed management actions that may affect these species. Project design features are implemented to provide protection to federally listed threatened and endangered and sensitive plants when they occur in areas of proposed management activities.

The BLM, in cooperation with the US Forest Service, developed a new interagency ranking structure for Special Status species (abbreviated as SSS for both Bureau Sensitive species and those listed under ESA) for the Oregon/Washington BLM and Region 6 of the US Forest Service (BLM 2008b). This new structure facilitated coordinated management for rare species across land ownership boundaries. The interagency ranking structure, issued in February 2008, used new criteria to determine if species are sensitive. It also eliminated the categories of BLM assessment and BLM tracking species and added a strategic species category. As a result, some previously listed species have been removed from the list, and the status of some species has changed from sensitive to strategic. In 2019 the category of BLM strategic was removed (BLM Instruction Memorandum OR-2019-003, BLM2019b).

The BLM State Director issued a new Special Status Plant List in August 2021 (BLM 2021a), which includes plants and animals that are federally listed, proposed for listing, and BLM Sensitive Species. Federally listed and BLM Sensitive Species are proactively conserved and managed in accordance with BLM policy. A list of SSS documented and suspected to occur in the planning area is located in Appendix E, the Special Status Plants List. A search of the BLM's Geographic Biotic Observations (GeoBOB) spatial database on July 1, 2020, identifies a total of 758 sites of 51 Special Status plant species on BLM

lands in the planning area. There are no federally listed threatened or endangered plant species known to occur in the planning area and thus will not be discussed further in this document.

Most BLM Sensitive plants on the SSS species list have little quantitative trend data or formal monitoring of the number of individuals, demographic structure, seedbank viability, response to disturbance, or changing climate. A full understanding of population demographics, population trends, and annual fluctuations of populations due to climatic variability usually requires at least 10 years of monitoring. Long-term monitoring is cost prohibitive. Only one species in the planning area, *Astragalus mulfordiae*, has long-term monitoring established; data from this monitoring was available in late 2022. Much of what is known about the sensitive species in the planning area is observational, or based on monitoring that has been inconsistent, incomplete, or at only a few locations. In most cases, documented species trends are variable (i.e., some populations stable, some increasing, or some decreasing).

Several factors affect the presence, abundance, and persistence of BLM Sensitive plants. The most significant factors are activities that result in direct adverse impacts on plants and occupied habitat. Habitat loss and disruption of ecological processes pose significant risks to Special Status plants due to the following:

- land conversion
- water diversion
- road and ROW construction and maintenance
- non-native plant invasions
- recreation such as OHV use
- fire exclusion
- grazing by domestic livestock, unauthorized horse use, wild horses and burros, and native ungulates
- vegetation management activities (Schemske et al. 1994; Kaye et al. 1997; Wilcove et al. 1998; Gisler and Kaye 2004; Newton et al. 2010a and 2010b)

Agency policy requires surveys for Special Status plant species before implementing habitat-disturbing projects on BLM-administered lands. General practice has been to avoid identified sensitive plant populations.

Indirect impacts to sensitive plants are climate change and the introduction and spread of invasive annual grasses. Many Special Status plants have limited distributions, a low number of sites, small population sizes, and likely lack resilience in response to changing climate and habitat conditions (Ellstrand and Elam 1993). Under future climate scenarios, sensitive plants can migrate to habitats for which they are better adapted, adapt to the changing environment in their natural or original place, or go extinct (Hawkins et al. 2008). Because most Special Status plants are habitat specialists, their ability to migrate is likely severely limited to nonexistent. Invasive annual grasses impact sensitive plants by increasing competition for space, light, water, and nutrients.

Environmental Consequences

Analytical Methods

Analysis is limited to known populations in the GeoBOB database. Currently undetected populations of sensitive plants in the planning area will not be analyzed.

Indicators

- Acres classified as Open, Limited, and Closed to OHV.
- Number of Special Status plant sites in areas classified as Open to OHV.

Assumptions

For the Special Status plant section, "OHV Limited" is inclusive of areas designated as OHV Limited to existing routes (formerly referred to as "ways" when located in Wilderness Study Areas).

Any Special Status plant sites within 150 feet of the Twin Springs road, proposed for use in the Grassy Mountain Gold Mine Plan of Operations would be eliminated due to road widening.

Issue 2

How would Special Status plants be affected by BLM management actions that would change OHV area designations across the planning area?

In areas OHV Closed or Limited use, cross-country OHV use would be eliminated, providing full protection to Special Status plant sites from short-term trampling and long-term trails caused by cross-country OHV activity. Areas of OHV Open use would continue to see cross-country use causing short-term trampling and long-term user created trails that could potentially impact individual plants or entire sites of Special Status plants. Thus, it is assumed areas of OHV Open to cross-country use would have more impacts to Special Status plant than areas of OHV Closed or Limited use. The impacts to Special Status plants from cross-country OHV use is challenging to monitor because OHV cross-country use is difficult to predict across the large number of plant sites in open areas. The No Action Alternative and Alternative A have the greatest number of Special Status plant sites (133) within Open OHV areas. Alternative D has 119, Alternative C has 69, the PRMPA has 37, and Alternative B with no areas open to OHV has no plant sites potentially affected. Alternative B would have the least negative impact to Special Status plants because it proposes the most acres that would be Limited or Closed (4,641,445 acres) to OHV travel, providing the most protections for Special Status Plants. When compared to Alternative B, the PRMPA has 0.8% fewer acres of Limited or Closed to OHV travel, Alternative C has 2% fewer acres of Limited or Closed to OHV travel, and Alternative D has 7% fewer acres of Limited or Closed to OHV travel. The No Action Alternative and Alternative A have 8% fewer acres of Limited or Closed to OHV travel, which would have the greatest potential negative impact to Special Status plants because it has the least protections. See Table 3-2 for a comparison of OHV designations among the alternatives. Some sensitive plant sites are bisected by vehicular routes; areas of OHV Closed use would not be open to vehicle travel and would have additional benefits over OHV Limited and Open areas because in the long-term primitive routes would revegetate and habitat would connect.

Special Status Plants Cumulative Effects Summary

The analysis area for Special Status plants is the planning area, as projects outside the planning area would have no impact on Special Status plants. Ongoing and reasonably foreseeable future actions typically require project level botanical clearances to avoid adverse effects to Special Status plants. Where conflicts are identified, projects are modified, or design features are implemented to insure the long-term viability of Special Status plant populations. For example, grazing exclosures have been established around Special Status plant populations where declines due to livestock use were identified. For juniper reduction projects, Special Status plant sites are protected from project effects by implementing buffers in which no juniper is removed immediately surrounding the Special Status plant population. Special status plants are protected from fencing project by realigning the fence to outside the plant site.

One future foreseeable project on BLM managed land in the project area, Grassy Mountain Gold Mine, would have impacts to Special Status plants and two other future foreseeable projects associated with lithium exploration may have impacts on Special Status plants. The current Draft Plan of Operations for the gold mine does not provide enough detail to know precisely how many sites would be impacted by this project. For this analysis, the BLM assumes that any Special Status plant sites within 150 feet of either side of the access road would be disturbed. Given the information currently available, the widening of the Twin Springs road may impact two sites of *Hackelia cronquestii* and three sites of *Astragalus mulfordiae,* both are Bureau sensitive species. There are 150 sites of *H. cronquestii* and 100 sites of *A. mulfordiae* in the planning area on BLM managed lands, loss of two and three sites of these species would not trend the species toward listing.

In the McDermitt caldera, where the lithium exploration is proposed, Special Status Plants are present. There is one site of *Caulanthus* major, one site of *Eriogonum crosbyea* var. *mystrium*, and three sites of *Astragalus calycosus* The BLM assumes that, effects to Special Status plants could occur where lithium exploration activities are conducted. Potential effects from the Octagon Mine and Malheur Queen Mine in the northern portion of the planning area, and lithium exploration in the southern portion of the planning area would be similar in that there may be impacts to sites of Special Status Plants.

It is presumed that future foreseeable projects that occur on private land such as the small-scale solar farm development and maintenance, and juniper control and water quality improvement projects through the National Resource Conservation Service (NRCS) could have occurrences of sensitive plants within those project areas. There are no protections for sensitive plants on private lands and there is no way to quantify the impacts of those projects on those species.

The actions proposed in the PRMPA and alternatives, in combination with the Grassy Mountain mining project and the lithium exploration projects, have impacts that vary among the alternatives but likely would not trend sensitive species toward federal listing because surveys would be conducted and project modifications and design features alleviate most of the expected impacts to Special Status plants. Off road OHV activities in areas that are open would continue to be a threat to Special Status plant sites. Future travel management planning would provide an opportunity to reduce these impacts.

The impacts of the Grassy Mountain Gold mine in addition to the impacts from Alternative B would have the least effect on Special Status plants as this alternative has the most acres and plant sites protected from OHV impacts and the loss of sites from Grassy Mountain Gold Mine and lithium exploration projects would not trend any species toward listing.

Impacts from each of the PRMPA, No Action Alternative, Alternatives A, C, and D, plus the Grassy Mountain Gold mine and lithium exploration projects would also not trend species toward listing but may have more risk of plant sites being impacted by OHV cross country travel. Hence, alternatives with less acres of OHV Open and fewer plant sites in Open areas—the PRMPA and Alternative C—are more beneficial to Special Status plants because there are fewer opportunities for cross country travel to impact plant sites.

3.7.11 Fish and Wildlife

Key Points

- Under all alternatives, objectives for fish and wildlife habitat would result in actions consistent with, and contributing to, achieving desired outcomes and conditions.
- Alternative B has the greatest potential to positively affect fish and wildlife habitat due to an increase in areas closed to motorized vehicle use and decrease in ground disturbing activities.

Affected Environment—Terrestrial Wildlife (including Special Status Terrestrial Wildlife and Terrestrial Wildlife Habitat)

This is the first of two "sub" resources in the Fish and Wildlife section. They are split to allow a comprehensive Affected Environment section to address all—in this case—Terrestrial issues, below.

Introduction

The narratives in this Section and Appendix F of the 2002 SEORMP and ROD describe the importance of water, forage, cover, structure, and security to terrestrial wildlife. Due to the limited amount of survey data for many species, emphasis is placed on the relationship between species and habitats as described in *Wildlife Habitats in Managed Rangelands* (Thomas et al. 1984).

The planning area contains a rich diversity of wildlife species that use habitats ranging from forest to shrub-steppe. Public land provides habitat for over 200 species of permanent or seasonally resident terrestrial wildlife species. Wildlife habitat needs vary significantly by species. In general, healthy and sustainable wildlife populations persist where there is a diverse mix of multi-canopied plant communities that supply structure, forage, cover, and other specific habitat requirements (refer to Appendix F in the 2002 SEORMP and ROD).

BLM SSS are: (1) species listed or proposed for listing under the *Endangered Species Act* (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. Bureau sensitive species include all federal candidate species, proposed species, and delisted species in the five years following delisting.

There are no terrestrial wildlife species within the planning area that are listed or proposed for listing under the ESA.

Desired Conditions

As presented in Section 3.7.3, "Standards of Rangeland Health and Grazing Management Guidelines" subsection, the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessment and evaluation disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

Standard 5 (Native, T&E, and Locally Important Species) focuses on habitats that support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform. Essential habitat elements for species, populations, and communities are present and available, consistent with the potential/capability of the landscape, as evidenced by the following:

- native plant and animal communities are spatially distributed across the landscape with a density, composition, and frequency of species suitable to ensure reproductive capability and sustainability;
- plants and animals are present in mixed-age classes sufficient to sustain recruitment and mortality fluctuations;
- habitats are connected across landscapes with only limited habitat fragmentation;
- diversity and density of plant and animal species are in balance with habitat and landscape potential and exhibit resilience to human activities; and
- there are stable or increasing plant and animal populations in suitable habitat.

Habitat Security

Wildlife intolerance to human disturbance varies by species and is influenced by factors including the intensity, duration, frequency, timing, season, and landform setting in which the disturbance occurs. For many species, habitats otherwise exhibiting high-quality structure, forage, and other amenities simply will not support wildlife if habitat security is absent. Wildlife habitat security is most important during breeding and in winter when snow cover may limit habitat availability. Refer to Appendix F of the 2002 SEORMP and ROD for more detail on habitat security.

Current Conditions

Mammals

Surveys and casual observations have documented over 70 species of mammals within the planning area such as black bear, cougar, Rocky Mountain elk, mule deer, pronghorn, bats, coyote, fox, bobcat, raccoon, beaver, skunk, badger, mice, voles, shrews, chipmunks, rabbits, squirrels, and yellow-bellied marmots.

Special status mammals that have been documented in the planning area include bighorn sheep, four species of bats, pygmy rabbits, and kit fox. Lynx, wolves, and wolverine have not been documented within the planning area; however, they have been documented or suspected in northeastern Oregon. Although there is no habitat that could support a population of these species within the planning area, shrub-steppe rangelands and areas adjacent to the Malheur National Forest may be used by dispersing animals.

Ungulates

Several ungulate species within the planning area are important to the public for hunting and wildlife viewing. These include Rocky Mountain elk, mule deer, California bighorn sheep, and pronghorn. BLM-administered land within the planning area is especially important as winter range for elk and deer. Adjacent national forest lands are used primarily in summer and transitional periods.

Rocky Mountain Elk

Based on Oregon Department of Fish and Wildlife (ODFW) estimates, the present population of Rocky Mountain elk within the planning area and adjacent lands administered by the US Forest Service are at or near the management objectives or goals of Oregon's Elk Management Plan (ODFW 2003a) with the exception of east Beulah, which is an elk de-emphasis area (ODFW 2016b).

In general, elk are found throughout the planning area with the highest densities associated with mixed forest and western juniper habitat near Castle Rock, Juniper Mountain, and Westfall Butte. In addition, a large herd of elk from Idaho spend winter in Oregon near Jordan Valley.

Because elk and cattle have similar food habits at certain times of the year, there is potential for forage competition where they overlap. The diets of cattle and elk differ substantially during early summer, but by late summer forage biomass and quality decline and diets become more alike. Elk may graze areas separate from cattle because of their cover requirements, tendency to avoid domestic livestock because of social intolerance, and preference for areas that have been rested from livestock grazing (Rapp 2006). Implementation of rest-rotation grazing conserves forage for wintering elk, increases winter utilization by elk, and may help establish important early spring and summer forage for elk during the calving season (Shamhart et al. 2012, Frisina and Morin 1991, and Frisina 1992).

Western juniper, quaking aspen, conifer, and mountain mahogany stands typically provide elk security cover and relief from temperature extremes. Shrub species, including antelope bitterbrush and sagebrush, also provide important cover and forage for elk. Although largely grass eaters, elk consume a wide variety of forbs and shrubs.

Mule Deer

Approximately 2.08 million acres of mule deer winter range exists on the planning area. Deer winter range includes primarily juniper woodland and sagebrush communities with interspersed grasses. Deer are generally browsers, and forbs and shrubs make up the bulk of their annual diet. The importance of various classes of forage plants varies by season. For example, in late fall and early spring, new growth on grass may constitute an important part of their diet in some areas because it is highly palatable, nutritious, and abundant. In winter, especially when grasses and forbs are covered with snow, the entire diet may consist of shrubby species. Leaves, twigs, and buds of woody plants are the major components of the winter diet, primarily antelope bitterbrush, big sagebrush, curl-leaf mountain mahogany, and western juniper.

Habitat conditions on winter ranges within the planning area vary considerably and are site specific. It is extremely difficult to precisely measure habitat condition and productivity and even more difficult to relate these measures to herd parameters. Survival of deer during the winter is based on condition of the animals as they enter winter and the accumulation of snow, which increases use of stored fat faster than during milder winters. Deer migrating from land administered by the US Forest Service in Oregon and BLM-administered land in Idaho increase populations of some local herds in winter. Deer winter ranges are shown in Map WLDF 1 in Appendix M.

Population trend is down in the Beulah, Malheur River, and Owyhee Wildlife Management Units (WMU) primarily due to the hard winter of 2016–17. Population trend in the Trout Creek Mountain and East Whitehorse WMUs is stable (ODFW, email to author, August 2, 2018). Based on ODFW survey data, mule deer numbers are currently low relative to historic numbers and ODFW management objectives.

Bighorn Sheep

California bighorn sheep, a BLM-Sensitive species, occupy approximately 1.03 million acres of sagebrush-grassland habitat year-round on the planning area. Escape areas, lambing areas, thermal protection, rutting areas, and foraging areas are provided by the rugged mountains, canyons, and escarpments. Most water sources for bighorn sheep in this area consist of big game guzzlers and some natural seeps, springs, and waterholes. There are approximately 600 to 800 bighorn sheep currently within the planning area. California bighorn sheep populations are managed by ODFW in accordance with the Bighorn Sheep and Rocky Mountain Goat Management Plan (ODFW 2003b).

Pronghorn Antelope

Pronghorn are a very common big game species throughout the planning area. Their diet consists primarily of forbs and grasses during the spring and early summer, and low sagebrush and antelope bitterbrush the rest of the year. Competition with cattle and wild horses for forage is slight due to differing forage preferences (Vavra and Sneva 1978).

Seasonal movements are controlled primarily by snow depth, with deep snows hindering movement and covering the short brush. During the summer, pronghorn antelope are widely distributed throughout valleys and mountain foothill habitats. Lack of water at natural or developed sites can be a serious problem during periods of drought.

Winter concentration areas are shown on Map WLDF 1 in Appendix M. Population trend is down in the Beulah and Owyhee WMUs due to poor fawn recruitment in recent years and the hard winter during 2016–17 that significantly reduced pronghorn numbers in the north half of the planning area. Population trend in the Whitehorse WMU is stable to slightly down because of poor fawn recruitment (ODFW, email to author, August 2, 2018). The ODFW has not established population management objectives for pronghorn, but they do manage for benchmark population characteristics.

Birds

Surveys and casual observations have documented over 200 species of birds within the planning area including ducks, geese, grouse, quail, grebes, herons, egrets, shorebirds, doves, raptors, owls, hummingbirds, woodpeckers, songbirds, jays, crows, and magpies.

Special status birds that have been documented or suspected to occur in the planning area include bufflehead, grasshopper sparrow, Greater Sage-grouse, trumpeter swan, bobolink, bald eagle, Franklin's gull, Lewis' woodpecker, American white pelican, white-headed woodpecker, and horned grebe (BLM 2021a).

Raptors

Raptors within the planning area include, but are not limited to, ospreys, northern harriers, sharp-shinned hawks, Cooper's hawks, northern goshawks, Swainson's hawks, red-tailed hawks, ferruginous hawks, peregrine falcons, rough-legged hawks, American kestrels, merlins, prairie falcons, barn owls, great horned owls, burrowing owls, long-eared owls, short-eared owls, and turkey vultures. Many of the breeding species also winter in the planning area. Species that only inhabit the planning area during winter include the rough-legged hawk and northern bald eagle.

BLM Sensitive raptor species documented within the planning area include the northern bald eagle. Bald eagles forage in the winter, especially from January through March, on BLM-administered lands throughout much of the planning area.

Golden eagles are a species of high public interest and are given special consideration when planning resource activities. The golden eagle is not federally listed under the ESA; however, it is protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act and therefore is provided some of the same protections as a BLM SSS.

Waterfowl, Shorebirds, and Wading Birds

Approximately 70 species of birds use the planning area's wetlands during migration and as breeding habitat. Representative breeding species include the Canada goose, tundra swan, cinnamon teal, mallard, gadwall, American avocet, Wilson's phalarope, greater sandhill crane, and spotted sandpiper. BLM Sensitive species that are documented or suspected within the planning area include trumpeter swan, Franklin's gull, American white pelican, and horned grebe. Vegetation cover for nest concealment from predators and for protection from other disturbances is important during the breeding season.

Neotropical Migratory Bird Species

Numerous neotropical migratory bird species are found in the planning area, although no systematic nesting inventories have been conducted. Birds of Conservation Concern (USFWS 2008, 93) that have been documented in the planning area include the bald eagle, golden eagle, ferruginous hawk, Swainson's

hawk, long-billed curlew, Cassin's finch, white-headed woodpecker, Lewis' woodpecker, loggerhead shrike, Brewer's sparrow, sage sparrow, and the sage thrasher. Neotropical migrant bird species are protected and managed under the *Migratory Bird Treaty Act* and the *Neotropical Migratory Bird Conservation Act of 2000*.

Upland Game Bird Species

Upland game bird habitat preferences and general abundances are listed in Table 3-31. The quality of upland game bird habitat depends on the availability of mixed shrub and herbaceous vegetation types for nesting, foraging, and shelter. Riparian habitat plays an important role as a source of food, water, and shelter for most species.

Table 3-31. Upland game bird species and habitat preferences.

Species	Notes	Habitat Preference
Chukar partridge	Associated with rocky canyons in steppe habitat along river/stream corridors	Widespread throughout the planning area
Ring-necked pheasant	Mostly associated with farmland and public land immediately adjoining farmland	Most abundant on farmland and public land
California quail	Associated with farmland and riparian areas	Abundant on farmland and public land
Gray partridge	Associated with grassy habitats and some farmland	Present but generally uncommon throughout the planning area
Wild turkey	Associated with open woodland and riparian habitats	Present in the upper watersheds of northern Malheur County
Blue grouse	Associated with forest and riparian habitats	Present in the upper watersheds of northern Malheur County
Greater Sage-grouse	Associated with sagebrush steppe habitats	Widespread throughout the planning area

Greater Sage-grouse

On March 5, 2010, the US Fish and Wildlife Service (FWS) concluded that the Greater Sage-grouse warranted protection under the ESA but that proposing the species for protection was precluded by the need to take action on other species facing more immediate threats (Federal Register vol. 75, no. 55, March 23, 2010). On September 22, 2015, the FWS announced that the bird would not be federally listed as threatened or endangered; however, it remains a BLM Sensitive species.

On September 21, 2015, the BLM signed the Record of Decision for the Approved Resource Management Plan Amendment (ARMPA) for the Great Basin Region including the Greater Sage-grouse Sub-Regions (BLM 2015e). This Amendment designated Priority Habitat Management Areas (PHMAs), General Habitat Management Areas (GHMAs) and Sagebrush Focal Areas (SFAs). PHMAs include areas that have the highest conservation value to maintain or increase Sage-grouse populations. GHMAs are occupied or suitable habitat outside of PHMAs. SFAs overlap PHMA and represent strongholds for Sage-grouse having the highest densities of Sage-grouse and other criteria important for their persistence. Currently there are approximately 2.75 million acres of PHMA, 2.67 million acres of GHMA and 1.03 million acres of SFA within the planning area (Map WLDF 2 in Appendix M).

Habitat loss, primarily from wildfires and the spread of invasive plants, poses the greatest threat to Sage-grouse. In the last thirty years, most sagebrush habitat loss has been due to wildfires, which have grown in size in the last 15 years. During the eight years of 2010–2017, roughly 1.6 million acres burned which is at least three times the number of acres burned during any other eight-year period dating back to 1980. Approximately 715,000 acres of this was PHMA and 638,000 acres was GHMA, totaling over 1.35 million acres of Sage-grouse habitat. Of this acreage was 427,000 acres of SFA. The increase in invasive annual grasses has contributed to increased frequency and intensity of wildfire. Invasive annual grasses

also threaten Sage-grouse by outcompeting the native forbs and grasses needed to provide food and shelter for the species. Approximately 54% of Greater Sage-grouse habitat has some level of infestation by invasive annual grasses. Because invasive annual grasses are spreading 10–20% per year or more (Duncan et al. 2004), this number is likely to increase.

Reptiles

Limited reptile surveys have been conducted in the planning area, but many observations have occurred independently. The common garter snake, wandering garter snake, desert horned lizard, sagebrush lizard, long-nosed leopard lizard, western whiptail, Mojave black-collared lizard, western fence lizard, western rattlesnake, racer, and gopher snake are common in appropriate habitat types. The western skink, side-blotched lizard, desert collared lizard, rubber boa, night snake, ground snake, and striped whipsnake are known to occur in the planning area, but limited data is available on distribution and abundance of these species. The painted turtle is the only BLM Sensitive reptile species documented within the planning area.

Invertebrates

Invertebrate biodiversity and habitat relationships are poorly researched (King and Porter 2005). As such, limited information is available on invertebrates, and more is known on aquatic rather than terrestrial species. There are three terrestrial Special Status invertebrate species documented or suspected within the planning area boundary: two butterflies (Sullivan's and Intermountain sulphurs) and the Western bumblebee. Limited surveys have been conducted within the planning area for these and other species that are suspected of being located or having suitable habitat on public lands.

Pollinators

Pollinators include hummingbirds and some species of bat, but insects make up the vast majority of pollinators. Ground nesting bees, both solitary bees and bumblebees, are likely to be the most important pollinators in grasslands, but flies, beetles, and butterflies are also prevalent. Pollinators are essential for rangeland food production, help with nutrient cycling, and are prey for many birds. Diversity of plant habitat is essential for supporting a variety of pollinators. Pollinators are not entirely averse to nonnative plants, especially certain flowering species such as saltcedar and thistles. However, most invasive annual grasses and forbs, such as cheatgrass and whitetop, do not seem to attract many native pollinators (Cane 2011).

Trends

In general, natural wildlife habitat, both the quantity and quality, has declined since Euro-American settlement within the planning area. Among the many causes for this decline are historical grazing practices, wildfire suppression, drought, agricultural conversion, invasive plant spread, human expansion into rural areas, and recreational activities. Habitats are constantly changing with new disturbances, both natural and unnatural. Some species have increased with these disturbances; others have declined. Habitat conditions and trends in the planning area are consistent with the findings of the Interior Columbia Basin Ecosystem Management Project, known as ICBEMP, (USDA-FS and USDI-BLM 2000). That analysis took a broad look at wildlife habitats across the entire Columbia Basin through the late 1990s and early 2000s.

For most of the SSS, habitat loss and fragmentation have been, and remain, the primary cause of their decline. Some species also suffered from historical efforts to remove them, and some suffer competition or predation from species that expanded into their range or that were introduced. By definition, the populations of all SSS have suffered downward trends. BLM, FWS, ODFW, and other agencies' management efforts have slowed or reversed the downward trend for a number of these populations; however, none of the populations are near their historical levels. Most remain at levels that are

biologically insecure. In addition to the continued threats of habitat loss and fragmentation, variability in habitat condition is an ongoing factor in the distribution and density of these SSS. For example, population viability for fish and amphibian species varies with hydrologic conditions. Drought has reduced either the amount or quality, or both, of habitat in some areas, further stressing populations of these species.

Loss of native vegetation and declining ecosystem health on public lands due to global climate change, development, increasing public uses, and continued spread of invasive plants, all contribute to reductions in the ability of public lands to support healthy wildlife populations. Ongoing restoration and habitat improvement projects such as the selective removal of western juniper and treatment of invasive annual grasses would reduce the decline of native shrubs and grasses, thereby allowing more native habitats for a variety of wildlife species. In addition, fuels reduction projects may help curtail large wildfires, reducing the loss of wildlife habitat over the long term.

Environmental Consequences

This Section describes the potential direct, indirect, and cumulative impacts on terrestrial wildlife resources (including Special Status terrestrial species, and terrestrial species habitat) from the implementation of resource management actions under the PRMPA and the various alternatives. Impacts to both terrestrial wildlife and Special Status terrestrial wildlife species would be the same and, therefore, the effects to both are analyzed together under one section.

Analytical Methods

Impacts on terrestrial wildlife resources, including Special Status terrestrial species and habitat, were assessed based on whether or not proposed management actions could directly or indirectly alter the quantity, quality, or availability of terrestrial wildlife habitat, or cause a change to Special Status terrestrial species or populations. Impacts were assessed using available field survey and monitoring data, current wildlife distribution information, the best available scientific information, and professional judgment.

Indicators

- Quantity, quality, and spatial distribution of wildlife habitat (Issues 1, 2, and 3).
- Acres of potential habitat disturbance (Issues 1 and 2).
- Forage availability, composition, quantity, and quality (Issues 1 and 3).
- Frequency, duration, and timing of disturbance (Issue 2).
- Availability of habitat security areas (Issues 1 and 2).

Assumptions

- The protection of lands with wilderness characteristics may include restrictions that result in less vegetation manipulation designed to benefit wildlife habitat.
- Maintaining wilderness characteristics in protected units (PRMPA and Alternatives B, C and D) and implementing Visual Resource Management (VRM) Class II or higher in them may affect wildlife habitat by restricting the methods or tools available to achieve wildlife goals.
- The BLM, in cooperation with state and federal wildlife agencies, manages habitat. Vegetation changes and habitat loss due to disruptive activities affect the quality, suitability, and usability of wildlife habitats.

- Healthy and sustainable wildlife populations are supported when there is a diverse mix of plant communities to supply structure, forage, cover and other specific habitat requirements. Promoting a diverse mix of plant communities provides for a mix of native wildlife species.
- Protecting or creating unfragmented habitat provides the greatest positive impact on Sage-grouse.
- On lands grazed by either livestock or wild horses, or both, big game would compete for available forage.
- Direct disturbance to a species and possibly its habitat can affect species' use of an area.

Issue 1

How would terrestrial wildlife habitat be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Under all alternatives, objectives for terrestrial wildlife habitat would result in actions consistent with, and contributing to, achieving desired outcomes and conditions. In general, restrictions on ground disturbing activities in areas possessing wilderness characteristics would be beneficial to terrestrial wildlife habitat and species by reducing either habitat loss or fragmentation, or both, and direct disturbance to species. However, the extent and magnitude of beneficial impacts depends on the amount of land with restrictions on surface disturbing activities, as well as the proximity of that land to terrestrial wildlife habitat. Areas managed for wilderness characteristics would provide more intact natural landscapes, corridor conservation for species movements, and resiliency against climate change or other long-term changes that might require species or communities to move over time.

Under the PRMPA, and Alternatives B, C, and D areas managed for wilderness characteristics would be closed to mineral material sales (with some exceptions), subject to NSO restrictions on leasable minerals, designated as VRM class II, and designated as ROW exclusion or avoidance areas. These restrictions on surface disturbing activities would reduce the potential for impacts on terrestrial wildlife species and their habitats. The No Action Alternative would also limit surface disturbing activities that diminish or eliminate wilderness characteristics. Alternative A provides no additional development restrictions and would allow the most flexibility for habitat restoration activities.

In areas managed for wilderness characteristics, design features developed to maintain or enhance wilderness characteristics by limiting actions that meet VRM Class II objectives would likely increase the cost of vegetation manipulation and result in fewer acres treated to benefit wildlife habitat. Additionally, design features could reduce the success of treatments, such as by modifying rangeland and no-till drills during seeding operations to minimize visual disturbance, increasing the potential for annual invasive grasses to spread (see Section 3.7.6 General Vegetation).

Under the PRMPA and Alternative D, 417,190 acres and 33 units would be prioritized to protect wilderness characteristics, resulting in fewer ground disturbing activities, which would benefit terrestrial wildlife in those units. Compared to the No Action Alternative and Alternative B, the PRMPA would protect significantly fewer wilderness characteristics acres, but more than Alternative A, where zero acres would be managed for wilderness characteristics resulting in no additional benefits to terrestrial wildlife habitat. The No Action Alternative would manage the most acres for wilderness characteristics, resulting in the greatest benefit to terrestrial wildlife. Alternative B would manage slightly fewer acres for wilderness characteristics than the No Action Alternative but have fewer restrictions on surface disturbing activities. The PRMPA and Alternative D would manage about 65% fewer acres for wilderness characteristics than Alternative B; Alternative C would manage about 86% fewer acres than Alternative B.

Issue 2

How would terrestrial wildlife habitat be affected by BLM management actions that would change OHV area designations across the planning area.

Potential impacts of OHV activities on wildlife and their habitats include habitat fragmentation, loss of habitat connectivity, reduced habitat quality, direct mortality, and disturbance (Ouren et al. 2007). Off-highway use contributes to the spread of invasive species; however, it is only one of many vectors of movement including livestock, wildlife, and wind (see Section 3.7.7 Invasive Species). Limiting OHV use to existing and designated routes reduces the risk of nest destruction for ground nesting species, reduces the risk of invasive plant spread, increases habitat security, and limits the extent of terrestrial wildlife habitat that can be accessed. Berry (1980, 451) identified that *"Almost without exception, analyses of the data reveal that OHV use has significant negative impacts and can reduce numbers, diversity and biomass of vertebrates."*

Disturbance is the most widespread OHV impact on wildlife, including harassment, noise, increased stress, altered movement patterns, avoidance of high use OHV areas, and disrupted breeding activities (Switalski and Jones 2012). Wildlife disturbance from OHVs on wintering habitats can increase an animal's energy expenditure and result in animals being displaced from suitable habitat (Gaines et al. 2003). The energy that is expended by elk retreating from disturbance causing activities can have significant, detrimental impacts on elk populations (Rowland et al. 2004). Table 3-32 shows the acres of BLM lands designated as OHV Open within big game winter range under the PRMPA and by alternative. About 4.5% of big game winter range in the planning area would be designated as open under The No Action Alternative, Alternative A and D resulting in the greatest negative impact to big game and other terrestrial wildlife. Under Alterative C and the PRMPA, about 2.5% and 1.1% respectively of big game winter range in the planning area would be continued to be designated as Open. Additionally, the PRMPA has zero acres designated as OHV Open in elk winter range and is the second most beneficial alternative because it would limit disturbance to wildlife and their habitat.

OHV use in the spring on grassland and shrubland habitats has the potential to destroy nests of ground nesting birds like sage sparrow and Sage-grouse. Literature suggests increased road length, traffic levels, and traffic activity during the early morning and within approximately two miles of Sage-grouse leks all negatively influence male lek attendance. However, the presence of primitive roads did not appear to influence lek trends (BLM 2015d).

Sound from human activities, such as OHV use, can alter wildlife behavior and habitat use. Certain species may abandon favored habitat in response to sound disturbances or incur energy expenses by reacting repeatedly when they cannot escape. Adverse levels of sound might cause wild animals to become irritable, reducing food intake, social interactions, or parenting. All these effects might eventually result in population declines (Knight and Gutzwiller 1995). However, the type and amount of impact varies based on the species, human activity associated with the habitat, and frequency, intensity, and randomness of the noise. Some species learn to ignore disturbances that are not directed at them, and most species seem to tolerate disturbance better in woodland than in open terrain (Ibid.).

Alternative B has the highest amount of area closed to motorized vehicle use and zero acres Open to OHV, thus increasing habitat security and decreasing disturbance to wildlife (Figure 3-3, Section 3.7.2 Travel Management). Therefore, Alternative B provides the greatest benefit to terrestrial wildlife. There is essentially no difference in the amount of area in OHV Open, Limited, and Closed use between the No Action Alternative and Alternatives A and D. The PRMPA and Alternative C are similar to the No Action Alternative; however, 252,792 fewer acres are Open in Alternative C, and 319,501 fewer acres are Open in the PRMPA compared to the No Action Alternative (see Figure 3-3).

Table 3-32. Acres of BLM lands designated as OHV Open within big game winter range by alternative.

Big Game Species	No Action / Alt A	Alternative B	Alternative C	Alternative D	PRMPA
Elk Winter Range	50,023 (3.3%)	0	31,820 (2.1%)	49,883 (3.3%)	0
Deer Winter Range	121,334 (5.8%)	0	68,963 (3.3%)	115,869 (5.6%)	34,088 (1.7%)
Total[a]	**137,555 (4.5%)**	**0**	**76,173 (2.5%)**	**132,090 (4.3%)**	**34,088 (1.1%)**

[a]Total acres combines deer and elk winter range and removes spatial overlap.

Issue 3

How would terrestrial wildlife habitat be affected by BLM management actions that would reduce livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to terrestrial wildlife habitat from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

Livestock grazing is the most widespread public land use across the sagebrush habitat in the planning area. It affects soils, vegetation health, species composition, water, and nutrient availability over the short- and long-term by consuming vegetation, redistributing nutrients and seeds, trampling soils and vegetation, and disrupting microbial systems (BLM 2015d). Composition and structure of a plant community are directly linked to qualities of wildlife habitat. Because livestock grazing can affect vegetation characteristics, it can affect wildlife habitat structure and productivity (Krausman et al. 2009).

Livestock grazing is a dispersed disturbance that exerts repeated pressure across the landscape over many years. Thus, the effects of grazing are not likely to be detected as disruptions but as differences in the processes and functioning of the sagebrush, riparian, and wetland systems. Grazing effects are not distributed evenly because historical practices, management plans and agreements, and animal behavior all lead to differential use of the range (BLM 2015d). Livestock often use riparian and wetland areas for water and shade, which can reduce hydrologic function and riparian community conditions. However, several studies found that moderate levels of livestock use are compatible with maintaining perennial bunchgrass, with the level of sustainable use depending on a number of environmental factors (Ibid.). In addition, properly managed grazing can help restore functioning condition of riparian areas and could reduce litter, fine fuel loading, and annual invasive grasses, helping to reduce wildfire risk (see also Sections 3.7.7 Invasive species and 3.7.9 Fire and Fuels Management).

In some cases, grass height is positively correlated with increased hiding cover and increased Sage-grouse nest success. At Hart Mountain, Oregon, artificial nests with tall grass cover and medium-height shrub cover saw lower predation rates (Ibid.). Similarly, a study at Hart Mountain and Jackass Creek showed that nests not subject to predation were in areas of greater cover of residual grass, with medium-height shrubs, than were nests subject to predation (Ibid.). Livestock grazing reduces grass height and can reduce nesting success (Ibid.). While taller grass may be associated with reduced nest predation, grass height does not appear to be a universal indicator of nesting habitat quality for Sage-grouse (Smith et al. 2017). Livestock may occasionally trample birds or nests or may disturb and temporarily displace lekking or nesting Sage-grouse during movement or trailing (Ibid.). They may directly compete with Sage-grouse for available resources and indirectly reduce invertebrates that are important for Sage-grouse and other migratory bird species.

If elimination or reduction of livestock grazing occurred, forage, cover, and structure would be maximized for wildlife outside of wild horse Herd Management Areas. The absence of livestock

trampling, and utilization would increase herbaceous cover that would benefit ungulate forage, ground nesting birds, and small mammal hiding cover and forage. Removal of grazing would also limit livestock damage to sensitive riparian areas, and reduce the need for standing water for livestock, which can contribute to the spread of West Nile Virus (BLM 2015d), though some water sources would likely be maintained for wild horse populations and other wildlife such as big game. Reducing water developments may also benefit Sage-grouse as they are associated with avian predators and extend the range of avian predators (Coates, Brussee, Howe et al. 2016). Removing spring developments and allowing riparian areas to recover would improve cover and forage for many wildlife species. Suspended grazing in pastures/allotments that are not meeting Standards for Rangeland Health while treatments are implemented could also have a net benefit on wildlife habitat because rest from grazing would promote treatment success. Overall, if standards are not being met and existing livestock grazing is identified as a significant causal factor, Alternatives B and—to a lesser extent—D would result in an elimination or reduction of grazing and are expected to improve wildlife habitat in a shorter timeframe, followed by the PRMPA, No Action Alternative, Alternative A and C (see Section 3.7.6 General Vegetation).

Areas where livestock grazing is suspended or eliminated would likely result in fine fuel buildup, leading to higher probability of bunchgrass mortality during wildfire and lower resistance to invasion or dominance by annual grasses post-fire (BLM 2015d). Therefore, Alternative B and D (to a lesser extent) would have the greatest potential of increasing annual invasive grasses after wildfire resulting in the loss and degradation of wildlife habitat over the long-term across the planning area. (See also Section 3.7.6 General Vegetation, 3.7.7 Invasive Species and 3.7.9 Fire and Fuels Management).

Additionally, elimination or reduction of grazing would result in limited maintenance of water developments which could negatively impact terrestrial wildlife, particularly bighorn sheep, pronghorn, and Sage-grouse. In the long term, the removal of livestock grazing permits on federal land may cause private ranches to be stocked more heavily to compensate for the loss of forage. Private rangelands could be converted to seeded pastures or ranches to nonagricultural uses such as recreation or development. All would result in loss or fragmentation of wildlife habitat.

Disease, primarily bacterial pneumonia, has reduced bighorn sheep populations throughout North America. Large-scale, rapid, all-age die-offs in bighorn sheep has been documented across Canada and the United States, many of which are attributed to domestic animal contact. Although there is limited knowledge of transmission dynamics, extensive scientific research supports a relationship between disease in bighorn sheep populations and contact with domestic sheep (BLM 2016d). Therefore, if a domestic sheep grazing permit is voluntarily relinquished or an allotment is closed to grazing within occupied bighorn sheep habitat, removal of domestic sheep would reduce the risk of contact with bighorns, subsequently reducing disease transmission. Under the PRMPA, and Alternatives A, C, and D, a relinquished domestic sheep permit in bighorn sheep habitat would be strongly considered for a change in livestock class. Under Alternatives B and D, grazing use allocations, regardless of livestock class, would be discontinued for the life of the plan (RMP).

Under the No Action Alternative, Alternatives A and C, and the PRMPA, if Standard(s) for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take action that would make progress toward achieving Standards. Grazing would be managed in accordance with the 2002 SEORMP and ROD and BLM's grazing policies and regulations to meet resource and management objectives. If Standards for Rangeland Health are not being met due to existing grazing, site specific *National Environmental Policy Act* (NEPA) analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved—regardless of causal factor—BLM would consider taking action to make progress toward meeting Standards, including Standard 5 (Native, T&E, and Locally Important Species). Actions that are designed and implemented to improve vegetative function and condition would benefit terrestrial wildlife. Alternative B and D (to a lesser extent) have positive short- and long-term benefits to wildlife

habitat (e.g., increased forage and cover, decreased disturbance, recovery of riparian habitat). However, in the long term (five to10 years) there is potential loss and degradation of wildlife habitat from increased annual invasive grasses from reductions in grazing, leading to either an increased risk of wildfire, reductions in rangeland improvement project maintenance, or conversion of private rangelands, or any combination.

Impacts to terrestrial wildlife resulting from reducing or eliminating grazing from an area due to voluntary permit relinquishment would be similar to suspending grazing due to Standards for Rangeland Health not being met under Alternatives B and D. Under the No Action Alternative and Alternatives A and C, closure of allotments or pastures to grazing—as a result of permit relinquishment—is not required but is an option that could be used following site-specific analyses. However, under the PRMPA, unlike the No Action Alternative and Alternatives A and C alternatives, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The timeframe for improvement to terrestrial wildlife habitat would be the shortest under Alternatives B and D.

All alternatives require managing upland habitats in forest, woodland, and rangeland vegetation types to provide the forage, water, cover, structure, and security necessary for wildlife on public land. Further, under all alternatives, objectives for terrestrial wildlife habitat would result in actions consistent with and contributing to achieving desired outcomes and conditions.

Terrestrial Wildlife Cumulative Effects Summary

This Section will address any additional effects to terrestrial wildlife from reasonably foreseeable actions. These effects are in addition to past and ongoing effects to terrestrial wildlife described in the affected environment section and the effects of the actions of each of the alternative on terrestrial wildlife noted above. The cumulative effects analysis area for terrestrial wildlife is the planning area. All reasonably foreseeable future actions (RFFAs) listed in Table 3-1 have the potential to affect terrestrial wildlife and are briefly described below.

Reasonably foreseeable future actions that have the potential to beneficially affect terrestrial wildlife and their habitat include the Tri-state Fuels Management project, the LCGMA Permit Renewal and Restoration Treatments, and the Northwest Malheur County Greater Sage-grouse Habitat Restoration project.

The Tri-state Fuels Management project would use a combination of mowing, seeding of native and non-native species, targeted grazing, prescribed burning, and herbicide treatments to modify vegetation in order to create 460–808 miles of fuel breaks within 200 feet on either side of proposed roads. In the short-term there would be disturbance to terrestrial wildlife species and habitat but in the long-term these activities prevent further loss and degradation of terrestrial wildlife habitat from wildfires.

Additional ground disturbing actions included with the Tri-state Fuel Breaks are road maintenance and the development of four wells and four gravel pits that equal to 82 acres of new surface disturbance. These 82 acres would remain permanently disturbed resulting in both short- and long-term, adverse effects to terrestrial wildlife habitat.

The LCGMA Permit Renewal and Restoration Treatments addresses the renewal of livestock grazing permits and the restoration of upland and riparian vegetation communities that are not meeting Standards for Rangeland Health. The resulting actions could include the construction of fencing and water sources for improved livestock management. Livestock grazing permits could include terms and conditions that could allow for grazing while promoting attainment of the Standards for Rangeland Health. Restoration treatments could use herbicide application, seeding, and shrub planting to reduce invasive grasses, prevent erosion, and establish perennial vegetation communities. Mowing, prescribed burning, or herbicide may be used to reduce sagebrush density where it is too high to benefit Sage-grouse. These restoration actions

may have short-term impacts to terrestrial wildlife and their habitat but over the long-term improve habitat quantity and quality by reducing annual invasive grasses and increasing sagebrush habitat. Constructing fences and development of water sources create both short-term and long-term disturbance to terrestrial wildlife and their habitat. The Northwest Malheur County Greater Sage-grouse Habitat Restoration project focused on juniper removal. Juniper treatments are designed to improve terrestrial wildlife habitat—typically causing short-term negative effects through disturbance but resulting in long-term benefits to habitat quantity and quality. The project also improves forested communities by reducing fuels and diseases trees making the community less susceptible to high intensity wildfires. Other proposed actions create fuel beaks to improve the ability to control wildfires and reduce the acres of sagebrush communities burned. All these activities have a long-term benefit to terrestrial wildlife habitat by restoring and maintaining habitat quality and increasing habitat quantity. The Northwest Malheur Mineral Material site Development project, associated with the Northwest Malheur Habitat Restoration and Fuel Treatment project, would have short- and long-term impacts on terrestrial wildlife habitat through development of up to seven mineral development sites and temporary staging sites. The long-term benefit of the project would reduce wildfire size and result in less terrestrial wildlife habitat burned.

Projects that have a negative impact on terrestrial wildlife are the: Boardman to Hemingway 500-kV Transmission Line (temporary disturbance during construction of approximately 80 acres and permanent access and tower/pole placement disturbance approximately 20 acres); Grassy Mountain Mine (500 acres), Malheur Queen and Octagon Gold Mines (active disturbance of five acres before reclamation, each project); lithium exploration (76 acres of total temporary disturbance under the plan of operation for exploration and not to exceed 5 acres of disturbance in each of the two Notice-level projects); Owyhee Pump Storage Energy Development (40 acres); Agency Valley Free Use Saleable Mineral Pit Development (five acres); Vale to Drewsey Transmission Line ROW Modification and Renewal (pole-specific construction and access along 26 mile project); and Residential Trespass Resolution (six acres).

Mining, mineral exploration, and mineral pit development causes disturbance to terrestrial wildlife, habitat degradation (e.g. fragmentation) and loss of habitat. This may cause highly localized short-term adverse effects and minor to major long-term adverse effects on terrestrial wildlife habitat across the planning area.

Proposed transmission line construction would have short- and long-term negative impacts on terrestrial wildlife species and their habitats, through loss of habitat and disturbance to terrestrial wildlife. Where access roads or infrastructure are constructed to support the transmission line there would be long-term habitat loss, but the effects would be localized resulting in minor long-term adverse effects to terrestrial wildlife across the planning area. The Owyhee Pump storage energy development would have similar long-term effects but on a smaller scale as it is a smaller project.

The residential trespass resolution would change six acres from Land Tenure Zone (LTZ) 1(retain or acquire) to either Zone 2 (disposal) or 3 (land exchange). In the short-term there would be no impact to terrestrial wildlife but in the long-term there could be loss of habitat quality and quantity if the land is disposed of or exchanged. This long-term impact would be highly localized and diminutive on the planning scale.

As identified in Table 3-1 Reasonably foreseeable future actions, approximately 27 miles of new fenceline may be necessary to make portions of the nine key RNAs unavailable to grazing (see also, Table 2-6 2015 GRSG ARMPA ROD, p.2-18, BLM 2015d). Impacts to wildlife would have highly localized short- and long-term negative impacts on terrestrial wildlife species and their habitats, including disturbance to species during construction and mortality from collisions. Habitat loss would occur on approximately 16.5 acres associated with fence construction and potential development of livestock trails adjacent to the new fences. Fenceline construction would be subject to future NEPA analysis and would conform to the current land use plan and applicable wildlife management policy. If the injunction is lifted and the 2019 Oregon Greater Sage-Grouse ARMPA (BLM 2019d) is implemented, approximately 9,354

acres would become available for livestock grazing once again. Implementation of the 2019 decision to allocate Key RNAs as available to grazing would result in AUMs to remain as permitted and eliminates the need for exclosure fencing and would not result in any cumulative effects when coupled with the grazing management actions described under the Alternatives. Existing protections (e.g., under the Sage-Grouse ARMPA and the 2002 SEORMP) would continue to be applied to reasonably foreseeable future actions and would provide multiple measures that would reduce or avoid impacts to terrestrial wildlife species and their habitat. Application of these measures would ensure that RMP and sage-grouse objectives for terrestrial wildlife would continue to be met with implementation of RFFAs.

No Action Alternative

The No Action Alternative, in combination with past, present, and reasonably foreseeable future actions (RFFAs) would have the second greatest beneficial effect (after Alternative B) to terrestrial wildlife from lands with wilderness characteristics protections in all 76 units (1,236,907 acres), resulting in the reduction of surface disturbing activities that diminish or eliminate wilderness characteristics. These protections would help offset negative impacts to terrestrial wildlife (e.g., loss of habitat and disturbance) from RFFAs and OHV Open areas (359,869 acres). However, restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would also be limited due to design features to avoid negative impacts to wilderness characteristics units which could reduce the quantity of terrestrial wildlife habitat that is restored or protected over the long term.

Livestock management actions under the No Action Alternative allow for flexibility in grazing management options which could range from closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems to meet resource and management objectives. When combined with past, present and RFFAs no additional incremental effect is expected to occur.

Alternative A

Alternative A, in combination with past, present and RFFAs would have the greatest negative impact to terrestrial wildlife due to no additional management protections for lands with wilderness characteristics (0 acres) and the most area open to OHV (359,869 acres). However, restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would not be limited due to design features to avoid negative impacts to wilderness characteristics units which could increase the quality and quantity of terrestrial wildlife habitat that is restored or protected over the long term. Increasing the quality and quantity of terrestrial wildlife habitat would help offset negative impacts (e.g., loss of habitat) from RFFAs and OHV Open areas.

Livestock management actions under Alternative A would be the same as those discussed under the No Action Alternative where no additional incremental effect is expected to occur when combined with past, present and RFFAs.

Alternative B

Alternative B, in combination with past, present and RFFAs would have the greatest beneficial effect among the alternatives to terrestrial wildlife due to lands with wilderness characteristics protections in all 76 units, the most areas closed to OHV, and the elimination or reduction in grazing in certain areas. Restrictions on activities in protected lands with wilderness characteristics units, would result in the greatest reduction of ground disturbing activity and the most limitations on new development on 1,206,780 acres. These restrictions would help offset negative impacts to terrestrial wildlife (e.g., loss of habitat and disturbance) from RFFAs such as the Grassy Mountain Gold Mine, Malheur Queen, and Octagon Gold Mines, lithium exploration, proposed transmission lines, Owyhee Pump Storage Energy Development, Residential Trespass Resolution, and Saleable Mineral Pit Development. However,

restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would also be limited due to design features to avoid negative impacts to wilderness characteristics units which could reduce the quantity of terrestrial wildlife habitat that is restored or protected over the long term.

Under Alternative B, all public lands in the planning area would be OHV Closed or Limited, which—when considering reasonably foreseeable future mining, energy, or transmission development—would result in limitations to the location and design of these activities, with regard to discretionary management actions, and would have the highest level of benefit to terrestrial wildlife and their habitat.

Reducing grazing due to Standards for Rangeland Health not being met due to existing grazing or eliminating or reducing grazing if voluntary grazing permit relinquishment were to occur in Alternative B would have positive short- and long term benefits to wildlife habitat (e.g., increased forage and cover, decreased disturbance, recovery of riparian habitat) which would, when considering reasonably foreseeable future restoration projects like seeding, herbicide treatments, juniper treatments, fuels treatments, and prescribed fire would result in benefits to wildlife habitat by promoting treatment success. However, in the long term there is potential loss and degradation of wildlife habitat from increased annual invasive grasses from reductions in grazing, leading to increased risk of wildfire.

Alternative C

Alternative C, in combination with past, present and RFFAs would have a beneficial effect to terrestrial wildlife from lands with wilderness characteristics protections in 27 units (167,709 acres), resulting in the reduction of surface disturbing activities and limitations on new development. These protections would help offset negative impacts to terrestrial wildlife (e.g., loss of habitat and disturbance) from RFFAs and OHV Open areas (107,075 acres). However, restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would also be limited due to design features to avoid negative impacts to wilderness characteristics units which could reduce the quantity of terrestrial wildlife habitat that is restored or protected over the long term. Overall beneficial effects from Alternative C on terrestrial wildlife are considerably less than Alternative B, followed by the No Action Alternative, the PRMPA, and Alternative D, but greater than Alternative A.

Livestock management actions under Alternative C would be the same as those discussed under the No Action Alternative where no additional incremental effect is expected to occur when combined with past, present and RFFAs.

Alternative D

Alternative D, in combination with past, present and RFFAs would have a beneficial effect to terrestrial wildlife from lands with wilderness characteristics protections in 33 units (417,196 acres), resulting in the reduction of surface disturbing activities and limitations on new development. These protections would help offset negative impacts to terrestrial wildlife (e.g., loss of habitat and disturbance) from RFFAs and OHV Open areas (325,686 acres). However, restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would also be limited due to design features to avoid negative impacts to wilderness characteristics units which could reduce the quantity of terrestrial wildlife habitat that is restored or protected over the long term. Overall beneficial effects from Alternative D on terrestrial wildlife are considerably less than Alternative B followed by the No Action Alternative, PRMPA, but greater than Alternative A and Alternative C.

Reducing grazing due to Standards for Rangeland Health not being met due to existing grazing or eliminating or reducing grazing if voluntary grazing permit relinquishment were to occur in Alternative D would be the same as those discussed in Alternative B, but to a lesser extent.

PRMPA

The PRMPA, in combination with past, present and RFFAs would have a beneficial effect to terrestrial wildlife from lands with wilderness characteristics protections in 33 units (417,190 acres), resulting in the reduction of surface disturbing activities and limitations on new development. These protections would help offset negative impacts to terrestrial wildlife (e.g., loss of habitat and disturbance) from RFFAs and OHV Open areas (40,368 acres). However, restoration and fuels reduction activities (e.g., Louse Canyon and Tri-state) would also be limited due to design features to avoid negative impacts to wilderness characteristics units which could reduce the quantity of terrestrial wildlife habitat that is restored or protected over the long term. Overall beneficial effects from the PRMPA on terrestrial wildlife are considerably less than Alternative B followed by the No Action Alternative, but greater than Alternatives D, C, and Alternative A.

Livestock management actions under the PRMPA would be similar to those discussed under the No Action Alternative, and Alternatives A and C, where no additional incremental effect is expected to occur when combined with past, present and RFFAs.

Affected Environment—Aquatic Wildlife (including Special Status Aquatic Wildlife)

Introduction

The narratives in this Section and Appendix F of the 2002 SEORMP and ROD describe the importance of water, forage, cover, structure, and security to aquatic wildlife. Due to limited survey data for many species, emphasis is placed on the relationship between species and habitats as described in "Wildlife Habitats in Managed Rangelands" (Thomas et al. 1984).

Public land provides habitat for over 150 species of permanent or seasonally resident aquatic wildlife. Wildlife habitat needs vary significantly by species. In general, healthy and sustainable wildlife populations persist where there is a diverse mix of multi-canopied plant communities that supply structure, forage, cover, and other specific habitat requirements (Refer to Appendix F in the 2002 SEORMP and ROD).

BLM Special Status species are defined as: (1) species listed or proposed for listing under the *Endangered Species Act* (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. All federal candidate species, proposed species, and delisted species in the five years following delisting will be conserved as Bureau sensitive species. Note that both BLM Bureau sensitive species and those listed under the ESA are abbreviated as SSS.

The FWS manages threatened and endangered species and designated Critical Habitat, in cooperation with other federal agencies, in order to support recovery. Responsibilities for management of federally listed, proposed, or candidate species are outlined in the ESA, as well as in the BLM Special Status Species Manual 6840 (BLM 2008c). The policy for management of federally listed species is to not authorize, fund, or implement any actions that are likely to jeopardize the continued existence of listed species, or destroy or adversely modify designated Critical Habitat. Policy also calls for developing programs to conserve listed species.

Desired Conditions

Hydrologic conditions of the upland and riparian areas associated with, or contributing to, a specific stream or water body and stream channel characteristics govern the condition of fish and aquatic habitat. Riparian vegetation, particularly native riparian vegetation, provides shade and moderates water temperatures; provides overhead cover for fish; provides organic material (a food source for macroinvertebrates), insects, and other foods for fish and aquatic wildlife; and adds structure to streambanks to reduce erosion. Intact vegetated floodplains dissipate stream energy, store water for later release, and provide rearing areas for juvenile fish. Water quality parameters, especially factors such as temperature, sediment, and dissolved oxygen, are also important components of fish and aquatic wildlife habitat. Within the planning area, both rangeland and forested ecosystems contribute to riparian and aquatic habitat on public lands.

Rangeland Health Standard 5 (Native, T&E, and Locally Important Species) focuses on habitats that support healthy, productive, and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform. As presented in Section 3.7.3, "Standards of Rangeland Health and Grazing Management Guidelines" subsection, the objectives of the Healthy Rangeland Initiative are to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessment and evaluation disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

Inland Fish Strategy (INFISH)

The INFISH strategy (Forest Service USDA 1995) is intended to protect and restore habitat and populations of resident fish (cutthroat trout and bull trout) within the planning area. This strategy defines landscape-scale riparian management objectives that establish measurable habitat parameters for assessing progress toward habitat health such as pool frequency, bank stability, bank angle, and large woody debris (Ibid.). Riparian Habitat Conservation Areas (RHCAs) are portions of watersheds that maintain the integrity of aquatic ecosystems, and management activities and are subject to specific standards and guidelines. These areas are important to the healthy functioning of watersheds and associated fish habitat that influence sediment delivery, organic matter, and woody debris; provide root strength for channel stability; shade the stream; and protect water quality. Wetlands, ponds, seasonal streams, and landslide-prone areas are protected by 100 to 150 feet of RHCAs, and fish-bearing streams are protected by 300-feet buffers. Activities incompatible with the protection of these functions are prohibited or modified in RHCAs (Ibid.).

Current Conditions

The planning area provides habitat for 41 documented fish species: 24 native and 17 nonnatives. Five of the native species are Special Status species including two that are listed under the *Endangered Species Act* (ESA) of 1973. Lahontan cutthroat trout and bull trout are listed as federally threatened. Redband trout, Tahoe sucker, and Lahontan redside shiner are listed as BLM Sensitive.

Amphibian species documented within the planning area include Great Basin spadefoot, Pacific tree frog, tiger salamander, long-toed salamander, western toad, and the nonnative bullfrog. Three BLM Sensitive amphibians have also been documented within the planning area: Columbia spotted frog, northern leopard frog, and Woodhouse's toad.

Other Special Status aquatic species in the planning area listed as BLM Sensitive include the painted turtle and nine aquatic invertebrate species documented or suspected within the planning area boundary: one bivalve and eight gastropods.

Aquatic Wildlife Habitat

Occupied fish habitat within the planning area includes mostly perennial streams and some intermittent streams, as well as channels and draws that contain flows only in response to either rainfall or snowmelt events (ephemeral), or both. Many springs and ephemeral channels provide water to perennial and intermittent streams that support resident fish species. There are approximately 438 miles of perennial streams and approximately 4,500 surface acres of flatwater fisheries habitat.

Many of the stream channels in forested sections are quite stable; however, rain-on-snow events, landslides, or storm events can quickly alter stream channels and riparian areas. Non-forested and high desert streams can also have rain-on-snow events or storm events that reduce or eliminate riparian vegetation next to a stream. Many of the tributary streams that feed into larger rivers are on steep ground and can have high sediment yields, especially during a storm event.

The BLM has water quality and stream temperature baseline data for several of the streams within the planning area. The loss of water volume during summer low flows, in part due to water withdrawal for irrigation purposes, has directly affected stream temperatures in some areas. Increasing air temperatures in summer months, compounded by the effects of climate change, can also affect stream temperatures, especially in areas where riparian vegetation and stream shade are currently lacking. In many areas, fish-bearing streams are reduced to almost no flow during the summer months of June, July, and August.

The Oregon Department of Environmental Quality (ODEQ) has identified streams within the planning area as being water quality limited under Section 303(d) of the Clean Water Act, which means in-stream

water quality fails to meet established standards for certain parameters for all or a portion of the year. These standards include algae, bacteria, dissolved oxygen, flow modification, habitat modification, nutrients, pH, sedimentation, and temperature (see also Section 3.7.5 Water Resources and Riparian/Wetland Areas for more information). Failing to meet these standards can negatively impact aquatic wildlife habitat.

Nonnative/Invasive Aquatic Species

Nonnative species that have been introduced within the planning area include several species of trout, sunfish, catfish, carp, crappie, bullhead, and bass. In addition, the ODFW periodically stocks hatchery rainbow trout in approximately 40 reservoirs on BLM-administered lands. Most of these reservoirs lack spawning habitat so natural reproduction does not occur.

Invasive plants have been documented in aquatic areas, reducing the quality and quantity of riparian habitat. These infestations will continue to spread due to water and recreation-related vectors and the relative ease of plant establishment because of reliable water sources (i.e., surface and groundwater) and better soil conditions, when compared to upland areas.

In addition, the New Zealand mudsnail, an aquatic invasive species has been documented in the Owyhee River, Snake River, Malheur River, Bully Creek, and Crooked Creek. These invaders are easily spread and once established are impossible to eradicate without damaging other components of the ecosystem (OSU 2010).

Trends

In general, natural fish and aquatic wildlife habitat, both the quantity and quality, has declined since Euro-American settlement within the planning area. Among the many causes for this decline was historical grazing practices, wildfire suppression, drought, agricultural conversion, invasive plant spread, human expansion into rural areas, and recreational activities. Past management actions have also degraded riparian and aquatic habitat quality and quantity. Causes of stream degradation include removing riparian vegetation and destabilizing stream banks, and to a certain extent upland vegetation treatment. Past grazing and, to some degree, current grazing, is the land use most commonly associated with these problems. Other land uses associated with degraded streams include road construction and maintenance, trails, water withdrawal, reservoir storage and release, altered physical characteristics of the stream, mining, and wetlands alteration. Management activities have also damaged springs, such as livestock or wild horse grazing and watering, recreation use, and road construction, decreasing in-stream water availability.

Habitats are constantly changing with new disturbances, both natural and unnatural. Some species have increased with these disturbances; others have declined. Habitat conditions and trends in the planning area are consistent with the findings of the ICBEMP (USDA-FS and USDI-BLM 2000). That plan took a broad look at fish and wildlife habitats across the entire Columbia Basin through the late 1990s and early 2000s.

For most of the Special Status species, habitat loss and fragmentation have been, and remain, the primary cause of their imperiled status. Some of these species have also suffered from historical efforts to extirpate them, and some suffer competition or predation from species that have expanded to their range or that have been introduced. By definition, the populations of all SSS have historically suffered downward trends. The BLM, FWS, ODFW, and others' management efforts have reversed the downward trend for a number of these populations; however, none of the populations are near their historic levels. Most remain at levels that are biologically insecure, regardless of their legal status. In addition to the continued threats of habitat loss and fragmentation, variability in habitat condition is an ongoing factor in the distribution and density of these Special Status species (SSS). For example, population viability for

fish and amphibian species varies with hydrologic conditions. Persistent drought and withdrawal of both surface and groundwater have reduced the quantity and quality of habitat in some areas, further stressing populations of these species.

The ODFW is the lead agency responsible for fisheries management of public waters in the state of Oregon. While ODFW stocks some reservoirs and streams within the planning area, others are managed as wild self-sustaining fisheries. The population of cold-water sportfish varies greatly across the planning area; however, fish survey and management reports generally indicate a stable to increasing population.

Declines in populations are generally localized and largely due to a number of factors including alteration of habitat, water quality impairment, disease, hybridization, flow reductions resulting from water diversions and other water-depleting activities, and nonnative predatory sport fish.

Loss of native vegetation, changes in composition and distribution of plant and animal species, and declining ecosystem health on public lands due to global climate change, development, increasing public uses, and continued spread of invasive plants, all contribute to reductions in the ability of public lands to support healthy fish and aquatic populations. Projected increases in temperature due to climate change is expected to cause changes in precipitation and runoff which would alter the quality and quantity of fish and aquatic habitat. Ongoing restoration and habitat improvement projects such as the selective removal of western juniper and treatment of invasive annual grasses would reduce the decline of native shrubs and grasses, thereby allowing more native habitats for a variety of fish and aquatic wildlife species. In addition, fuels reduction projects may help curtail large wildfires, reducing the loss of fish and aquatic wildlife habitat over the long term.

Environmental Consequences

This Section describes the potential direct, indirect, and cumulative impacts on fish and aquatic wildlife resources (including Special Status aquatic species, and aquatic species habitat) from the implementation of resource management actions proposed under the various alternatives. Impacts to both fish and aquatic wildlife and Special Status aquatic species would be the same and, therefore, the effects to both are analyzed together under one section.

Analytical Methods

Impacts on fish and aquatic wildlife resources, including Special Status fish and aquatic species and habitat, were assessed based on whether or not proposed management actions could directly or indirectly alter the quantity, quality, or availability of aquatic or riparian habitat, or cause a change to Special Status aquatic species or populations.

Impacts were also assessed using management direction provided in the Interim Inland Fish Strategy (INFISH: USFS and BLM 1995), and the BLM Interim Bull Trout Habitat Conservation Strategy (BLM Bull Trout Strategy; BLM 1995), including riparian goals, management objectives, and conservation areas.

Impacts were also assessed using available field survey and monitoring data, current fish distribution information, the best available scientific information, and professional judgment. Because impacts to water quality can either directly or indirectly affect fish species and aquatic and riparian habitat, the analysis of effects to water quality (see Section 3.7.5 Water Resources and Riparian/Wetland Areas) can be directly correlated with impacts to aquatic wildlife resources.

Indicators

- Quantity and quality of fish and aquatic wildlife habitat (Issues 1, 2 and 3)
- Acres of potential habitat disturbance (Issues 1 and 2)

Assumptions

- Healthy and sustainable aquatic wildlife populations are supported when there is a diverse mix of plant communities to supply structure, forage, cover and other specific habitat requirements. Promoting a diverse mix of plant communities provides for a mix of native fish and aquatic wildlife species.
- Management actions that adversely affect riparian vegetation have the potential to indirectly affect water quality and aquatic resources through the alteration of stream temperature, streambank stability, and insect availability.
- Sediment from roads within 100 feet of a stream crossing is assumed to reach the stream channel and adversely affects fish and aquatic species and habitat quality.

Issue 1

How would fish and aquatic wildlife habitat be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Managing areas for wilderness characteristics is not anticipated to significantly affect aquatic resources, because under the PRMPA and all Alternatives, objectives for fish and aquatic habitat and riparian management would result in actions consistent with and contributing to achieving desired outcomes and conditions as identified in the 2002 SEORMP and ROD. Management actions that involve ground disturbing activities within or near riparian areas have the most potential to negatively affect water quality and, subsequently, fish and aquatic wildlife resources through the process of sediment disturbance, transport, and delivery into waterbodies (Mebane 2001). In general, restrictions on ground disturbing activities in protected wilderness characteristics units would benefit fish and aquatic habitat and species due to a decrease in soil disturbance and erosion. However, the extent and magnitude of beneficial impacts depends on the amount of land with restrictions on surface disturbing activities as well as the proximity of that land to fish and aquatic wildlife habitat.

Under the PRMPA, and Alternatives B, C, and D areas managed for wilderness characteristics would be designated as VRM Class II (unless already VRM Class 1) and ROW exclusion or avoidance areas, closed to mineral material sales (with some exceptions), and require No Surface Occupancy (NSO) for leasable minerals. These restrictions on surface disturbing activities would reduce the potential for impacts on aquatic wildlife species and their habitats. The No Action Alternative would also limit surface disturbing activities that diminish or eliminate wilderness characteristics.

Three lands with wilderness characteristics units (Whitehorse Butte, Willow Creek Contiguous A, and Red Mountain) contain habitat for the federally threatened species, Lahontan Cutthroat Trout (LCT). Each unit has approximately 1.5 stream miles of occupied LCT habitat. All three units would be managed for wilderness characteristics under the No Action Alternative and Alternative B totaling approximately 4.5 miles of occupied LCT habitat and providing the most benefit to listed fish. Additionally, the No Action Alternative and Alternative B would manage six units adjacent (within 0.25 miles) to LCT streams which may also reduce sediment transport from surface disturbing activities nearby. The PRMPA and Alternative D would manage two units (Whitehorse Butte and Willow Creek Contiguous A) for wilderness characteristics, totaling approximately 3.0 miles of occupied LCT habitat and would manage five units that are adjacent to LCT streams. Alternative C[34] would manage one unit (Willow Creek Contiguous A) for wilderness characteristics, totaling approximately 1.5 miles of occupied LCT habitat and would manage four units that are adjacent to LCT streams.

[34] The Whitehorse Butte parcel was divided in Alternative C and only parcel A2 would be managed for wilderness characteristics. Whitehorse Butte parcel A2 does not contain LCT habitat but is within 0.25 miles of LCT habitat.

Under the PRMPA and Alternative D, 417,190 acres and 33 units would be prioritized to protect wilderness characteristics, resulting in fewer ground disturbing activities, which would benefit terrestrial wildlife in those units. Compared to the No Action Alternative and Alternative B, the PRMPA would protect significantly fewer wilderness characteristics acres, but more than Alternative A, where zero acres would be managed for wilderness characteristics resulting in no additional benefits to terrestrial wildlife habitat. The No Action Alternative would manage the most acres for wilderness characteristics, resulting in the greatest benefit to terrestrial wildlife. Alternative B would manage slightly fewer acres for wilderness characteristics than the No Action Alternative but have fewer restrictions on surface disturbing activities. The PRMPA and Alternative D would manage about 65% fewer acres for wilderness characteristics than Alternative B; Alternative C would manage about 86% fewer acres than Alternative B.

Issue 2

How would fish and aquatic wildlife habitat be affected by BLM management actions that would change OHV area designations across the planning area?

Use of roads and primitive routes can result in increased sedimentation to fish-bearing waterbodies. Increased sedimentation in streams can adversely affect fish populations in a variety of ways, including direct mortality, reduction in suitable spawning habitat, suffocation and egg mortality, and displacement of individual fish. While sediment is produced on all roads, delivery to streams becomes a function of the distance between roads and streams. The greater the distance, the larger the filtering capacity of the watershed and the less likely that sediment will reach the stream network. (Schiess 2004).

The greatest potential for increased sedimentation occurs in areas of OHV Open use, where users can create new OHV routes, and where OHV use causes sediment disturbance, resulting in erosion. In riparian areas, OHV use crushes riparian vegetation, churns stream channel habitat, initiates erosion, and removes ground cover. These effects reduce physical stream function and contribute to nonattainment of PFC. PFC is an assessment of basic stream function required to produce desired values such as quality fish and aquatic wildlife habitat. Riparian-wetland areas that are not at PFC cannot provide these values on a sustained basis. Roads and primitive routes that parallel or cross streams are likely to have a high impact on riparian habitat, fish and aquatic habitat, and Special Status aquatic species. OHVs that cross streams have the potential to crush and disrupt spawning areas, increase sediment transport, and spread aquatic invasive species. However, very few new stream crossings are anticipated (either authorized or unauthorized based on past history), and the use of best management practices (BMPs) and guidance under aquatic objectives would avoid degradation of physical stream function.

For the purpose of comparing alternatives, sediment from roads and primitive routes within 100 feet of a perennial stream crossing is assumed to reach the stream channel. Although BMPs are assumed to reduce sediment delivery to stream channels, stream crossings increase the risk of effects on aquatic species. Compared to the PRMPA, the No Action Alternative, and Alternatives A, C and D, Alternative B reduces sediment delivery to approximately eight miles of streams as a function of road closures (Table 3-33). OHV Closed designation ensures no sediment delivery or disturbance of aquatic habitat would occur from overland motorized vehicle use. Therefore, Alternative B has the greatest potential to positively affect riparian habitat, aquatic habitat, and Special Status aquatic species compared to the other alternatives. Under all alternatives, no perennial streams are within 100 feet of an OHV Open designation.

Table 3-33. Miles of roads or primitive routes by OHV designation within 100 feet of a perennial stream by alternative.

OHV Designation	No Action	Alt. A	Alt. B	Alt. C	Alt. D	PRMPA
Open	0	0	0	0	0	0
Limited	8	8	0	8	8	8
Closed	0	0	8	0	0	0

Under Alternative B zero acres of public land would be designated as open to OHV use, 2,127,604 acres of public land would be designated as OHV Limited use, and 2,513,842 acres of public land would be designated as OHV Closed use. Compared to all of the alternatives, Alternative B would designate the least number of acres as OHV Open use and the largest number of acres as closed. Therefore, Alternative B has the greatest potential to positively affect riparian habitat, aquatic habitat, and Special Status aquatic species due to the potential decrease in OHV use and activity. This could result in long-term, moderate, beneficial effects at the sub-watershed scale due to a potential decrease in sedimentation, riparian vegetation removal, streambank trampling, and an overall improvement in riparian and fish and aquatic habitat conditions.

There is essentially no difference in the amount of OHV Open, Limited, and Closed areas among the No Action, and Alternatives A, and D. Therefore, there is no measurable difference between these alternatives on aquatic wildlife habitat. The PRMPA and Alternative C are similar to the No Action; however, 252,794 fewer acres are Open in Alternative C, and 319,501 fewer acres are Open in the PRMPA compared to the No Action Alternative and Alternative A (Figure 3-3). The PRMPA would designate these 319,501 acres as OHV Limited (to existing routes), and retain two areas near Vale, Oregon as open to OHV use.

Issue 3

How would fish and aquatic wildlife habitat be affected by BLM management actions that would reduce livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

Diverse riparian vegetation provides shade from solar radiation and refugia for fish, provides structural complexity, improves the stability of streambanks, regulates sediment transport, and provides habitat for aquatic and terrestrial insects, which are an important food source for fish. As diversity of riparian vegetation increases, so does fish and aquatic habitat (Mobrand Biometrics 2005). Livestock grazing has had a long-term, adverse effect on streams and riparian areas in eastern Oregon due to overstocking and season of use (Elmore and Beschta 1987). Livestock tend to congregate in riparian areas, especially during the hot summer months where water and forage is easily accessible. This can affect riparian vegetation and aquatic habitat around watering locations by trampling and grazing plants and by soil compaction, which reduces riparian species cover and diversity, shading from solar radiation, bank stability, and nutrient trapping. Cattle grazing can accelerate stream bank erosion, causing streams to become shallower and wider, which can result in higher water temperatures (Kauffman et al. 1983). Altered stream cover, water depth, and bank stability due to cattle grazing can all affect fish populations and have been shown to lead to declines in salmonids (Knapp and Matthews 1996).

Consequently, reduction or removal of livestock grazing within riparian and fish and aquatic wildlife habitat results in both short- and long-term benefits. Diversity and cover of riparian species would increase, sagebrush cover within the riparian area would decrease, stream channel width would decrease, and bare soil and sedimentation would decrease (Batchelor et al. 2015). Although all the alternatives include management actions that allow improvement or maintenance of aquatic wildlife habitat to meet Standards for Rangeland Health, the main difference is the timeframe in which the habitat respond to

management changes. Depending on the condition of the habitat prior to the reduced livestock grazing, riparian areas are expected to meet Standards for Rangeland Health and attain PFC "faster" (1-5 years) due to the elimination or reduction of one stressor (livestock grazing) from the environment. Alternative B would result in the greatest beneficial effects to fish and aquatic wildlife followed by Alternative D. However, the extent and magnitude of beneficial impacts depends on the amount of land that is suspended from grazing as well as the proximity of that land to fish and aquatic wildlife habitat. Under the No Action Alternative, Alternatives A and C, and the PRMPA, if Standard(s) for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take action to make progress toward achieving Standards. Grazing would be managed in accordance with the 2002 SEORMP and ROD and BLM's grazing policies and regulations to meet resource and management objectives. If Standards for Rangeland Health are not being met due to existing grazing, site specific *National Environmental Policy Act* (NEPA) analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved—regardless of causal factor—BLM would consider taking action to make progress toward meeting Standards, including Standard 5 (Native, T&E, and Locally Important Species), including, but not limited to, changes in grazing management systems. Action that is designed and implemented to improve vegetative function and condition would benefit aquatic wildlife. PRMPA direction to consider not increasing AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions could result in benefits to fish and aquatic wildlife.

Alternative B and D (to a lesser extent) have positive short- and long-term benefits to aquatic wildlife habitat (e.g., increased streambank cover, decreased disturbance, recovery of riparian habitat).

Impacts to aquatic wildlife resulting from reducing or eliminating grazing from an area due to voluntary permit relinquishment would be similar to suspending grazing due to Standards for Rangeland Health not being met under Alternatives B and D. Under the No Action Alternative and Alternatives A and C, closure of allotments or pastures to grazing—as a result of permit relinquishment—is not required but is an option that could be used following site-specific analyses. However, under the PRMPA, unlike the No Action Alternative and Alternatives A and C alternatives, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The timeframe for improvement to fish and aquatic wildlife habitat would be the shortest under Alternatives B and D.

All alternatives include the requirement to protect, maintain, or restore riparian condition, instream processes, and diversity of aquatic habitat. Even well managed grazing includes the risk that livestock may graze on willows, disturb fish, create hoof prints along a stream bank, deliver fecal matter to a stream, and inflict similar actions. Further, under all alternatives, objectives for fish and aquatic habitat and riparian management would result in actions consistent with and contributing to achieving desired outcomes and conditions.

Fish and Aquatic Wildlife Cumulative Effects

The cumulative impact analysis area used to analyze cumulative impacts on aquatic wildlife includes all lands within the planning area boundary. This Section will address any additional effects to aquatic wildlife from reasonably foreseeable future actions (RFFAs). These effects are in addition to past and ongoing effects to aquatic wildlife (grazing, fuels treatment projects, juniper treatments, herbicide treatments, fence construction projects, routine road maintenance, prescribed fire) described in the affected environment section and the effects of the actions of each of the alternatives on aquatic wildlife noted above.

Reasonably foreseeable future actions that have the potential to beneficially affect aquatic wildlife and their habitat include the Tri-state Fuels Management Project, the LCGMA Permit Renewal and Restoration Treatments, and the Northwest Malheur Habitat Restoration and Fuel Treatment.

The Tri-state Fuels Management Project would use a combination of mowing, seeding of native and non-native species, targeted grazing, prescribed burning, and herbicide treatments to modify vegetation in order to create 460—808 miles of fuel breaks within 200 feet on either side of proposed roads. Additional ground disturbing actions included with the Tri-state Fuel Breaks are road maintenance and the development of four wells and four gravel pits that equal to 82 acres of new surface disturbance. In the short term there would be disturbance to aquatic wildlife species and habitat but in the long term these activities prevent further loss and degradation of fish and aquatic wildlife habitat from wildfires.

The LCGMA Permit Renewal and Restoration Treatments would renew grazing permits, restore upland and riparian vegetation communities that are not meeting Standards for Rangeland Health, and construct fencing and water sources for improved livestock management. Livestock grazing permits would be renewed and terms and conditions applied that would allow for grazing while promoting attainment of standards. Restoration treatments would use herbicide application, seeding, and shrub planting to reduce invasive grasses prevent erosion and establish perennial vegetation communities. Mowing, prescribed burning, or herbicide may be used to reduce sagebrush density where it is too high to benefit Sage-grouse. These restoration actions may have short term impacts to fish and aquatic wildlife and their habitat but over the long term improve habitat quantity and quality by reducing sediment transport from the uplands, increasing streambank cover, and improving riparian vegetation composition. Development of water sources create both short-term and long-term disturbance to fish and aquatic wildlife and their habitat.

The Northwest Malheur Habitat Restoration and Fuel Treatment project focused on juniper removal. The project also improves forested communities by reducing fuels and diseases trees making the community less susceptible to high intensity wildfires. Other proposed actions create fuel beaks to improve the ability to control wildfires and reduce the acres of sagebrush communities burned. These restoration actions may have short term impacts to fish and aquatic wildlife and their habitat but over the long term improve habitat quantity and quality by reducing sediment transport from the uplands and prevent loss of habitat from wildfires. The Northwest Malheur Mineral Development project, associated with the Northwest Malheur County Greater Sage-grouse Habitat Restoration project, proposes to develop up to seven mineral development sites and temporary staging sites. These sites are not located near fish and aquatic wildlife habitat and are not expected to have short-term impacts. However, long-term benefits of the project would reduce wildfire size and potentially result in less fish and aquatic wildlife burned.

Projects that have a negative impact on fish and aquatic habitat are the Boardman to Hemingway 500-kV Transmission Line, Vale to Drewsey Transmission Line ROW Modification and Renewal, the Grassy Mountain Gold Mine, the Octagon and Malheur Queen gold mines, and the proposed lithium exploration.

While transmission lines generally span fish and aquatic wildlife habitat, construction of access roads or infrastructure to support the transmission line could have localized short-term negative impacts on fish and aquatic wildlife species and their habitats.

In general, mining exploration, when in proximity to fish and aquatic habitat, can cause habitat degradation (e.g. increase in sediment and/or decrease in available water) and loss of habitat. This may cause highly localized short-term adverse effects and minor to major long-term adverse effects on fish and aquatic wildlife habitat across the planning area.

The Grassy Mountain gold mine operation would have long term impacts to surface water connectivity and may impact subsurface flows. Hydrologic studies and monitoring are ongoing and will continue through development and operations to identify subsurface impacts. The project proposes two long term mine tailings/settling ponds that will be lined to control subsurface seepage/infiltration, with long term monitoring. These settling ponds will disrupt natural drainages permanently. The BLM anticipates completing the NEPA for the project in 2024 and will avoid undue or unnecessary degradation (43 CFR 3809).

The proposed Octagon and Malheur Queen gold mines are located in drainages, but those drainages are not fish bearing (largely ephemeral). The proposed Grassy Mountain Gold Mine is separated by miles from live water; mitigation measures to avoid unnecessary and undue degradation will be implemented.

The proposed Plan of Operation-level projects for lithium exploration proposes approximately 76 acres of surface disturbance (access routes for equipment, bore holes and staging in the 9160 acre project area) The two Notice-level exploration projects are in the same vicinity of the McDermitt caldera; these projects could have similar impacts as the Plan level, but are limited to 5 acres of disturbance before reclamation is authorized. The specific effects and mitigation measures would be addressed during the subsequent NEPA analyses in order to avoid unnecessary and undue degradation.

Existing protections (e.g., under the Sage-grouse ARMPA [BLM 2015d] and the 2002 SEORMP [BLM 2002]) would continue to be applied to reasonably foreseeable future actions, and would provide multiple measures that would reduce or avoid impacts to fish and aquatic wildlife species and their habitat. Application of these measures would ensure that SEORMP and ARMPA objectives for fish and aquatic wildlife would continue to be met with implementation of RFFAs.

The cumulative impacts to aquatic wildlife species and their habitat are the same as those discussed above for terrestrial wildlife: Alternative B would have the greatest beneficial impacts, followed by the No Action Alternative, the PRMPA, Alternative D, C, and Alternative A, respectively.

Further information about aquatic wildlife habitat can be found in the Cumulative Effects of Section 3.7.5 Water Resources and Riparian/Wetland Areas.

3.7.12 Wild Horses

Affected Environment

Introduction

The *Wild Free-Roaming Horses and Burros Act* of 1971 (WFRHBA, Public Law 92-195) states the following: "It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found as an integral part of the public lands." In addition to the WFRHBA, current management of wild horses in the planning area is guided by BLM Handbook H-4700-1 (BLM 2010a) and regulations in 43 Code of Federal Regulations (CFR) 4700.

After passage of the WFRHBA, the Vale District was inventoried for free-roaming horses and burros. After this inventory was completed, the BLM identified four areas to have wild horses in the Malheur Resource Area (MRA), and10 areas to have wild horses in (what was at the time) the Jordan Resource Area (JRA) (See Map WHB 1 in Appendix M). No burros were found in the planning area. Those areas with wild horses were then designated as herd areas (HAs). In 2015, the Jordan and Malheur Resource Areas were combined into one field office: the Malheur Field Office (MFO).

As described in the 2001 PSEORMP/FEIS (BLM 2001b, 91) and in subsequent land use plan amendments, seven HAs were designated herd management areas (HMAs) for the maintenance and management of wild horse herds (see Table 3-34 below). The 10 additional HAs or portions of HAs remain designated as Has though no wild horse herds remain. Wild horse management was discontinued in these Has due to one or more of the following:

- Limited horse numbers precluded maintenance of a viable herd.
- Unacceptable resource impacts were due to horse use.
- Restrictive fencing was present.
- Publicly owned water was lacking.
- Conflicts with the interests of private property owners in Has existed.
- There was a legal claim of horses by private parties.

History

Between 1920 and 1940, the US Army provided approximately 700 remount stallions to private agents throughout the United States. Several horse ranchers in Malheur County were issued these stallions to breed with their mares, thereby improving the physical characteristics of their herds. The offspring of the remounts were then sold to the army and other ranchers, bringing a higher price than "cold-blooded" horses. Today, a few horses in Malheur County may possess the army remount bloodlines, though they are several generations removed from the original stallions. This segment of our American heritage and western history influenced the characteristics of the wild horses in the planning area.

Herd Management

Appropriate management levels (AMLs) within each herd management level (HMA) were established through previous land use plans to ensure public land resources, including wild horse habitat, are maintained in satisfactory healthy condition, and unacceptable impacts to these resources are minimized. Monitoring data, through the life of those plans, support established AMLs. The AML for each HMA is

expressed as a range with a single number being the high end of that range. Forage allocations for horses in the HMA are based on that maximum number of the AML range. Maintaining a thriving, natural ecological balance, the biological/social need of the herds, economics of management actions, reasonable cycles of gathering, genetic diversity, and the population at which resource deterioration would be expected to begin were all considered in establishing the AML range. Current AMLs and wild horse forage allocations are maintained in all HMAs (see Table 3-34 below and Map WHB 1). Permanent increases and decreases in AML and forage allocations will be considered if analysis of monitoring data indicates changes in long-term forage availability.

Table 3-34. Wild horse and burro HMAs or HAs, AMLs, and forage allocations.

Herd Management Areas or Herd Areas	2002 RMP Public Acres[a]	2017 BLM Managed Acres[a,b]	Appropriate Management Level (High End)	Appropriate Management Level Range	Forage Allocation (Animal Unit Month)
Herd Management Areas					
Cold Springs	29,883	29,884	150	75–150	1,800
Coyote Lake/Alvord-Tule Springs	167,919	547,472[c]	390	198–390	4,680
Hog Creek	21,814	21,995	50	30–50	600
Jackies Butte	65,211	65,211	150	75–150	1,800
Sand Springs	192,524	196,778	200	100–200	2,400
Sheephead/Heath Creek	136,050	199,009[d]	161	161–302	3,624
Three Fingers	62,508	62,721	150	75–150	1,800
Herd Areas					
Atterbury	7,906	7,906	-	-	-
Basque	8,677	8,677	-	-	-
Cottonwood Basin	7,804	7,768	-	-	-
Cottonwood Creek	24,325	24,344	-	-	-
Coyote Lake	59,369	53,182[e]	-	-	-
Jackies Butte	56,104	58,377	-	-	-
Lake Ridge	3,966	3,966	-	-	-
Pot Holes	9,341	9,344	-	-	-
Stockade-Morger	22,849	32,166[f]	-	-	-
Three Fingers	20,411	20,412	-	-	-

Notes:
[a]Minor acreage differences between the 2002 SEORMP and ROD and this Amendment document reflect revisions to calculations. Changes to HA/HMA boundaries are specifically noted.
[b]BLM-administered acres include Department of Energy withdrawal acres not included in 2002 SEORMP and ROD calculations.
[c]Reflects administrative merge of Coyote Lake and Alvord-Tule Springs HMAs in the 2002 SEORMP and ROD (BLM 2002).
[d]Reflects administrative merge of Sheepshead and Heath Creek/Sheepshead HMAs in the 2005 Andrews Management Unit ROD (BLM 2005a).
[e]Reflects administrative correction to remove Buckskin Seeding pasture from Coyote Lake HA.
[f]Acreage changes 2002 to 2017 reflect omission in 2002 of one designated Herd Area.

To prevent resource overuse and maintain a thriving ecological balance, gathering takes place as either a herd reaches the maximum number of established AML range or monitoring data indicate that an excess of horses is present, or both. Generally, horses are gathered and removed every three to four years, depending on population inventory data, reproductive rates, death rates, herd health, rangeland health, funding, public concern, and other special management considerations. Horses are usually gathered down to the minimum number of the AML range to avoid the need for frequent, expensive gathering. In keeping with the principle of minimum feasible management, all animals above the lower limit of the

AML range can be considered excess. Site-specific details of gathering, including trap location, are determined at the time of each gather. Although many of those gathered are adopted from the Burns Wild Horse Corrals near Burns, Oregon, some are transported to other adoption or long-term holding sites throughout the United States.

The BLM has conducted and may continue to conduct population control measures in all of the HMAs. Future measures may include, but are not limited to, the use of immuno-contraceptives, sex ratio adjustments, gelding/spaying components in an HMA, and non-reproducing HMAs. All these measures attempt to balance the reproduction rate of wild horse herds with public adoption demand to control the costs of holding excess horses. Appropriate environmental analysis will be completed for each proposed measure.

Perimeter fences of the HMAs will be maintained. Wild horses that stray outside HMA boundaries will be removed or returned to the HMA. A number of HMAs contain interior fences necessary to control livestock movement; however, these fences also create barriers to wild horse movement. After the livestock are removed at the end of the grazing season, gates are left open to allow horse movement within the HMA. Open gates prevent entrapment of horses, which could lead to malnutrition and death of otherwise healthy animals. Additionally, the availability of reliable yearlong water, especially in drought years, is a limiting factor within the HMAs in the southern portion of the planning area and the adjoining Andrews Field Office outside of the planning area. Management includes maintaining water sources critical to wild horses, developing additional water sources to improve animal distribution and provide more stable water sources during periods of drought, and seeking cooperative management agreements or acquiring the legal right to access private water sources critical to wild horses.

The BLM will maintain a diverse age structure and sex ratios ranging from 40–50% female and 50–60% male. Wild horses returned to the HMA after a gather will possess representative characteristics of herd conformation, size, color, and unique markings. New animals from other HMAs will be introduced when needed to maintain herd characteristics or increase diversity of the genome.

Herd Characteristics

Most mature horses in the planning area are 14–16 hands and weigh 950–1,250 pounds. Mature stallions are usually slightly larger than mares. Although most of the horses are of saddle stock conformation, showing influence of thoroughbred ancestry, a few horses in many of the HMAs have characteristics indicating draft breed lineage.

Cold Springs HMA

In the early 1970s, wild horses in the Cold Springs HMA were predominantly grays and draft type horses. The severe 1992–1993 winter reduced horse numbers in this HMA to a number below the AML lower limit. Horses with similar characteristics were relocated in this herd to bring the population back up to a low AML. Currently, gray, sorrel, chestnut, bay, brown, black, and red roan are the predominant colors, with many still exhibiting draft breed characteristics.

Coyote Lake/Alvord-Tule Springs HMA

In the early 1970s, wild horses within the Coyote Lake portion of the HMA varied in color while bay, black, brown, sorrel, palomino, and buckskin wild horses dominated the Alvord-Tule Springs portion of the HMA. The horses exhibit saddle stock conformation with quarter horse and thoroughbred influence. Genetic analysis indicates that the herd appears similar to mixed origins from light racing and riding breeds, which include the thoroughbred and quarter horse.

Hog Creek HMA

Horses in the Hog Creek HMA have historically been palomino and sorrel saddle type. Genetic analysis of this herd indicates widely mixed breed origins. Because this is a relatively small population covering a small area, horses that match these types from other HMAs have been introduced to avoid inbreeding and to maintain a viable gene pool.

Jackies Butte HMA

Wild horses in Jackies Butte HMA, though not true descendants of army remount stallions, have physical and genetic traits similar to those of the remounts. The traits include a hot-blooded thoroughbred temperament; a small keen head; well-defined, moderately elevated withers; and well-proportioned, relatively small feet. Horses in the Jackies Butte HMA are managed through removal and introduction of horses from other HMAs to preserve the remount type.

Sand Springs HMA

Historically, Sand Springs HMA had a high percentage of pinto and buckskin saddle-type horses, and the herd has been managed to maintain this conformation and color. Genetic analysis indicates the similarity of this herd to light racing and riding breeds and Old World Iberian breeds.

Sheepshead/Heath Creek HMA

In the early 1970s, wild horses within the Sheepshead portion of the HMA were varied in color with dun, bay, black, brown, sorrel, and an occasional paint dominated the Heath Creek portion of the HMA. The horses exhibit saddle stock conformation with quarter horse and thoroughbred influence. Genetic analysis indicates the herd is of mixed origins from North American gaited breeds, light racing and riding breeds, and Old World Iberian breeds.

Three Fingers HMA

Wild horses in the Three Fingers HMA vary in color but are predominantly bay, brown, black, sorrel, and gray. Genetic analysis indicates a herd of mixed ancestry somewhat similar to riding breeds of North American breeds.

Trends

HMA Population

From 2002 to 2011, the planning area's wild horse herds were managed within AMLs. To prevent wild horse populations from exceeding AMLs for an extended period, gathers were conducted approximately every four years in each HMA. Starting in 2012, the BLM Wild Horse and Burro Program began lacking avenues for either placement or storage, or both, of excess wild horses. Nationwide, this has resulted in fewer gathers, which has allowed wild horse populations in the planning area's HMAs to exceed AMLs in recent years. Wildfires are the exception to this gather cycle. Since 2002, wildfires have burned significant acreage in several HMAs. This resulted in removing a majority of the wild horse population from the burned HMA for a two-year period to give upland vegetation an opportunity to recover and to protect herd health.

Horse Health and Condition

During a year with average precipitation, wild horses in Vale's HMAs are healthy and in good physical condition. Drought years, combined with limited perennial water sources in many of the planning area's

HMAs, can lead to poor physical condition. When this occurs, horse health is intensively monitored to determine the need for emergency gathers or supplemental water hauling.

Since 2002, the BLM has conducted genetic studies in the planning area's HMAs. These studies indicate that genetic variability has remained high in all the HMAs through management actions to avoid inbreeding and genetic bottlenecks.

Habitat Condition

By maintaining wild horse populations within AMLs, HMA habitat remained adequate from 2002 to 2011. Management of the HMAs was supported by continuing the Standards for Rangeland Health evaluation process. Since 2011, as each HMA reaches the high end of AML or exceeds AML, wild horse use is exceeding forage allocations. If allowed to continue indefinitely, the results of this overgrazing will contribute to natural resource damage and deterioration of habitat for all inhabitants of the planning area's rangelands. This situation is not contributing to the attainment of OR/WA Standards for Rangeland Health, nor the goal stated in the WHB Act to achieve a thriving, natural ecological balance.

Climate change has the potential to alter wild horse habitat. As discussed in Section 3.7.6 General Vegetation, climate change could favor invasive plant species which leads to less desirable wild horse habitat. As discussed in Section 3.7.9 Fire and Fuels Management, climate change could intensify the risk of wildfires leading to an increased loss of habitat in wild horse HMAs. Loss of native vegetation and declining ecosystem health on public lands due to global climate change contribute to reductions in the ability of public lands to support healthy wild horse habitat.

Activities within the planning area that impact wild horse habitat and populations include livestock grazing, wildfire suppression, fuel break projects, emergency stabilization and rehabilitation projects, invasive species management, targeted grazing, and restoration activities.

Livestock grazing has occurred on most of the planning area for decades and has resulted in changes in plant communities. In wild horse herd management areas, livestock grazing impacts on vegetation, soils, and riparian areas overlap those of wild horses. Monitoring is conducted in these areas of overlap to attempt to determine which impacts are caused by wild horses and which impacts are attributed to livestock grazing.

Wildfire suppression and fuel break projects directly impact wild horses in the short-term by removing some vegetation to reduce fuels within HMAs, but in the long term these activities prevent further loss of vegetation from wildfires.

Ongoing emergency stabilization and rehabilitation projects would result in beneficial effects to native vegetation as they improve wild horse habitat.

The herbicide poisoning risk, and the disturbance and potential short-term localized loss of some forage or cover with invasive species management, can contribute to pressures on wild horses, but the net effect is beneficial as these activities attempt to reduce invasive plant species lessen resource competition, and restore native habitats which improves the health of wild horse habitat.

Restoration activities including those associated with the ARMPA restore vegetation communities, provide habitat continuity for wildlife, and make communities resistant to invasion from invasive plants. All of these activities contribute to improvements in wild horse habitats.

Environmental Consequences

Analytical Methods

Impacts on wild horses were assessed based on proposed wilderness characteristics units within the boundaries of an HMA.

Indicators

- Changes to number and restrictions on range improvement project development and maintenance to support wild horse herd populations.
- In all alternatives, administrative actions are allowed to continue management of wild horses and burros as directed by the WFRHBA. This includes but is not limited to use of motorized vehicles, aircraft, and traps in the management and gathering of wild horses.
- Existing developments within wilderness characteristics units may continue to be utilized and maintained.
- New developments must be evaluated in conformance with the NEPA while analyzing lands with wilderness characteristics. Developments may include water developments, fences, and nonstructural improvements as needed for proper wild horse management.

Assumptions

- Management actions that involve reducing or eliminating the maintenance of projects that support the health and habitat of wild horses have the potential to affect management of the HMAs. Water is a limiting factor for many of the HMAs in the planning area, therefore, maintaining developed water sources is crucial to supporting healthy wild horse populations and keeping those populations in ecological balance with their habitat. Fences define HMA boundaries and keep wild horses within the boundaries where they are allowed to inhabit as identified in the WFRHBA.
- In all alternatives, current Wild Horse and Burro management actions are continued. This results in no changes in management of wild horses due to protection of lands with wilderness characteristics or OHV restrictions or closures.
- In all alternatives, the current status of the HMAs is continued. This results in no changes to the current size of the HMAs and no changes to the AMLs.

Issue 3

How would wild horse management be affected by BLM management actions that would reduce livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to wild horses from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, “Standards of Rangeland Health and Grazing Management Guidelines” subsection, the objectives of the Healthy Rangeland Initiative is to understand the condition of public

rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessments and evaluations disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

Under the No Action Alternative and Alternatives A and C, if Standards for Rangeland Health are not being met and existing livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards. Site specific NEPA analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but it is one of many management actions than could be used to improve conditions. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards. Action that is designed and implemented to improve rangeland health and conditions would benefit wild horses.

Under the PRMPA, reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. Under these alternatives reductions or the elimination of grazing would reduce competition with wild horses for available forage. The PRMPA may provide a small increase in beneficial impacts to wild horses over the No Action Alternative and Alternatives A and C alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to wild horses. These added beneficial impacts from reduced competition for forage would be less than those identified in both Alternatives B and D.

Reductions on livestock grazing under Alternative B would reduce competition for available forage, whether due to Standards for Rangeland Health not being met due to existing livestock grazing or due to voluntary permit relinquishment. This would be true under Alternative D also, but to a lesser extent due to the length of time of the temporary suspension due Standards for Rangeland Health not being met or the smaller geographic extent of the area impacted due to a voluntary permit relinquishment. As described in the affected environment section above, HMAs that exceed AML would continue to impact available resources and wild horse herd health, for all alternatives, particularly under the No Action Alternative, the PRMPA, and Alternatives A and C. Vegetation and habitat conditions for wild horses in all HMAs are described in Section 3.7.6 General Vegetation and 3.7.7 Invasive Species.

Livestock permittees maintain projects on their allotments (see Section 3.7.3 Livestock Grazing and Rangeland Management, Rangeland Projects), including fences, springs, reservoirs, and pipelines. In Alternatives B, and D, the closure of pastures/allotments within HMAs would result in the maintenance of these fences and water developments no longer occurring by the livestock permittees. The BLM would have to assume the financial and personnel support to maintain these projects for the management and health of the wild horse herds and integrity of the HMA boundaries. With the current budget and staffing

levels, the BLM could not successfully assume maintenance of these projects. This would increase the BLM wild horse and burro program budget needed to manage the HMAs in their current status.

This would impact HMA management because without fence maintenance of HMA boundaries, wild horses would wander outside of the areas they are designated to inhabit. This would increase the impacts of wild horse grazing to rangelands and habitat beyond existing areas which would trickle down to greater negative impacts to wildlife habitat, Special Status plant species, and weed invasions. Attempting to keep horses within the HMA boundaries, would increase the costs to the BLM to gather and remove wild horses from these undesignated areas.

When water developments are not maintained, there would be fewer clean and adequate water sources for wild horses to access. This would negatively affect the health of wild horse herds by concentrating populations in closer proximity to water sources as well as contributing to health issues related to drinking water out of muddy puddles. When water becomes hard to access, horses will continue to paw at the source in an effort to get deeper holes to drink out of. These pawing actions also contribute to the degradation of spring sources and associated riparian areas by increasing the loss of riparian soils, increasing sediment flow, and decreasing riparian vegetation to protect water sources.

Alternative B would have the greatest potential negative impact on wild horse management given the immediate and long-term (life of the RMP) response to suspend grazing if Standards for Rangeland Health were not met due to existing grazing and the broader geographic extent of possible overlap of a future relinquished permit within National Conservation Lands (NCL), previously known as the National Landscape Conservation System (NLCS), and other specified lands. The potential decrease in project maintenance would have the greatest negative impact on wild horse management logistically and economically.

Alternative D would have potential impacts on wild horse management, with allotment or pasture closure and suspension of grazing for the term of the permit if Standards for Rangeland Health were not met due to existing grazing and the smaller geographic extent of overlap with only NCL lands. The potential decrease in project maintenance would have the second greatest negative impact on wild horses.

The financial and logistical impacts, as well as both the impacts to the health of wild horses and the quality of their range, to the BLM of managing wild horses would be greater in Alternatives B and D than in the No Action Alternative, the PRMPA, Alternative A, and C.

Wild Horses Cumulative Effects Summary

The cumulative impact analysis area used to analyze cumulative impacts on wild horses includes all lands within the planning area boundary. Wild horse HMA habitat benefits are analyzed in Section 3.7.6 General Vegetation summary. None of the RFFAs listed in Table 3-1 intersect with HMAs, the only reasonably foreseeable actions affecting wild horse management are the past and ongoing effects to wild horses (grazing, fuels treatment projects, juniper treatments, herbicide treatments, fence construction projects, and prescribed fire) described in the affected environment section and the effects of the actions of each of the alternative on wild horses noted above.

3.7.13 Cultural and Paleontological Resources

Key Points

- Cultural resources are nonrenewable resources related to the material traces produced by intentional and accidental actions and behaviors of humans and have traditionally been studied under various disciplines that include archaeology, history, art history, engineering, and architecture. Cultural resources can also be resources with traditional cultural significance to living communities, such as Native American Tribes, and include areas where the importance of the place is not readily defined by physical traces like structures or artifacts but by traditional practices (gathering medicinal and food plants), oral and written histories, and shared experiences (pilgrimages, spiritual and personal communion with the land and ancestral spirits).
- Paleontological resources are the remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. Paleontological resources are managed and protected on Federal lands and can be used for scientific, educational, and recreational purposes.
- In general, an alternative that enhances or maintains current protections for wilderness characteristics units also has the effect of providing protections to cultural and paleontological resources by either limiting the kinds of activities or preventing certain kinds of development that can occur, or both. As activities that cause ground disturbing activities or otherwise affect viewsheds scale up in intensity—from hiking to grazing to unrestricted OHV travel to mining to preparing areas for wind development—the greater the chance for effects to occur to cultural and paleontological resources.
- Alternatives that reduce the acreage of Open and unrestricted travel by OHV users would benefit the long-term preservation of cultural and paleontological resources by decreasing the opportunities for accidental discovery or damage by recreationists and vehicles. While the closed to vehicular access classification provides the most protection to cultural and paleontological resources, the OHV Limited classification would also provide improved protections by limiting access to already disturbed routes and decreasing opportunities for accidental damage to cultural and paleontological resources.
- Additionally, from a cultural resource perspective, any reduction in grazing in allotments either as a result of diminished rangeland health or the relinquishment of grazing permits, or both, has the effect of stabilizing cultural resource conditions by limiting the opportunities for trampling and significant ground disturbance at springs. Conversely, if those same areas are not managed to reduce fire hazards, the loss of livestock grazing could increase fuels and provide opportunities for fires, which would also result in negative effects to cultural resources.
- Overall effects to cultural resources are difficult to predict at the scale of the plan and cumulative effects would need to be assessed at a project specific level and in coordination with other resources

Introduction

At the scale of this RMP Amendment, BLM's H-1601-1 Handbook (BLM 2005c) outlines that the scope and scale of cultural resource identification are much more general and less intensive for land use planning level efforts than for processing site-specific use proposals. Instead of new, on-the ground inventory, the appropriate identification level for land use planning is a regional overview: (1) a compilation and analysis of reasonably available cultural resource data and literature, (2) a management-oriented synthesis of the resulting information that includes priorities and a strategy for accomplishing needed inventory. A key point to this Amendment is that regardless of any changes to management strategies, projects should ensure the continued management of cultural and paleontological resources for present and future generations as well as to reduce threats to those resources from natural or human-caused actions.

Recommendations for either limiting or avoiding potential effects to cultural and paleontological resources, or both, would occur at the project level where the BLM implements aspects of this RMP Amendment. For example, if a travel management plan is initiated to begin implementing changes associated with the two OHV Open areas in the PRMPA, BLM resource specialists would initiate the consultation process outlined under 36 CFR 800, normally referred to as the Section 106 process. This would include consultation with appropriate state, tribal, and public entities; review of appropriate archival materials; pedestrian surveys within the project areas to identify cultural resources; and developing mitigation strategies if cultural resources are at risk of being adversely affected. Similarly, for paleontological resources, the BLM would review appropriate archival materials to try to establish locations within a project area likely to have paleontological resources and conduct pedestrian surveys to verify their presence. Similar processes would be followed for paleontological resources in regard to evaluating reference materials, previously identified locations, and consulting with experts. Should paleontological resources be identified in a project area, strategies would be developed to mitigate any project effects or preserve the resources, or both.

Affected Environment

Cultural Resources

Cultural resources are finite, non-renewable resources that are important to scientific, archaeological, and historic study as well as tribal use and reaffirmation of tribal histories and ceremonial purposes. Unlike other non-renewable resources like coal or precious metals whose value is carried over after being removed from their original context, either the scientific, informational, recreational, or socio-spiritual value of cultural resources, or any combination, is increasingly damaged the more their original context is disturbed.

Fossils and their geologic context contain evidence of past environmental conditions that can be recreated through persistent investigation of similar geologic strata across wide areas of land. The removal of fossils or the destruction of their original context make this reconstruction impossible. Likewise, artifacts (projectile points, woven sandals, homemade metal tools, bottles, etc.) and features (hearths, shell middens, garbage dumps, irrigation features, etc.) of past human activities provide a spectrum of physical evidence for how people lived in and modified their world. The removal of artifacts or the destruction of features destroys the important association or relationship they had with other things used by or built by people. The removal of projectile points from the land by curious individuals, for example, has had the unintended result of removing the most recognizable and temporally diagnostic physical evidence that people had been there long before Europeans and Americans ever existed. These associations, once lost, are almost always irrecoverable.

Cultural resources may be sites, buildings, structures, or landscapes and can be identified through field inventory, historic documents, or oral accounts. "Historic properties" are those cultural resources that are listed or eligible for listing on the National Register of Historic Places (NRHP) due to their significance and integrity. As a management option to protect a site, it can be treated as though it were eligible for the NRHP without conducting in depth research and coordinating agreements with state and tribal agencies. The Oregon Trail Historic District at Lytle Pass and Birch Creek Ranch Rural Historic Landscape are the two historic districts in the planning area listed on the NRHP. The Oregon Trail is also designated as a National Historic Trail. In the planning area, a four-mile-long, ¼ mile-wide segment of the Oregon Trail was listed on the NRHP in 1979 as a historic district. This 640-acre area that encompasses the Keeney Pass interpretive area, a hiking trail, and intact Oregon Trail ruts, is immediately adjacent to one of the OHV Open designated areas under the PRMPA.

Archaeological evidence indicates that the northern Great Basin has been inhabited by humans for at least 16,000 years (Smith et al. 2020) and the planning area in particular for at least the last 12,500 years (Jenkins and Kennedy 2016). Tribal histories assert a presence since time immemorial. Occupation has been continuous, although population location and density have varied with environmental and social factors. Small, nomadic groups, rather than sedentary communities, were the norm (Aikens 1993). Such a highly mobile lifestyle was well suited to the patchy distribution of resources through space and time (seasonally and at longer time scales).

The planning area is in the northernmost extension of the Great Basin and shows elements of Great Basin and Columbia Plateau cultures. Southeastern Oregon is considered the homeland of the Northern Paiute people (Fowler and Liljeblad 1986). The Northern Paiute maintain close connections with the Shoshone and interact with the Columbia Plateau groups. The indigenous peoples of southeastern Oregon use a wide variety of plants and animals for food, fiber, medicine and ceremonies. Traditionally significant places, practices, and species remain vital to the Native American Tribes associated with the planning area. The tribes include the Burns Paiute Tribe, Confederated Tribes of the Umatilla Indian Reservation, Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Shoshone-Bannock Tribes of the Fort Hall Reservation, and Shoshone-Paiute Tribes of the Duck Valley Reservation.

Prehistoric, or precontact, cultural resources in the planning area include lithic scatters (clusters of stone artifacts), rock shelters, pithouses, rock art, rock features (e.g., alignments, cairns, and hearths), quarries, and complex sites. The prehistoric sites represent activities such as habitation, tool making and use, resource gathering and preparation, as well as other cultural activities and expression. The density of scientifically significant prehistoric sites is high along major streams and rivers, along the margins of former lakebeds, and near springs. Low site density is expected in large areas of the treeless, undifferentiated volcanic uplands and in the bottoms of former pluvial lake basins, where surface water and various life-sustaining resources are less prevalent.

Sacred sites, significant landforms, and traditional resource sites are present in the planning area. Generally, knowledge of the exact location and nature of these sites is held by the Tribe(s) to whom they are significant. Because the BLM only has information regarding a fraction of the sites of religious and cultural significance, it conducts government-to-government consultation with Tribes to provide the opportunity for Tribes to identify culturally sensitive areas. For example, Castle Rock and its viewshed have cultural values associated with both prehistoric and historic use of the area as an important landmark for Tribes, as well as emigrants traveling through the area. The BLM has also recognized that Tribes have a special cultural connection to the area by designating it as an Area of Critical Environmental Concern (ACEC) (BLM 2002).

Fur trappers were the first Euro-American presence in southeastern Oregon early in the nineteenth century (Malheur County Historical Society 1988). The Oregon Trail developed as the primary route for travel and settlement through the area. Other wagon routes were developed to support mining, military

engagement with Native American tribes, settlement, and general transportation and communication. Agriculture, ranching, and homesteading were important trends in the early twentieth century.

Historic cultural resources include many things like buildings and building ruins, homesteads, wagon roads, telegraph and stage stations, railroad grades, irrigation ditches and associated structures, dams, and trash scatters. The historic sites represent the remains of activities related to early Euro-American exploration, immigration and settlement, military activity, the Malheur Indian Reservation, transportation, ranching, agriculture, and mining starting in approximately 1860 and through the 1960s.

Many past and current management actions in the planning area have affected paleontological and cultural resources and continue to do so. For example, livestock grazing can have adverse effects on cultural and paleontological resources. In areas of heavy use, such as congregation and trailing areas, livestock can damage cultural and paleontological resources through trampling and soil compaction, soil churning, and erosion. Closing or reducing grazing would reduce direct livestock damage. However, the build-up of fine fuels after the cessation or reduction of grazing could increase either the potential for more frequent or larger fires, or both (See Section 3.7.6 General Vegetation). Fires can damage or destroy archaeological materials directly resulting in cracking, spalling, melting, sooting, color change, change in chemical or physical characteristics such as loss of hydration rinds in obsidian, or complete combustion. Many studies indicate that climate change will intensify wildfire risk particularly in the summer. And wildfire season may eventually extend from spring to winter (An et al. 2015). Either intense wildfires or wildfires that burn areas within close succession, or both, create ideal conditions for invasive annual grasses to spread and dominate where they are already well adapted and where climate changes could increase fire frequency (Abatzoglou and Kolden 2013; Boyte et al. 2016; Coates, Ricca, Prochazka, et al. 2016). Cultural and paleontological resources are vulnerable to fire, post-fire erosion and effects from fire suppression efforts (Ryan et al. 2012). The build-up of fuels and a trend towards more prolonged wildfire seasons could, under certain circumstances, be offset by vegetation and fuels management projects, which would allow cultural resource specialists opportunities to survey project locations and develop plans to avoid and protect cultural and paleontological resources.

Either construction, reconstruction, or maintenance (or all), of range improvements are expected to occur through the foreseeable future. The scale of these activities would vary between the alternatives with maintenance of existing improvements expected to continue at current rates (anywhere from annually to every five years, depending on the nature, location, and objective of the improvement). New improvements would be analyzed and approved by BLM specialists to avoid effects on paleontological and cultural resources. However, due to the small scale of these improvements, short and long-term effects to paleontological and cultural resources is generally considered negligible.

Fuels management projects include design features to avoid or minimize effects to cultural and paleontological resources and can have beneficial effects by decreasing fire frequency and severity on the landscape. Fuels management through targeted grazing is designed to avoid adverse effects to cultural and paleontological resources; however, if there is a graduated use area, there may be negative impacts to sites within that area. Moreover, targeted grazing is not always feasible, nor effective in decreasing frequency or severity of wildfires.

Ongoing wildfire stabilization and rehabilitation projects are intended to reduce soil erosion, stabilize landscapes, and provide protection for cultural and paleontological resources. These projects include design features to help avoid or minimize effects to cultural and paleontological resources.

Mining and extraction of locatable, leasable, and saleable minerals can cause irreparable damage or destruction of cultural and paleontological resources. On mining operations greater than casual use, like the Malheur Queen Placer mine that is in operation, project proponents must develop a plan of operations that includes measures for avoiding, minimizing, or mitigating effects to cultural and paleontological resources (see Table 3-1 for other mines in operation in the planning area). For smaller claims that do not require claimants to submit a plan of operations, the BLM has limited legal capacity to conduct oversight.

However, BLM specialists survey mining notices prior to work being conducted and attempt to work with claimants to avoid effects to cultural and paleontological resources. As described above, from a cultural and paleontological resources perspective, the cumulative effect of most any development, including mining, is either the gradual damage or destruction, or both, of these resources through physical means, the concomitant construction of support infrastructure, industrial accidents, or merely bringing more people and vehicles into areas.

Previous work on transmission line projects throughout the country have shown that they have the potential to have adverse effects on cultural and paleontological resources. Although efforts are often made to either avoid or minimize, or both, such effects through surveys and consultation with Tribes, various historic preservation associations, and federal and state agencies, effects (including adverse ones) are still possible because transmission line projects in the planning area co-occur in areas where human habitation goes back thousands of years and sites may be inadvertently encountered. New construction unavoidably results in changes to the viewshed or the immediate auditory environment, which result in effects that are more often accounted for at historical sites. Effects to paleontological resources is often easier to avoid because these are often constrained to specific geological formations. Unlike cultural resources, effects to paleontological resources do not include non-physical effects like those associated with changes in the viewshed or auditory spectrum.

Other past, present, and reasonably foreseeable future actions—including communications site development, infrastructure maintenance, vegetation management, and restoration activities—will continue to have relatively negligible effects on cultural and paleontological resources throughout the planning area due to the small-scale nature of the projects and the use of design features to avoid or limit effects.

Approximately 10% of the planning area has been inventoried for cultural resources. There are approximately 2,400 known archeological sites. The surveys have been primarily driven by the locations of BLM projects related to other resources (e.g., fuels reduction and range improvements) and many archaeological sites and cultural resources remain undiscovered and undocumented.

A strategy the Vale District will adopt in helping determine survey locations for cultural resources is to use a GIS model, the National Cultural Resources Information Management System (NCRIMS), to help forecast the suitability for landforms to have cultural resources. Suitability rather than predictability is the preferred nomenclature for NCRIMS analyses because the model is effectively evaluating a landform's potential to have been the location for human behaviors based on a comparison of environmental factors like slope, distance to water, and different types of water bodies with existing site and survey locations. NCRIMS was initially developed by the Idaho BLM to develop a sampling strategy for pedestrian surveys in the Owyhee Canyonland Wilderness, which includes land immediately adjacent to the planning area, and has because been expanded to other states.

NCRIMS is one method or tool among others to help inform planning, management, and investigation efforts on BLM land. A model like this provides a snapshot of ground conditions. Model results are not used as a substitute for survey. Any decision to survey specific areas is a weighted result where a range of elements are considered: the degree of ground disturbance associated with a project action, the kind of landform, vegetation, fire history, historic documentation, past treatments, presence of survey and site information, and NCRIMS results.

An NCRIMS analysis of the project area for the 40,000 acres of OHV Open areas proposed in this PRMPA/FEIS reveals that the Bully Creek Open area has approximately 1,500 acres of land with low suitability for cultural resources, 3,400 acres of moderate suitability, and 1,200 acres of high suitability. In the Vale OHV Open area, there are approximately 11,000 acres of low suitability, 22,000 acres of moderate suitability, and 1,700 acres of high suitability (Map CR 1 Appendix M). Because it is often impractical to conduct 100% surveys of areas, this data, plus an examination of site types within the area, slope, and use history of the area (among other reference materials) would be used to develop a sampling

strategy for surveys within high, medium, and low suitability areas. There are known paleontological, precontact, and historic era cultural resources within and adjacent to the two proposed OHV Open areas. One of which is the 640-acre NRHP-listed Keeney Pass–Oregon Trail Historic District that would need to be resurveyed and evaluated for potential direct and indirect effects.

Due to ongoing cultural resource inventories, new sites are being recorded on an annual basis, continuing a trend toward an expanding inventory and knowledge of cultural resources. General trends in the condition of cultural resources across the planning area are difficult to quantify. Natural processes such as weathering, wind and water erosion, wildfire, and soil mixing by rodents can degrade the condition of cultural resources. Human activities such as artifact collection, vandalism, recreation, road maintenance, wildfire suppression, and construction can also damage sites. Livestock grazing, particularly in areas of concentrated use and trailing, is another process that can impact cultural resources (Coddington 2008). Wildfires, which have both direct and indirect effects on cultural resources present, is one of the greatest risks to cultural resources in the planning area.

Paleontological Resources

Paleontological resources are defined as the remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and provide information about the history of life on earth. Fossils in the planning area are of Pliocene, Miocene, and Pleistocene age and are located in various volcanic tuff, sandstone/siltstone beds or Pleistocene gravels. Paleontological resources are affected by weathering, livestock trampling, mineral development, and unauthorized collecting.

More than 100 fossil localities have been reported on public land in the planning area. Most of the finds have been exposed by wind or water erosion or road construction, and they are widely dispersed through the area. Fossils include camels, mammoths, mastodons, giant sloths, horses, rodents, turtles, fish, birds, plants, and invertebrates.

The primary context for many fossils and artifacts is where they were last deposited. Fossils lacking context remain interesting, and potentially scientifically valuable, but no longer have the same capacity to provide information about the past. Surveys for paleontological resources occur at the same time as those for cultural resources. Surveys are conducted by BLM resource specialists or contractors.

Environmental Consequences

Analytical Methods

The following analysis of the alternatives evaluates the extent to which protection of wilderness characteristics under each alternative would affect paleontological and cultural resources. Effects to paleontological and cultural resources are considered in both the short term and long term.

When cultural and paleontological sites are discovered, their condition can range from nearly destroyed to relatively intact. Damage to sites can be caused by natural (e.g., erosion, flooding, fire) and cultural forces (e.g., grazing, farming, vehicular damage, looting, construction). Specialists will record the site's condition and list the factors they perceive as causing effects to a site. Sometimes it will be a mix of both natural and cultural factors. Sometimes, when the setting of a site is considered important, a site's condition will also be affected by indirect effects like visual or auditory elements from such developments as windfarms, powerlines, or wide swaths of dirt tracks created by unrestricted vehicular access.

Identification of cultural and paleontological sites on BLM lands are not limited to those identified during project surveys and it is not always feasible to take immediate action to stabilize sites; often the cause of the damage is no longer occurring. Range fires, unrestricted grazing, and unregulated mine prospecting that occurred in the past have had effects on cultural and paleontological resources the BLM could not control. However, the BLM does have the capacity and legal responsibility to attempt to minimize

adverse effects to paleontological and cultural resources for new projects, including for those that may include ground disturbing activities, have indirect effects, or have cumulative effects that may result in damage, like increasing the number of visitors to an area. To protect resources and limit new effects, the BLM surveys project areas to identify paleontological and cultural resources. When such resources are identified, the BLM can draw on a number of strategies to preserve the resources or mitigate impacts to the resources. This may include redesigning parts of a project to avoid resources, erecting fences or other physical barriers to protect them, or using data recovery methods like controlled excavations when other options are not feasible.

Because damage to paleontological and cultural resources is irreversible, the most preferable alternatives would be ones that offer the most protection from new developments and create conditions that limit the opportunity for damage through other human activities and natural processes.

Indicators

- Degradation of paleontological and cultural resources as they relate to scientific, educational, historical, socio-religious value, or eligibility for listing on the NRHP (for cultural resources)
- Scale and intensity of ground disturbing activities
- Alteration of the setting and association of cultural resources
- Increase in the occurrence of natural processes that adversely affect paleontological and cultural resources
- Looting, vandalism, and unintentional disturbance of paleontological and cultural resources through human activities
- Changes in access or land use that could impair future traditional activities by Native American individuals or communities

Assumptions

- There are unknown cultural and paleontological resources in the planning area.
- Many cultural and paleontological resources are located below the ground surface.
- Not all cultural and paleontological resources can be protected or avoided for all projects or activities.
- The BLM would evaluate effects to cultural resources through the *National Historic Preservation Act* Section 106 process (with implementing regulations at 36 CFR 800) and the 2015 Protocol between the Oregon/Washington BLM and Oregon State Historic Preservation Office as part of project planning for specific undertakings with defined locations.
- Relatively small projects like the construction of fences, vegetation management, or the maintenance of existing infrastructure pose a lesser threat to paleontological and cultural resources because the scale and intensity of their ground disturbance is minor, or they have already been implemented.
- As part of project planning for undertakings with defined locations, the BLM would preserve, manage, and protect paleontological resources under the provisions of the *Paleontological Resources Preservation Act* (PRPA).
- Effects under each of the alternatives would be reduced or eliminated by inventorying areas potentially affected by specific projects and designing future projects to protect or avoid cultural and paleontological resources. There are public land uses such as livestock grazing,

dispersed recreation, and OHV use where impacted areas are not completely inventoried. These activities, nevertheless, have the potential to negatively affect cultural and paleontological resources.

- Increasing the ease of access to an area would increase the amount of human-caused disturbance to cultural and paleontological resources. Decreasing the ease of access to an area could decrease the ability of Native American Tribes to engage in traditional cultural activities in those areas.
- The BLM would consult with Tribes regarding any changes in access to sacred sites or sites of traditional cultural significance in order to limit potential impacts to tribal access.

Issue 1

How would cultural and paleontological resources be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Protecting wilderness characteristics would generally benefit cultural and paleontological resources. Limiting allowable uses, particularly those that entail ground disturbing activities and introduce visual, auditory, or other atmospheric characteristics to areas, would reduce the potential for effect on cultural and paleontological resources.

Limiting modern development generally benefits cultural resources. In particular, the construction of new infrastructure like mines and wind farms often have direct and indirect effects on a wide variety of cultural resources. Direct affects would include: replacing historic bridges with modern ones that are adequate to support heavy loads; modernizing historic roads to accommodate larger trucks and trailers; and destroying evidence of Native American ancestry through the destruction of lithic scatters, plant harvesting locations, and other significant sites. Such development is often accompanied by a range of indirect effects that introduce visual, auditory, and other atmospheric effects that introduce new environmental elements that are not consistent with historical settings. Conversely, projects dedicated to enhancing wilderness characteristics tend to be associated with actions with relatively low intensity of ground disturbance or include design features that provide flexibility in avoiding or minimizing effects to paleontological and cultural resources.

Projects that enhance wilderness characteristics can also provide opportunities to stabilize cultural resource and paleontological site locations by attempting to restore natural processes, re-establish a more natural fire regime, reduce grazing impacts where rangeland health is not attained, as well as providing opportunities to promote the propagation of native and traditional plants that are important to Native American communities for spiritual and medicinal practices.

In terms of either management restrictions or emphasizing actions, or both, that enhance units with wilderness characteristics, the No Action Alternative and Alternative B have the greatest potential benefit for paleontological and cultural resources as they would encompass 76 units; conversely, the PRMPA and Alternatives D (which protect the identical set of 33 wilderness characteristics units) followed by Alternative C and Alternative A provide decreasing protection to paleontological and cultural resources (see also Table 3-2). Although the added design features increase the cost and complicates actions associated with post-fire restoration activities and vegetation management, the more units with restrictions associated with development in units with wilderness characteristics, the better for protecting paleontological and cultural resources.

Although the No Action Alternative and Alternative B include the most units for emphasizing protections of lands with wilderness characteristics, Alternative B, followed by the PRMPA and D (which protect the identical set of 33 wilderness characteristics units) pose the most barriers to alteration of wilderness characteristics based on the number of acres included in Major Rights-of-way exclusion areas with 1,279,492 and 470,349 (PRMPA and Alternative D) acres respectively. Alternative C has exclusion areas

of 217,166 acres prohibiting Major ROW development. Whereas the No Action Alternative and Alternative A both have exclusion areas of 44,839 acres.

Although intended for protecting wilderness characteristics, managing visual resources overlaps with cultural resource protection concerns for preserving historic settings and associations of cultural resources and areas with religious and traditional significance to Tribes. The more stringent protections in place for the visual viewshed the more they provide for the short-term and long-term protections to cultural resources. All alternatives include the same amount of VRM Class I acres (1,310,702). However, Alternatives B and then both the PRMPA and Alternative D include the most acres designated as VRM Class II with 1,291,381 (Alternative B) and 578,361 (PRMPA and Alternative D). Alternative C (350,315 acres), followed by both the No Action Alternative and Alternative A (219,040), have fewer acres classified under VRM Class II (Table 3-2).

Issue 2

How would cultural and paleontological resources be affected by BLM management actions that would change OHV area designations across the planning area.

Open, unrestricted OHV use can be harmful to archaeological sites, paleontological localities, and places of cultural and religious significance to Native American Tribes, including plant gathering areas. Although closing OHV access could decrease the ability of Native American Tribes to pursue traditional cultural activities in those areas, the BLM would consult with Tribes regarding any changes in access to sacred sites or sites of traditional cultural significance in order to have as little impact on tribal access as possible. Compaction, altered surface water drainage, and accelerated erosion are all negative effects to the landscape, created by OHV use and, by extension, to cultural and paleontological resources (Sampson 2007).

For paleontological and cultural resources, the higher the ratio of Open: Limited: Closed (i.e., more OHV Open and less OHV Closed), the more potential resource damage due to direct and indirect effects of OHVs and the ease of access to the resources. The PRMPA, No Action Alternative, Alternative A, C and D would each retain the current level of OHV Closed acres (less than 1%) across the planning area (Figure 3-3). Whereas Alternative B would close all lands with wilderness characteristics and WSAs in the planning area, resulting in a total of 2,513,842 OHV Closed acres (54% of the planning area).

The proposal in the PRMPA to restrict cross-country OHV travel to two areas consisting of a little over 40,000 acres in the planning area, while designating the majority of the planning area as OHV Limited, has the benefit of protecting cultural and paleontological resources elsewhere from unrestricted travel. Cross-country OHV travel in these two open areas would undoubtedly have an adverse effect on cultural and paleontological resources; however, leaving hundreds of thousands of acres open in the No Action and Alternatives A, C and D to unrestricted travel would have far worse short- and long-term consequences. Looting and vandalism, accidental damage, and accelerated erosion are examples of such impacts. These potential negative impacts would continue to exist in the OHV Open area southeast of Vale that encompasses and overlaps a small section of the current NRHP-listed Keeney Pass -Oregon Trail Historic District (see Map CR1 Appendix M). Management of the OHV Open designation in this area would be unchanged from the 2002 SEORMP as amended and conditions of the Historic District would continue to be monitored.

Having the ability to deny cross-country travel in other parts of the planning area and being able to plan and design projects in the two OHV Open areas to avoid negative impacts to cultural and paleontological resources, makes the PRMPA more beneficial to cultural resources than all alternatives except Alternative B, which eliminates OHV Open-designated areas entirely. Alternative C provides fewer protections to paleontological and cultural resources than either Alternative B or the PRMPA by leaving 107,075 acres of OHV Open, restricting 4,518,539 acres of OHV Limited, and having 15,829 acres of OHV Closed.

The No Action and Alternatives A and D provide similar protections to paleontological and cultural resources. The No Action Alternative and Alternative A have identical OHV designations and are approximately the same as Alternative D (359,869 acres of limited in the No Action and Alternative A and 325,686 acres limited in Alternative D). The No Action and Alternative A have 4,265,748 acres of OHV Limited and Alternative D would have 4,299,928 acres OHV Limited. The No Action and Alternatives A and D all have a total of 15,829 acres of OHV Closed.

Issue 3

How would cultural and paleontological resources be affected by BLM management actions that would reduce livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to cultural and paleontological resources from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, "Standards of Rangeland Health and Grazing Management Guidelines" subsection, the objectives of the Healthy Rangeland Initiative is to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessments and evaluations disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

The effects to cultural and paleontological resources from the reduction of livestock grazing can be beneficial or negative. Reductions in grazing can reduce resource damage, while also leading to increased fire potential, depending on the specific locations where grazing closures or reductions occur. By discontinuing grazing in areas that fail to meet either rangeland health standards or as a result of voluntary relinquishment, or both, Alternatives B and D provide the most potential protection to paleontological and cultural resources because they would discontinue grazing either for the duration of the plan or until monitoring demonstrates a return to acceptable conditions respectively.

Under the PRMPA, the No Action Alternative and Alternatives A and C, if Standards for Rangeland Health are not being met and existing livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards. Site specific NEPA analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotation grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but it is one of many management actions than could be used to improve conditions. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards. This management direction could result in benefits to cultural and traditional resources and activities, as a result of implementing actions being taken to improve native vegetation condition and function and wildlife habitat (see also Section 3.7.6 General Vegetation and 3.7.11 Fish and Wildlife).

Under the PRMPA, reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. The PRMPA may provide a small increase in beneficial impacts to cultural and paleontological resources over the No Action Alternative and Alternatives A and C alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no

Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to cultural and paleontological resources. These added beneficial impacts from would be less than those identified in both Alternatives B and D. However, as described above, reductions of livestock can lead to increases in fuel build up and the risk of impacts from wildfire.—.

Cultural and Paleontological Resources Cumulative Effects Summary

The cumulative impact analysis area used to analyze cumulative impacts on cultural and paleontological resources includes all lands within the planning area boundary. This Section will address any additional effects to cultural and paleontological resources from reasonably foreseeable actions. These effects are in addition to the past and ongoing effects to the cultural and paleontological resources (mining, livestock grazing, construction of transmission lines, ESR treatments, restoration and invasive species treatments, and fire suppression and rehabilitation treatments) described in the affected environment section and the direct and indirect effects of the actions of each of the alternative on the resource noted above.

Overview of Impacts

Nearly any kind of development including new construction and some rehabilitation and restoration activities will result in either the gradual damage or destruction of paleontological and cultural resources through physical means. Other effects include changes to the viewshed or the immediate auditory environment, which result in effects that are more often accounted for at historical sites. Effects to paleontological resources are often easier to avoid because these are constrained to specific geological formations. Unlike cultural resources, effects to paleontological resources do not include non-physical effects like those associated with changes in the viewshed or auditory spectrum.

Emphasizing the protection of lands with wilderness characteristics and excluding acres from major Rights-of-way development would provide greater protection to cultural and paleontological resources by limiting what kind of actions would be permitted. Unlike resources where conditions can be improved to promote the growth of rare plants, improve water quality, or better support wildlife populations, paleontological and cultural resources cannot recover from damage caused by past, current, and future development. From the perspective of protecting paleontological and cultural resources over the long-term, most development or use of the landscape results in systemic, incremental loss; the best alternatives are those that limit the physical and visual footprint of human activities and encourage a stable environment where such events as fires and erosion would be managed to have less destructive outcomes. Although intended for protecting wilderness characteristics, managing visual resources also overlaps with cultural resource protection concerns for preserving historic settings and associations of cultural resources and areas with religious and traditional significance to Tribes. The more stringent protections in place for the visual viewshed the more they provide for the short- and long-term protections to cultural resources (Table 3-2).

From a paleontological and cultural perspective, the most beneficial designation for OHV is closed to cross-country travel because it would ideally result in no new affected resources. Following a closed designation, OHV use Limited to existing roads and routes would have the lowest cumulative effect

because it would result in fewer newly affected paleontological and cultural resources. The cumulative effect of OHV use in areas managed as Open is the continued, irreversible damage and destruction of known and unidentified resources. Restricting cross-country OHV use to specific open areas would have the cumulative result of affecting fewer resources over time throughout the planning area and provide a mechanism in which BLM would be able to conduct surveys in defined area to assess potential effects to sites and implement avoidance measures.

Livestock grazing will continue to impact sites at locations where livestock congregate around gates, corrals, mineral supplementation sites, and water. However, because surveys have not been conducted across all grazing allotments, the number of sites or paleontological resources potentially affected by grazing is unknown. Any reduction in grazing in units where rangeland health is not being met has the potential to provide some incremental benefit to cultural and paleontological resources because BLM could initiate management strategies of allotments where grazing has affected either cultural or paleontological resources, or both. For example, long-term benefits for these resources could be accomplished by pairing any reduction in grazing with a corresponding fuels treatment strategy to bolster rangeland fire resilience.

Reasonably Foreseeable Future Actions

Reasonably foreseeable actions that have the potential to impact cultural and paleontological resources are the Tri-state Fuels Management Project, the Boardman to Hemingway 500-kV Transmission Line, the Northwest Malheur Habitat Restoration and Fuels Treatment, LCGMA Permit Renewal and Restoration Treatments, Grassy Mountain Gold Mine, the Octagon and Malheur Queen mines, lithium exploration, Residential Trespass Resolution, Owyhee Pump Storage Energy Development, Agency Valley Free Use Saleable Mineral Pit Development, and the Vale to Drewsey Transmission Line ROW Modification and Renewal (see Table 3-1 Reasonably foreseeable actions).

Permit renewal and restoration treatment projects like the Louse Canyon Project in addition to fuels management projects like the Tri-state Fuels and Northwest Malheur Habitat Restoration Projects have been or are being designed to include design features either to avoid or minimize effects to cultural and paleontological resources. As a result, incremental effects to cultural and paleontological will be minimal.

On operations greater than either casual use or are being developed by the BLM, or both, like the Grassy Mountain and Octagon mines, and Agency Valley Free Use Saleable Mineral Pit Development respectively, project proponents must develop a plan that includes measures for avoiding, minimizing, or mitigating effects to cultural and paleontological resources. Short-term effects to cultural and paleontological resources as a result of these projects will likely be minimal to moderate if avoidance measures are implemented. However, in situations where avoidance is impossible, mitigation strategies would be developed prior to project implementation. Incremental effects on cultural and paleontological resources that may occur as a result of these projects would likely be minimal due to the relatively confined nature of the actions proposed.

For more extensive mineral exploration projects like the 9,120 acre project area for lithium in the McDermitt caldera, there is a greater likelihood that cultural—and potentially paleontological—resources could be impacted. The McDermitt caldera is a known lithic landscape with a high potential for sites that would be eligible for the National Register of Historic Places. With the known 9,120 acre proposed plan of operations for exploration and the estimated 76 acres of disturbance associated with the proposed exploration it is expected that mitigation strategies would be proposed and analyzed in the EIS that will be prepared for this exploration effort. Exploration of lithium in this area has the potential to effect historic properties and would require future consultation with the State Historic Preservation Office (SHPO) and Tribal governments. Exploration could have short- and long-term direct effects to cultural and potential paleontological resources. These effects include disturbance of cultural or paleontological deposits, visual disruption of the native landscapes and traditional uses, and access limitations as a result

of the development of exploration access routes and ground disturbing exploration activities like travel route modification, staging areas and drilling exploratory bore holes. The project proponent for the proposed plan of operation for exploration is currently conducting cultural surveys with an anticipated completion in the spring of 2023. The effects to cultural and paleontological resources from the proposed exploration will be fully analyzed in the EIS that will be developed for the proposed exploration.

Projects like the Owyhee Pump Storage Energy Development project (approximately 40 acres of potential surface disturbance), and the Boardman to Hemingway (100 acres, access routes and towers/poles during construction and operation) and Vale to Drewsey transmission line (pole-specific construction and access along 26 mile corridor) projects tend to be associated with adverse effects on cultural and paleontological resources because they have long-use lives and include extensive initial and long-term physical and visual effects on the surrounding environment. The latter two projects have been identified as having potential effects on historic properties that would also require future consultation with the SHPO and Tribal governments (Tetra Tech 2020). Additional future effects to cultural resources are possible as either Idaho Power conducts maintenance on the structures or as cultural resources are evaluated for the National Register of Historic Places, or both. Likewise, the Owyhee Pump Storage Energy Development project would also likely have initial and long-term effects on cultural resources on account of being located near the Owyhee River where a number of paleontological sites are located in addition to being the location for approximately 12,000 years of human activity up to and including the present. Short- and long-term effects could possibly arise from the construction of the reservoir and transmission line. The reservoir could have long term physical effects as a result of erosion caused by wave action while the transmission line would have immediate physical effects on cultural resources in addition to long-term visual effects.

Incidents that occur outside of either legal or bureaucratic frameworks (or both), like the Residential Trespass Resolution project, are effectively unpredictable actions that can result in adverse effects to either paleontological or cultural resources, or both. People building structures or otherwise attempting to develop land without receiving clearance from the BLM pose a threat to resources in the short- and long term through the construction of structures and attendant infrastructure, like roads that would continue to be used and would attract people to new areas. Actions like these would not be prevented by stipulations in a management plan and are dealt with after the fact through other laws like the Archaeological Resource Protection Act.

Comparison of Cumulative Impacts of the Alternatives

The relative benefit of the alternatives to the protection of paleontological and cultural resources varies by the combination of management direction in each. In general, protection of wilderness characteristics, reductions in OHV activities, and reductions in livestock grazing can reduce impacts to paleontological and cultural resources. Under all alternatives, the BLM would continue to comply with Section 106 of the National Historic Preservation Act and the Paleontological Resource Protection Act, both of which provide protections to cultural and paleontological resources during implementation of ground disturbing activities.

The No Action Alternative

The No Action Alternative offers moderate incremental protection to paleontological and cultural resources from future projects in units with wilderness characteristics insofar as it includes restrictions to maintain wilderness characteristics in 76 units; however, it excludes the lowest number of acres (44,839) that would be excluded from major Rights-of-way development. The No Action Alternative provides the same amount of VRM Class I protection (1,310,702 acres) but the least with Alternative A for VRM Class II.

The No Action Alternative also retains the current level of acres designated Open, Limited, and Closed to OHV travel (respectively 359,869; 4,265,748; 15,829 acres), which—along with Alternative A—offers the least benefit to cultural and paleontological resources of all alternatives.

This alternative does offer some protection to paleontological and cultural resources by continuing current grazing management strategies in areas where rangeland health is not met and surveys results in the identification of either cultural or paleontological, or both, resources being affected.

The incremental impacts of the RFFAs would be the same as Alternative B where fuels, restoration and rehabilitation actions would be implemented with design features to avoid or reduce impacts to wilderness characteristics to minimize short- and long-term effects to cultural and paleontological resources. However, all RFFA impacts are specific to project footprints and potential adverse effects would be mitigated according to existing regulation and policy and would not change the relative cumulative impact among the alternatives. Thus, while the LCGMA project has not yet been finalized, it would include design features to either avoid or minimize effects, or both, on paleontological and cultural resources or mitigate adverse effects prior to project implementation regardless the alternative chosen for this Amendment.

Alternative A

Alternative A provides the least overall protection for paleontological and cultural resources in units with wilderness characteristics because zero acres of lands with wilderness characteristics would be prioritized over other resources or resource uses and excludes the same number of acres for major Rights-of-way as the No Action Alternative (44, 839 acres). Alternative A provides no change to the amount of VRM Class I protection (1,310,702 acres) but the least—with the No Action Alternative—for VRM Class II.

Alternative A is the same as the No Action Alternative in that no change to OHV allocations would be made and would provide the least protection to cultural and paleontological resources.

This alternative offers long-term protection to paleontological and cultural resources by adjusting grazing management strategies in areas where rangeland health standards are not met and cultural or paleontological survey results identify either cultural or paleontological resources, or both, as being affected. Livestock management strategies to protect cultural or paleontological resources include, but are not limited to, changes in seasons of use, modified distribution of livestock, location of supplements or watering, and exclosures.

The impact from the RFFAs identified above would cumulatively be greater because the provisions of the 2010 Settlement Agreement would no longer be applied under Alternative A. Because no wilderness characteristics units would be prioritized for protection and no additional design features would be incorporated into project implementation or rehabilitation in areas found to possess wilderness characteristics under Alternative A, the incremental impact of the RFFAs would be greater than in the No Action, PRMPA, and the action alternatives.

Alternative B

For lands with wilderness characteristics, Alternative B would provide the most protection for paleontological and cultural resources by emphasizing protection of lands with wilderness characteristics in 76 units and limiting the amount of development in units with wilderness characteristics. These protections would include the most acres (1,279,492) excluding major ROW development, which is often a source of accidental destruction of paleontological and cultural resources. Alternative B provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) but provides the most protection to VRM Class II (1,291,381 acres).

Alternative B provides the most protection to cultural and paleontological resources by eliminating all Open OHV areas in the planning area and increasing the number of OHV Closed acres to 2,513,842 from the current 15,829 acres.

In cases where deteriorating rangeland health results in the identification of affected cultural and paleontological resources, Alternative B would offer the most long-term protection by prohibiting grazing in that unit for the duration of the plan.

Incremental impacts of the RFFAs, in combination with past management and actions proposed in Alternative B would provide the greatest protection to cultural and paleontological resources among the alternatives. The Tri-state Fuels and Northwest Malheur County Greater Sage-grouse Habitat Restoration projects were designed to minimize or avoid impacts to all lands with wilderness characteristics, are consistent with proposed protections under Alternative B, and avoid adverse effects to cultural and paleontological resources. However, all RFFA impacts are specific to project footprints and any potential adverse effects would need to be mitigated according to existing regulation and policy and would not change the relative cumulative impact among the alternatives. Thus, while mining operations like Grassy Mountain, lithium exploration, and development and maintenance of material sites like Agency Valley could potentially have adverse effects on either cultural or paleontological resources (or both), mitigative processes would occur or be in place prior to project implementation. The same can be said for utility corridor and energy development and maintenance projects. Overall, Alternative B provides the highest level of protection among the alternatives due to the addition of protection measures in all wilderness characteristics units, the high level of areas that would be closed to OHV use, and the greatest level of potential grazing reductions due to voluntary permit relinquishment or Standards for Rangeland Health not being met due to existing livestock grazing.

Alternative C

Alternative C offers less protection to paleontological and cultural resources on future projects in units with wilderness characteristics compared to the No Action Alternative and Alternatives B, D, and the PRMPA, but more than in Alternative A. Alternative C includes substantially more ROW exclusion areas than the No Action Alternative and Alternative A, but fewer than Alternatives B, D, and the PRMPA. Alternative C provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) and provides the third most protection to VRM Class II with more acres than the No Action Alternative and Alternative A.

In terms of OHV area designations, Alternative C provides fewer beneficial effects than Alternative B and the PRMPA in so far as it includes more OHV Open (107,075 acres) and nearly the same number of OHV Limited as the PRMPA (4,518,539 and 4,585,249 respectively). Alternative C is identical to the No Action Alternative, Alternatives A and D, and the PRMPA in maintaining the OHV Closed designation at 15,829 acres.

This alternative still offers long-term protection to paleontological and cultural resources by potential adjustments to grazing management strategies in areas where rangeland health standards are not met and cultural surveys identify either cultural or paleontological resources, or both, being affected.

The incremental impacts of the RFFAs would be the greater than Alternatives B, D, PRMPA and the No Action Alternative where fuels, restoration and rehabilitation actions would be implemented with design features to avoid or reduce impacts to wilderness characteristics to minimize short- and long-term effects to cultural and paleontological resources. Likewise, in mining, minerals and energy development projects, this alternative provides fewer overall protections and the incremental impact of the RFFAs would be greater than those described under Alternatives B, D, the PRMPA and the No Action Alternative.

Alternative D

Alternative D offers less protection to paleontological and cultural resources on future projects in units with wilderness characteristics compared to the No Action Alternative and Alternative B, the same as the PRMPA, but more than in Alternatives A and C. Alternative D includes 425,510 more ROW exclusion area acres than the No Action Alternative or Alternative A, and the same as the PRMPA. Alternative D provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) and provides the second most protection to VRM Class II with 578,361 acres.

Alternative D has slightly more beneficial effect for OHV limitations than the No Alternative and Alternatives A in so far as it shifts 34,183 acres from an Open designation to Limited. However, it has far fewer benefits than Alternatives B, C and the PRMPA by retaining 325,686 acres for Open compared to zero, 107,075 and 40,368 acres respectively. Alternative D is identical to the No Action Alternative, Alternatives A and C, and the PRMPA in maintaining OHV Closed area designations at 15,829 acres.

Alternative D is similar to Alternative B wherein nonattainment of rangeland health standards would lead to the closure of allotments or pastures to grazing but would be for a shorter duration and, in cases where cultural and paleontological resources are affected, would still require work with grazing permittees to implement design features to avoid effects to cultural and paleontological resources.

The incremental impact of the RFFAs would be similar to those described under Alternatives B, the No Action Alternative, and the PRMPA. Each of the RFFAs have the potential to negatively impact cultural and paleontological resource, at least in the short term, as described in the RFFA Section above. However, these impacts are specific to the RFFA project footprints. Potential adverse effects would be mitigated according to existing regulation and policy and would not change the relative cumulative impact among the alternatives.

PRMPA

The PRMPA offers protection of wilderness characteristics, but to a lesser degree than the No Action or Alternative B, the same level as Alternative D and greater protections than Alternatives A or C. Protections would be applied to 33 units. The PRMPA provides fewer acres in Major Rights-of-way exclusion areas than Alternative B, the same as D with 470,349 acres excluded. The PRMPA provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) but provides the second most (same as Alternative D, but less than B) protection to VRM Class II.

The proposal in the PRMPA to retain the existing open OHV designation in two areas consisting of a little over 40,000 acres in the planning area, while designating the majority of the planning area to Limited, has the benefit of protecting cultural and paleontological resources elsewhere from unrestricted travel. For this reason, it would provide the second most protections to paleontological and cultural resources after Alternative B.

The PRMPA is similar to the No Action Alternative and Alternatives A and C for how paleontological and cultural resources would be affected by BLM management decisions that would reduce livestock grazing due to Standards for Rangeland Health not being met due to either existing grazing or where a permittee voluntarily relinquishes a grazing permit, or both. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards Should the BLM receive a voluntarily relinquished permit under the PRMPA BLM would analyze the resources and resource uses identified in Table 2-4 in Chapter 2 for their compatibility with continued livestock grazing, regardless of location in the planning area.

Each of the RFFAs have the potential to negatively affect cultural and paleontological resources, at least in the short term, as described in the RFFA Section above (see also Table 3-1). However, these impacts are specific to the RFFA project footprints. Potential adverse effects would be mitigated according to existing regulation and policy and would not change the relative cumulative impact among the alternatives.

3.7.14 Social and Economic Values

Key Points

- Alternative B has the greatest amount of protection for lands with wilderness characteristics and is the most restrictive on development and uses that could degrade them. Therefore, it would be expected to increase the well-being of people who place the highest priority and gain the most benefits from these lands due to their wilderness characteristics. On the other hand, it will be viewed as unnecessarily restrictive by others, and as an impediment to current and potential future uses of these lands, either restricting activities altogether or making them more costly.
- Alternatives B and D would be expected to increase costs to grazing and rangeland management operations, decrease livestock production, and decrease maintenance of existing range improvements that benefit values other than grazing that are associated with the management of public lands.
- The PRMPA protects the same number of acres having wilderness characteristics as Alternative D and provides a moderate level of opportunities among the alternatives that are favorable to potential development activities. The PRMPA also would restrict increases in livestock grazing numbers (AUMs) and could more rapidly implement a land use planning decision to make livestock grazing unavailable if a permit is voluntarily relinquished.
- Effects on a person's well-being depends on the outcomes to resources that are used and valued; given the qualitative and general nature of the resource impact analyses, the effects on well-being are similarly general. The effects of the alternatives on social and economic well-being are related most closely to the number of acres of lands having wilderness characteristics that would be protected.

Affected Environment

The planning area covers Malheur County and portions of Harney and Grant Counties (Headwater Economics 2016). A majority of the land in both Malheur and Harney counties is managed by the federal government, with the BLM managing 73% of the lands in Malheur County and 62% of the lands in Harney County. Harney County is the largest county in size in Oregon, and Malheur County is the second largest.

In 2016, the population of Malheur County was approximately 30,474 and Harney County was 7,214, both approximately two percent lower than the populations in 2010. Per capita personal income in 2016 was $37,685 in Harney County and $29,714 in Malheur County, both substantially lower than the statewide average of $45,399 (Ibid.). In 2016, 24.8% of the persons in Malheur County and 16.4% of those in Harney County were living below the poverty level, both higher than the statewide level of 15.7%. About 13% of the population age 25 or higher have a bachelor's degree or higher level of education in Malheur County, compared to 17% in Harney County and 31% statewide (State of Oregon Employment Department 2016).

Malheur County has a higher proportion of Hispanic/Latino residents (33%) than the statewide level of 12%, while Harney County's is lower than either, at approximately five percent. The Burns Paiute Indian Reservation is located in Harney County, which contains a higher proportion of Native Americans (3.3%) than the statewide level of 1% or the Malheur County level of approximately .5%.

The presence of minority and low-income populations is of special interest due to BLM environmental justice policy (LUP Handbook, Appendix D. BLM 2005c), which calls for the fair and equitable treatment

and involvement of all people, and avoidance of disproportionate, negative effects on low-income and minority populations. Based on BLM definitions of environmental justice populations, both counties are considered to be environmental justice populations due to their minority status[35] and low-income status.

Approximately 23% of the jobs in Harney County are in the travel and tourism-related sector, compared to 17% in Malheur County and 16% statewide (these include establishments that also serve local residents, such as restaurants). In 2018, visitor spending in Harney County was $18.3 million, resulting in 350 jobs and $318,000 in local tax revenue. In Malheur County, $40.5 million in visitor spending created 600 jobs and $872,000 in local tax revenue (Dean Runyan Associates 2019).[36]

About 18% of the jobs in Harney County and 11% of the jobs in Malheur County are in the agricultural sector, much higher than the statewide level of just over 2%. Livestock raising and associated feed production industries are contributors to the economy of Harney County; of the $89 million market value of agricultural products sold in 2012, 58% came from livestock sales. Similarly, of the $359 million market value of Malheur County agricultural products sold in 2012, 49% came from livestock sales (USDA 2012). Both counties also have a higher proportion of jobs in the government sector (local, state, and federal) than the statewide level of 12%, with Harney County at 25% and Malheur County at 19%.

Rural land uses predominate, such as grazing, agriculture, OHV use, hunting and fishing, rafting and kayaking, and sightseeing in wide open spaces. There is certainly public debate over the activities that should be allowed on public lands, their effects, and the desired character of the landscape.

Wildfire risk is a major public concern. Since 1980, the planning area has had 1,382 fires burn approximately three million acres. In 2012, the Long Draw Fire burned approximately 558,000 acres and affected a variety of resources including BLM livestock grazing allotments, Sage-grouse habitat, wild horse Herd Management Areas, Areas of Critical Environmental Concern, and Wilderness Study Areas. In 2014, the Buzzard Complex fires burned approximately 400,000 acres, 277,000 acres on the Vale District and 119,000 on the Burns District (all ownerships). Currently, 70% of lands within the areas having wilderness characteristics is rated low in resistance/resilience due to vegetation conditions being in either the moderately or severely disrupted departure class. An alternative's effects on wildfire prevention and suppression are relevant to both economic and social well-being.

Another public concern is an alternative's effect on weeds and invasive species. During preparation of the recent EA analyzing the effects of proposed herbicide vegetation treatments on public lands within the Vale District, the BLM heard that weeds and invasive species are a concern for community residents. Neighboring landowners expect the BLM to control its invasive plants and prevent their spread to private lands, so many landowners favored the BLM's proposed expansion of the available treatments. Many comments on the Oregon Vegetation Treatment FEIS (BLM 2010c) to which the Vale EA was tiered, favored the BLM's ability to utilize a wider range of herbicides than those currently available because it would better match herbicides currently used on private, county, state, and other federal lands. A report described the significant existing negative economic impacts associated with invasive weeds, the additional costs associated if weeds expand to new areas, and the positive return on investment associated with control (The Research Group, LLC 2014).

[35] For this analysis, a minority individual is either one whose race is other than White, or whose ethnicity is Hispanic/Latino, or both. In other words, everyone other than a white, non-Hispanic/Latino is a minority. The US Census Bureau measures race separately from ethnicity. Race is defined most basically as American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, Black or African American, White, some other race (other than White), or a combination of two or more races. Ethnicity is defined as either being Hispanic/Latino or not, regardless of race. On the census, people self-identify both their race and ethnicity.
[36] Jobs are all full- and part-time employment of payroll employees and proprietors.

Environmental Consequences

Analytical Methods

Indicators

This Section is presented differently than the other resource sections. It is organized by alternative because the goal is to describe the net effects of each alternative considering the set of actions to be applied. In contrast, the other resource sections are organized by the type of effect on the resource based on the management actions being taken.

Chapter 1 states that one of the three decision criteria—the key characteristics to be considered by the decision maker—is effects on cultural and social uses and identity, which is defined as effects on the "financial, social, and spiritual well-being of the tribes, general public, permit holders, local governments and communities, and adjacent landowners."

This decision criterion seems to call for a summary of the net effects of the alternatives and their resource actions on social and economic conditions. Therefore, the analytical method is a qualitative assessment, by alternative, of how the various actions addressing resources and resource management processes are likely to affect social and economic well-being. Table 3-35 lists the key indicators most likely to affect the well-being of area residents, users, and the public. The social cost of greenhouse gas is addressed in Section 3.7.22 Climate Change. Section 3.7.13 Cultural and Paleontological resources summarizes the BLM's responsibility to engage in, and the importance of Tribal government-to-government consultation during consideration of BLM management actions.

Table 3-35. Socioeconomic indicators (in acres).

Indicator	No Action Alternative	Alt. A	Alt. B	Alt. C	Alt. D	PRMPA
Acres of protected lands with wilderness characteristics	1,236,907	0	1,206,780	167,709	417,196	417,190
Percentage of planning area designated as OHV Closed	<1%	<1%	>50%	<1%	<1%	<1%
Management response resulting in AUMs being suspended or no longer available	No loss in AUMs	No loss in AUMs	28–146,720 AUMs lost for 20 years due to not meeting Standards for Rangeland Health not being met due to existing livestock grazing; 4,561 AUMs lost through voluntary relinquish-ment	No loss in AUMs	12–62,880 AUMs lost for up to 10 years due to not meeting Standards for Rangeland Health due to existing livestock grazing; 2,098 AUMs lost through voluntary relinquish-ment	No loss in AUMs
Percentage of planning area designated as VRM Class II	5%	5%	28%	8%	12%	12%
Acres designated NSO for leasable mineral development	1.76 million	1.76 million	2.25 million	1.85 million	1.91 million	1.91 million
Acres closed to saleable mineral development	3.03 million	3.03 million	3.51 million	3.12 million	3.18 million	3.18 million
Acres designated as Exclusion for major ROWs	44,839	44,839	1,279,492	217,166	470,349	470,349
Road boundary setback in areas possessing wilderness characteristics	Not Applied	Not Applied	Applied	Applied	Applied	Applied

Assumptions

- The analysis relies heavily on the effects analyses from other resources in this PRMPA/FEIS. The primary assumption is that the other sections of this PRMPA/FEIS do not contain sufficient information about resource users and their values to allow a quantitative analysis of social and economic effects, or to separate the effects by stakeholder group or use of the planning area. For example, the BLM has only "anecdotal, fragmented and highly variable information about public motorized travel activities, which does not provide a basis for predicting the location or effects of any widespread or systematic public motorized travel activities." Similarly, Section 3.7.3 Livestock Grazing and Rangeland Management notes that "impacts to grazing from actions proposed in the alternatives is largely qualitative in this Amendment and incorporates the use of assumptions and trends when considering the issues…analysis is limited in this Amendment to general impacts to livestock management and would be further refined at the site-specific scale." The socioeconomic effects analysis is therefore general, as well as qualitative.
- Voluntary permit relinquishment of a grazing permit has not happened on the Vale District and is assumed to be unlikely. Consistent with the Livestock Grazing and Rangeland Management Section analysis, the range of possible effects is analyzed for potential economic impacts. As voluntary permit relinquishment is not considered to be a likely occurrence, it is not expected to affect social or economic well-being.
- The proportion of lands that would be protected for wilderness characteristics and receive designation as VRM Class II is relevant because the management objective for lands classified as this VRM class is to retain the existing character of the landscape so the degree of change to the characteristic landscape should be low. This maintains the existing landscape character but also affects how the BLM can manage the lands and use them.
- In terms of locatable mineral development, none of the alternatives would propose additional lands for withdrawal, and all alternatives would maintain the same acreage open to saleable mineral development. Some actions such as area closures to OHV use, VRM Class II designations, and not authorizing new road construction in areas identified to protect wilderness characteristics could constrain future locatable mineral development, including by increasing project costs.

Impacts of the Alternatives

The effects on social and economic well-being is described by alternatives in the following sections.

No Action Alternative

What are the effects of the No Action Alternative on social and economic well-being?

The No Action Alternative is a continuation of existing management under the requirements of the 2010 Settlement Agreement. Management under this alternative requires the BLM to protect all lands with wilderness characteristics by limiting new actions which would either (a) "diminish" (i.e., reduce) the size of the area with wilderness characteristics or (b) eliminate wilderness characteristics completely in an area. OHV area designations, processing permit relinquishments of grazing permits and utilizing results from Standards for Rangeland Health continue to be managed under current direction, policy and land use planning.

The No Action Alternative protects the greatest amount of acreage of wilderness characteristics, 1,236,907 acres and all 76 units (approximately 30,000 more acres than Alternative B). The No Action, Alternative A, Alternative C, and Alternative D result in similar numbers of OHV designations, with less

than 1% of the acres closed; approximately 7% Open in the No Action, Alternative A, and Alternative D; 2% Open in Alternative C; and the rest limited in one form or another. Under the PRMPA, less than 1% of the planning area would continue to be designated as OHV Open (40,000 acres).

The No Action Alternative, along with Alternative A, would designate the fewest acres (5% of the planning area) as VRM II of all the alternatives.

About 1.6 million acres of the planning area would be designated NSO (no surface occupancy) for leasable mineral development, the same as Alternative A. About 3 million acres would be closed to saleable mineral development, also the same as Alternative A.

Areas designated as Open, avoidance, and exclusion for both major and minor ROWs would be the same as for Alternative A, with far fewer numbers of acres in Exclusion areas than under the other three alternatives. Exclusion Areas for solar and wind development follow the same pattern. The proportion of acres in each of the three categories for minor ROWs is approximately the same under the No Action as it is for Alternatives A, C, D and the PRMPA.

People who access BLM-managed lands by OHV would have the most acreage available for cross-country travel (the same as under Alternative A), which would maximize access for recreational uses. The amount of lands that are open to OHV use would be expected to degrade wilderness characteristics including solitude. Lands open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Limiting off-road use reduces the likelihood of weeds getting spread by vehicle to uninfested areas that would go undetected, but OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Primitive routes provide many vantage points to see into those remote, roadless areas.

Because the No Action Alternative would provide the most protection of wilderness characteristics, it would be most likely to benefit those who favored maintaining the existing character of the landscape and opposed by those who would prefer to see more land available for other uses, although the AUMs available for grazing would not be affected.

Another aspect of this alternative is that it provides the BLM with somewhat more discretion compared to alternatives where actions and responses to conditions are more determined, such as Alternative B. Chapter 2 of the DRMPA/DEIS pointed out that since entering into the Settlement Agreement, Vale BLM has considered multiple projects located in lands with wilderness characteristics units, after an interdisciplinary team assessed the projects, actions have been both approved and denied, or modified to meet objectives while retaining the wilderness characteristics. Some people will feel comfortable with this level of uncertainty regarding the outcome of individual projects, while some will not, although the terms of the Settlement Agreement would be followed.

Alternative A

What are the effects of Alternative A on social and economic well-being?

Management direction would emphasize management of resources other than protection of lands with wilderness characteristics. This alternative recognizes that while updated inventories have found additional lands with wilderness characteristics (outside of WSAs), the BLM would not provide new land use planning-level protections for that resource. Alternative A represents a baseline under the 2002 SEORMP and ROD for OHV and grazing management. However, future actions would consider BLM's findings with the completion of inventory updates for wilderness characteristics. Alternative A identifies no lands with wilderness characteristics for which BLM would prioritize protection of this resource; zero

acres and no units would be managed to emphasize protection of additional lands with wilderness characteristics.

The No Action, Alternative A, and Alternatives C and D result in similar numbers of OHV area designations across the planning area, with less than 1% of the acres closed, approximately 7–8% Open in three alternatives except for Alternative C which is 2%, and the rest limited in one form or another. Relative to the PRMPA, Alternative A would retain 320,000 acres more designated as OHV Open.

No AUMs would be lost due to new land use planning-level actions contained under this alternative; therefore, no initial economic loss would occur due to reduction of AUMs at the planning level through implementation of this alternative.

Alternative A (along with the No Action Alternative) would designate the fewest acres (5% of the planning area) as VRM II of all the alternatives.

Approximately 1.6 million acres of the planning area would be designated NSO (no surface occupancy) for leasable mineral development, the same as the No Action Alternative and less than the other three alternatives. About three million acres would be closed to saleable mineral development, also the same as the No Action Alternative.

Areas designated as open, avoidance, and exclusion for both major and minor ROWs would be the same as for No Action Alternative, with far fewer numbers of acres in Exclusion areas than under the other three alternatives or the PRMPA. The proportion of acres in each of the three categories for minor ROWs is approximately the same under Alternative A as it is for the No Action and Alternative C, with Alternative D and the PRMPA having the largest area in minor ROW avoidance (3,072,711 acres).

The primary difference between this and other alternatives is the lack of protection for lands identified as having wilderness characteristics. As a result, Alternative A would pose the fewest barriers to alteration of wilderness characteristics, especially when coupled with the less restrictive management for OHV access, visual resources, minerals development, and major ROW development. Assuming that livestock removal would be less likely to occur under this alternative than under Alternatives B and D, the result would be beneficial to ranching. It could also be beneficial to invasive species control and introduction (particularly for invasive annual grass control; see section 3.7.7 Invasive Species) which is likely favorable to some ranchers and neighboring landowners. Others might prefer stricter management of grazing and use of other techniques to control invasive annual plants.

Design features considered to avoid or minimize impacts on wilderness characteristics to meet VRM Class II can increase costs and decrease success of seedings designed to maintain and improve rangelands and to protect and restore sagebrush landscapes and habitat. This alternative (along with the No Action) has the least acreage designated VRM Class II, posing fewer limits on such treatments, which also can reduce the risk of wildfires. Alternative A also would allow for the greatest ecological restoration treatment success across the planning area as design features would not be required to manage for solitude and VRM Class II objectives. The relatively fewer acres of VRM Class II also would lead to fewer restrictions and decreased costs associated with other types of development or treatment, as would this alternative's relatively few acres of ROW Exclusion areas. On the other hand, the objectives of this VRM Class would be at risk in more of the landscape having wilderness characteristics, with the potential for more intrusions especially given that actions or developments would not have to be compatible with wilderness characteristics objectives.

People who access BLM-managed lands by OHV would have the most acreage under this alternative (along with the No Action alternative) available for cross-country travel, which would maximize access for recreational uses. The amount of lands that are open to OHV use would be expected to degrade wilderness characteristics including solitude. Lands open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Limiting off-road use reduces the

likelihood of weeds getting spread by vehicle to uninfested areas that would go undetected, but OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Motorized primitive routes provide many vantage points to see into those remote, roadless areas.

This alternative would be expected to increase the well-being of the local and nonlocal public who want to see the fewest restrictions on current and future land uses rather than maintaining a focus primarily on wilderness characteristics. The nature of the lands having wilderness characteristics, including their remoteness and current lack of development, means that they would likely continue to be primarily open space and maintain a rural and undeveloped character. Nonetheless, the existing level and type of wilderness characteristics would be expected to degrade over time, so the well-being of local and nonlocal people who place a higher priority on the protection of wilderness characteristics would be decreased.

Another aspect of this alternative is that it provides the BLM with the most management discretion compared to alternatives where actions and responses to conditions are more determined, such as Alternative B. Some people will feel comfortable with this level of uncertainty regarding the outcome of individual projects, while some will not.

Alternative B

What are the effects of Alternative B on social and economic well-being?

All lands outside of WSAs with wilderness characteristics would be prioritized to protect those resources by providing specific management which is consistent with protecting and maintaining wilderness characteristics.

OHV area designations of Closed would be applied to all lands with wilderness characteristics. Alternative B applies the 250-foot “setback” along boundary roads of all 76 lands with wilderness characteristics units in which the BLM would emphasize management of wilderness characteristics resources and uses. This boundary road setback would also be applied to units identified for protection under Alternatives C (along 27 units) and D (33 units) and the PRMPA (the same 33 protected units under Alternative D).

Alternative B would designate the greatest number of acres (28% of the planning area) as VRM II of all the alternatives.

Because Alternative B is the only alternative to close additional public lands to OHV use, it is the only alternative to affect locatable minerals. Under this alternative, a Plan of Operations would be required for all surface disturbing activities greater than casual use, on 2,513,842 acres of public land, or 55% of the planning area.

Under Alternative B, 2.25 million would be designated as NSO for leasable minerals, the highest among the alternatives. About 3.5 million acres would be closed to saleable mineral development, also the highest among the alternatives. Areas managed to protect wilderness characteristics would be designated as Exclusion area for major ROWs, and commercial solar, wind, and biomass development. Alternative B would have most exclusion acres, followed by Alternative D and the PRMPA, and then Alternative C. For minor ROWs, Alternative B would have more acres in ROW Avoidance areas and fewer in open areas than the other alternatives.

As a result of these actions, Alternative B would be the alternative most likely to protect the wilderness characteristics of the identified lands. It would pose the most barriers to alteration of wilderness characteristics based on OHV access, visual resource management, minerals development, and major ROW development.

The objectives of VRM Class II maintain the landscape having wilderness characteristics, and this alternative has the most acreage designated VRM Class II. Design features considered to minimize impacts on wilderness characteristics to meet VRM Class II can also increase costs and decrease success of seedings, and certain other restoration projects designed to maintain and improve rangelands and to protect and restore sagebrush landscapes and habitat. This alternative has the most acreage designated VRM Class II, posing greater limits and costs on such treatments, which also can increase the risk and size of wildfires.

Managing to meet VRM Class II objectives and the solitude criteria would reduce the acres treated for fuels management on the landscape because of increased cost and time needed to incorporate and develop design features to reduce or avoid impacts to wilderness characteristics. Protecting lands with wilderness characteristics would require additional suppression rehabilitation actions to meet VRM class II objectives, because specialized equipment, additional resources, and time may be needed to accomplish these objectives. Under Alternative B, lack of maintenance of developed water sources would also have a negative effect on fire suppression. These developed water sources are essential for efficient suppression of wildland fires. Without the use of developed water sources, wildland fires may become more difficult to suppress or may require more resources to suppress each individual fire. This is a public concern given that approximately 75% of the landscape of the proposed units for protection under Alternative B are in a low resistance/resilience class, and about 86% of the landscape within wilderness characteristics units in the No Action Alternative and Alternative B are already moderately or severely departed from the historical fire regime.

The relatively higher acreage of VRM Class II also would lead to more restrictions and increased costs associated with other types of development or treatment, as would this alternative's relatively greater acreage of ROW Exclusion areas.

The increase in OHV Closed acres would result in some site-specific and localized loss of public motorized recreation opportunities, while improving nonmotorized recreational experiences and opportunities for solitude. Closing all wilderness characteristics units to OHV use would limit the availability of future motorized travel, because many routes within these units rely on regular and continuous use of motorized vehicles to keep passage possible. The economic effects of moving areas from Open or Limited to Closed can be greater than moving from Open to Limited. One study (Jakus et al. 2010) found that "changing access to public lands from fully 'Open' to 'Limited' results in relatively small welfare losses but prohibiting access results in much larger welfare losses" for OHV users.

Closure of over half of the planning area to cross-country travel would affect other resources and uses including public access for recreation, livestock grazing, cultural resources, and fire and fuels management. As described in the Cultural Resources Section 3.7.13, cultural resources are less accessible, benefitting their preservation. Alternative B has the greatest benefit to vegetation through less weed introduction and more vegetation connectivity in the long term, as it has the most acres closed to OHV use. Lands open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Yet OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Motorized, primitive routes provide many vantage points to see into those remote, roadless areas.

As described in Section 3.7.3, Livestock Grazing and Rangeland Management, Alternative B would likely result in the greatest and longest impacts caused by reductions in grazing, and therefore on ranchers and those dependent on their businesses. From 28–146,720 AUMs could be lost for 20 years due to not meeting Standards for Rangeland Health if existing grazing is a significant causal factor, and up to 4,561 AUMs could be lost through voluntary relinquishment. Thus, between these two sources of impact, from

4,679–151,281 AUMs could be lost. This would be a substantial economic impact to ranchers who are dependent on public land allotments for their ranching operations and local economies.

A rough estimate of how these grazing reductions would translate into jobs and labor income[37] was developed using estimates from the Jarbidge RMP/Final EIS (BLM 2014). That analysis estimated that each BLM AUM generated .00186 jobs and $31.47 in labor earnings. However, the authors noted that when BLM forage is used as part of an overall grazing system, these values, from the perspective of total ranch production, increased to .00407 jobs and $68.92 in labor earnings per AUM. Using these estimates, the potential AUMs lost could cause a decrease of 22–711 jobs and loss of $352,000–$1.45 million in labor earnings (in 2021 dollars). The actual impact of this alternative, although potentially significant, is unknown due to the very large range of potential losses in AUMs.

Alternative C

What are the effects of Alternative C on social and economic well-being?

This alternative utilized a specific methodology to identify whether and which lands with wilderness characteristics would receive protections. Alternative C protects 14% of the acreage having wilderness characteristics, 27 units encompassing 167,709 acres. Some units may maintain wilderness characteristics while others may diminish, depending on if the unit was to be protected under the alternative. Alternative C also applies the 250-foot "setback" along boundary roads of units with wilderness characteristics, in which the BLM would emphasize management of resources and uses other than wilderness characteristics.

All protected lands with wilderness characteristics would be allocated as OHV designation of Limited to existing roads and primitive routes, unless already Closed to motorized use. Alternatives A, C, D, and the No Action result in similar numbers of OHV designations, with less than 1% of the acres Closed, approximately 7% Open except in Alternative C which is 2%, and the rest Limited, in one form or another. The PRMPA would retain less than 1% of the planning area as OHV Open.

Alternative C would designate 8% of the planning area as VRM II, which is a higher amount than the No Action and Alternative A, but fewer acres than Alternative D and the PRMPA, and far fewer acres than Alternative B.

Under Alternative C, approximately 1.9 million acres would be designated as NSO for leasable minerals, more than the No Action and Alternative A, but fewer acres than Alternative B or Alternative D. About 3.12 million acres would be closed to saleable mineral development, also more than the No Action and Alternative A, but fewer acres than the PRMPA, Alternative B or Alternative D.

Areas managed to protect wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" ROWs, and commercial solar and wind development. Alternative C would have more acres in exclusion areas for major ROWs than would the No Action and Alternative A, but fewer than under Alternative D or the PRMPA and far fewer than under Alternative B. Areas designated as Open, Avoidance, and Exclusion for minor ROWs would be the same as under as Alternative D.

As a result of these actions, Alternatives C and D and the PRMPA represent a compromise between protecting wilderness characteristics and emphasizing management of other resource uses. It would protect the second fewest acres of lands having wilderness characteristics and, except for Alternative A, would pose the fewest barriers to alteration of wilderness characteristics based on visual resource management, minerals development, and major ROW development.

[37] These employment and labor income estimates include direct, indirect, and induced economic effects, as were measured in the Jarbidge analysis using the input-output model IMPLAN. Direct employment is generated in the grazing sector. Indirect effects occur when affected ranchers purchase services and materials, and induced effects occur as ranchers spend their earnings within the local economy.

Assuming that livestock removal would be less likely to occur under this alternative than under Alternatives B and D, the result would be beneficial to ranching. It could also be beneficial to invasive species control and introduction (particularly for invasive annual grass control; see section 3.7.7 Invasive Species) which is likely favorable to some ranchers and neighboring landowners. Others might prefer stricter management of grazing and use of other techniques to control invasive annual plants.

Design features considered to minimize impacts on wilderness characteristics and to meet VRM Class II restrictions can increase costs and decrease success of seedings designed to maintain and improve rangelands and to protect and restore sagebrush landscapes and habitat. This alternative has an intermediate (but relatively low) acreage designated Class II, posing fewer limits on such treatments, which also can reduce the risk of wildfires. Alternative C would be the second least restrictive for the greatest ecological restoration treatment success across the planning area, followed by Alternative D and the PRMPA. The relatively fewer acres of VRM Class II also would lead to fewer restrictions and decreased costs associated with other types of development or treatment, as would this alternative's relatively few acres of ROW Exclusion areas (but considerably more than Alternative A or the No Action Alternative). On the other hand, the objectives of this VRM class would be at risk in the landscape having wilderness characteristics, with the potential for more intrusions if they were designed to meet wilderness characteristics objectives. Given the relatively low amount of acreage protected, this would be viewed as a significant impact by those supporting maximum maintenance of wilderness characteristics.

People who access BLM-managed lands by OHV would continue to have approximately 107,000 acres Open to cross-country travel, which would maximize access for recreational uses. Lands Open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Limiting off-road use reduces the likelihood of weeds getting spread by vehicle to uninfested areas that would go undetected, but OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Motorized, primitive routes provide many vantage points to see into those remote, roadless areas. However, lands that are open to OHV use would be expected to degrade in wilderness characteristics, including solitude.

This alternative seems more likely to increase the well-being of the local and nonlocal public who want to see protection of some lands having wilderness characteristics but not to the extent that it would restrict other uses and activities in most of the landscape. The well-being of those favoring maximal protection of wilderness characteristics would not be expected to improve compared to Alternatives B or D because wilderness characteristics could degrade over time. From a social acceptability standpoint, alternatives appearing to be compromises can actually be so, or can turn out not to be universally disliked by those on all sides of the debate.

Another aspect of this alternative is that it provides the BLM with somewhat more discretion than alternatives where actions and responses to conditions are more determined, such as Alternative B and, to some extent, Alternative D and the PRMPA. While impacts under the PRMPA with regard to protected wilderness characteristics units are similar to Alternative D, the PRMPA would be more restrictive than Alternative C for OHV use, but similar to Alternative C with regard to livestock grazing. Chapter 2 of the DRMPA/DEIS pointed out that since entering into the 2010 Settlement Agreement, Vale BLM has considered multiple projects located in lands with wilderness characteristics units. After an interdisciplinary team assessed the projects, actions have been both approved and denied, or modified to meet objectives while retaining the wilderness characteristics. Some people will feel comfortable with this level of uncertainty regarding the outcome of individual projects, while some will not.

Alternative D

What are the effects of Alternative D on social and economic well-being?

This alternative is similar to Alternative C in respect to the management the BLM would apply to areas identified to emphasize protection of lands with wilderness characteristics. However, the methodology and rationale used to identify individual units and recommend protection differed so a different set of units would be protected. The methodology was a version of a set of considerations developed in partnership with the Southeast Oregon Resource Advisory Committee (SEORAC). The BLM requested the SEORAC to consider recommendations for identifying lands with wilderness characteristics, which should receive specific management for wilderness characteristics. The goal of the SEORAC selection model was designed to "promote ecosystem integrity and wilderness values in a manner that maintains management options for current and future generations."

Along with the PRMPA, Alternative D is the second most protective of wilderness characteristics, in terms of acres protected (34% of the acreage) and the number of individual units, with 33 units encompassing 417,196 acres. As was the case with Alternative C, some units may maintain wilderness characteristics while others may diminish depending on if the unit was to be protected under the alternative. Alternative D applies the 250-foot "setback" along boundary roads of 33 lands with wilderness characteristics units in which the BLM would emphasize management of resources and uses other than wilderness characteristics.

Identified lands with wilderness characteristics would receive OHV area designations of "Limited" unless presently more restrictive. OHV area designations would change to Limited in identified lands with wilderness characteristics units, unless currently closed in the current RMP. The proportion of acres designated as OHV Closed (<1%), Open (7%), and Limited (the rest) is approximately the same as under the No Action Alternative, Alternative A, and Alternative C, while Alternative D would retain approximately 320,000 more OHV Open acres than the PRMPA.

. Under Alternative D, from 12–62,880 AUMs could be lost for up to 10 years due to not meeting Standards for Rangeland Health if existing grazing is found to be a significant causal factor, and up to 2,098 AUMs could be lost through voluntary relinquishment. Thus, between these two sources of impact, from 2,110–64,978 AUMs could be lost.

Using the method described in the effects analysis above for Alternative B, the potential AUMs lost under alternative D could cause a decrease of 9–66 jobs and loss of $162,000–$1.25 million in labor earnings (in 2021 dollars), although much less than the losses possible under Alternative B.

Alternative D would designate 13% of the planning area as VRM II, which is a higher amount than the No Action Alternative, Alternatives A and C, the same as the PRMPA, but far fewer acres than Alternative B.

Under Alternative D, approximately 1.9 million acres would be designated as NSO for leasable minerals, more than the No Action, Alternative A, and Alternative C, but fewer acres than Alternative B. About 3.18 million acres would be closed to saleable mineral development, also more than the No Action, Alternative A, and Alternative C, but fewer acres than Alternative B. The PRMPA would have the same management designations for leasable and saleable minerals as Alternative D.

Areas managed to protect wilderness characteristics would be designated as Exclusion Areas for new ROWs for "major" ROWs, and commercial solar, wind, and biomass development. Alternative D would have the second-greatest number of Exclusion acres for major ROWs, and the same number of acres in Exclusion as under the PRMPA.

As a result of these actions, Alternative D appears to represent a compromise between protecting wilderness characteristics and other resource uses, although with more emphasis on protection than Alternative C. It (and the PRMPA) would protect the second-most acres of lands having wilderness

characteristics among the action alternatives and, except for Alternative B, would pose the most barriers to alteration of wilderness characteristics based on visual resource management, minerals development, and major ROW development.

Alternative D would likely lead to the second-most restrictions on grazing; the term of the closure to livestock grazing may be only half as long as under Alternative B, yet there would be potential for a shorter term if progress toward rangeland health was being made. Ranchers would be assumed to support this alternative more than Alternative B because of the shorter term and the potential to maintain grazing if conditions are improving. Assuming that livestock removal would be more likely to occur under this alternative (compared to the PRMPA, Alternatives A, C, and the No Action), the result could be problematic to noxious weed invasive species control and introduction. Direct and indirect effects to livestock grazing are similar to those analyzed in Alternative B, but the length of time during which livestock grazing is removed is expected to be shorter. Either maintenance of fences or water developments assigned to operators affected by a short-term closure to livestock grazing, or both, is expected to be reduced, but not to the extent identified in Alternative B. Removal of livestock would allow the buildup of fine fuels and increase the intensity of wildfires, which exacerbates invasive plant and weed spread (see Sections 3.7.6 General Vegetation, 3.7.7 Invasive Species and 3.7.9 Fire and Fuels Management).

Design features considered to minimize impacts on wilderness characteristics to meet VRM Class II can increase costs and decrease success of seedings designed to maintain and improve rangelands and to protect and restore sagebrush landscapes and habitat. This has an intermediate amount of acreage designated Class II (although closer to that in Alternative C than Alternative B), posing fewer limits on such treatments, which also can reduce the risk of wildfires. Alternative D (along with the PRMPA) would be the third least restrictive for the greatest ecological restoration treatment success across the planning area. Under Alternative D, lack of maintenance of developed water sources would have a negative effect on fire suppression. These developed water sources are essential for efficiently suppression of wildland fires. Without the use of developed water sources, wildland fires may become more difficult to suppress or may require more resources to suppress each individual fire.

The intermediate acres of VRM Class II also would lead to some restrictions and costs associated with other types of development or treatment, as would this alternative's intermediate acres of ROW Exclusion areas. On the other hand, the objectives of this VRM class would be at risk in more of the landscape having wilderness characteristics, with the potential for more intrusions if they were designed to meet wilderness characteristics objectives, compared to Alternative B.

People who access BLM-managed lands by OHV would have the third most (after the No Action and Alternative A) acreage available for cross-country travel, which would maximize access for recreational uses. Lands open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Alternatives C and D would have similar effects where some units may maintain OHV resources while others may diminish, depending on if a wilderness characteristics unit was to be protected under the alternative. Over the long term, public access on and across public land would be jeopardized due to deteriorated road conditions and hazardous roadway conditions. With road deterioration, motorized vehicle use could decrease over the long term as these users are displaced and seek opportunities elsewhere.

Limiting off-road use reduces the likelihood of weeds getting spread by vehicle to uninfested areas that would go undetected, but OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Motorized, primitive routes provide many vantage points to see into those

remote, roadless areas. However, the amount of lands that are open to OHV use would be expected to degrade wilderness characteristics, including solitude.

This alternative seems more likely to increase the well-being of the local and nonlocal public who want to see greater protection of some lands having wilderness characteristics but not to the extent that it would restrict other uses and activities in most of the landscape. The well-being of those favoring maximal protection of wilderness characteristics would be expected to improve compared to the other alternatives (except for the PRMPA—which protects the same areas for wilderness characteristics—and Alternative B) because wilderness characteristics would be less likely to degrade over time, and in a greater proportion of the landscape. From a social acceptability standpoint, alternatives appearing to be compromises can actually be so, or can turn out not to be universally disliked by those on all sides of the debate. People may be more willing to accept increased protection (compared to Alternative C) because this alternative's protection acreage model was developed by the BLM based on input from the SEORAC.

Another aspect of this alternative is that it provides the BLM with an intermediate level of discretion compared to alternatives where actions and responses to conditions are more determined, such as Alternative B. Chapter 2 of the DRMPA/DEIS pointed out that since entering into the 2010 Settlement Agreement, Vale BLM has considered multiple projects located in lands with wilderness characteristics units. After an interdisciplinary team has assessed the projects to ensure the BLM met the provisions, actions have been both approved and denied, or modified to meet objectives while retaining the wilderness characteristics. Some people will feel comfortable with this level of uncertainty regarding the outcome of individual projects, while some will not.

PRMPA

What are the effects of the PRMPA on social and economic well-being?

The Proposed RMP Amendment shares many characteristics with the No-Action Alternative and Alternatives A and C with comparable treatment of indicators of grazing. However, the PRMPA is more comparable to Alternative D as a result of Management Direction (Chapter 2, Section 2.2) to prioritize protection of 33 lands with wilderness characteristics units, including similar VRM Class II designations, major ROW exclusion areas, and leasable and saleable minerals management.

The social and economic effects would be closest to Alternative D, with the same level of restrictions to protect wilderness characteristics and a slightly higher potential for other uses of BLM-managed lands.

As a result of these actions, the PRMPA – as with Alternative D - protects 33 units having wilderness characteristics. This management would be the most acres protected - after the No Action and Alternative B - and provides a middle ground among the alternatives, and the third highest level of barriers to alteration of wilderness characteristics based on visual resource management, minerals development, and major ROW development.

Assuming that livestock removal would be less likely to occur under this alternative than under Alternatives B and D, the result would be beneficial to ranching. Design features considered to minimize impacts on wilderness characteristics to meet VRM Class II can increase costs and decrease success of seedings designed to maintain and improve rangelands and to protect and restore sagebrush landscapes and habitat. The PRMPA has a moderate amount of acreage designated Class II, posing more limits than under The No Action Alternative and Alternative C on restoration or rehabilitation treatments designed to reduce the risk of wildfires. The PRMPA would be less restrictive than only Alternative B on actions intended for ecological restoration treatment success. As with alternative D—and relative to Alternatives A and C—a high number of acres of VRM Class II would lead to more restrictions and increased costs associated with other types of development or treatment, as would the PRMPA's relatively large number of acres of ROW Exclusion areas. Given the relatively high amount of acreage protected, this would be viewed as a negative impact by those supporting maximum maintenance of wilderness characteristics.

People who access BLM-managed lands by OHV would have approximately 40,368 acres open to cross-country travel, which would maximize access for recreational uses. Lands open to motorized OHV use would continue to see cross-country travel, causing short-term trampling of vegetation and long-term damage by creating trails that remove vegetation, disturb soil, channel water, and disperse weeds. Limiting off-road use reduces the likelihood of weeds getting spread by vehicle to uninfested areas that would go undetected, but OHV travel off-road and on primitive routes is only one vector so weed movement would continue in those areas via wind, other public land users, animal movement, etc. Weeds occurring along roads are easy to detect and control, whereas in remote, roadless areas, weed survey and treatment is more difficult. Motorized, primitive routes provide many vantage points to see into those remote, roadless areas. However, lands that are open to OHV use would be expected to degrade in wilderness characteristics, including solitude.

This alternative seems more likely to be a trade-off for the well-being of the local and nonlocal public who want to see protection of some lands having wilderness characteristics but not to the extent that it would restrict other uses and activities in most of the landscape. The well-being of those favoring maximal protection of wilderness characteristics would not be expected to improve because wilderness characteristics could degrade over time. Economic benefits associated with wilderness characteristics and experiences would still be available, but at a smaller level over time, while economic benefits associated with ranching, OHV use, and mining would be relatively unaffected and could increase over time. However, the data presented in other resource sections do not allow estimation of the size of the economic effects.

Another aspect of this alternative is that it provides the BLM with somewhat more discretion than alternatives where actions and responses to resource conditions are more determined, such as Alternative B and, to some extent, Alternative D. Chapter 2 in the DRMPA/DEIS pointed out that since entering into the 2010 Settlement Agreement, Vale BLM has considered multiple projects located in lands with wilderness characteristics units (No Action Alternative). After an interdisciplinary team assessed the projects, actions have been both approved and denied, or modified to meet objectives while retaining the wilderness characteristics. Some people will feel comfortable with this level of uncertainty regarding the outcome of individual projects, while some will not.

Environmental Justice

The Affected Environment section describes environmental justice populations that could be affected: these will be addressed in turn.

Burns Paiute Indian Tribe

The Burns Paiute Indian Reservation is located in Harney County, which contains a higher proportion of Native Americans (3.3%) than the statewide level of 1%, and is therefore an environmental justice population. The analysis of impacts in the Cultural Resources section is applied to determine whether any impacts identified are negative and disproportionate. That section concluded that protecting lands with wilderness characteristics, designating areas as closed to OHV use, designating lands as VRM Class II or higher, and designating areas as Exclusion for major ROWs would all benefit cultural resources and uses by disturbing less of the landscape.

Alternative A has the greatest potential for impacts to cultural resources and uses because it protects no acres of lands with wilderness characteristics, designates less than 1% of the planning area as OHV Closed, designates the lowest percentage of the planning area as VRM Class II (5%), and designates the fewest acres as Exclusion for major ROWs (about 45,000). The Cultural Resources analysis also concludes that the cumulative impact considering the RFFAs would be greater under Alternative A, because no wilderness characteristics units would be prioritized for protection and no additional design features would be incorporated into project implementation or rehabilitation in those areas.

Therefore, Alternative A is the alternative that poses the greatest risks to cultural resources and uses. However, it remains difficult to single out this alternative as having a negative, disproportionate impact on the Burns Paiute Tribe. The Cultural analysis notes that under all alternatives, the BLM would continue to comply with Section 106 of the National Historic Preservation Act and the Paleontological Resource Protection Act, both of which provide protections to cultural and paleontological resources during implementation of ground disturbing activities. This analysis also stated that Alternative A would continue to offer long-term protection to paleontological and cultural resources by adjusting grazing management strategies in areas where rangeland health is not met where surveys identify either cultural or paleontological resources, or both, being affected. The BLM management doesn't initiate actions without consultation, nor is it implemented without environmental considerations to minimize negative impacts.

In addition, to date the tribes have not expressly noted that any of the alternatives would disproportionately affect them. As described in Ch. 4, the primary comment received from the Burns Paiute Tribe through government to government consultation to date has been to request advance notice of activities in the field so the Tribe can identify and protect any cultural resources or uses that could be affected. This notification could either prevent impacts from occurring or allow mitigation to the extent possible, but may not avoid the impacts altogether. Given these circumstances, the BLM concludes that Alternative A does not constitute an environmental justice impact, nor do any of the other alternatives. It should be clear, however, that if Alternative A were implemented, subsequent actions would have to undergo a careful analysis to avoid or mitigate any identified negative impacts to cultural uses and resources to the extent possible.

Hispanic/Latino and Low-income Populations

This section addresses impacts to both Hispanic/Latino and low-income populations. Malheur County has a higher proportion of Hispanic/Latino residents (33%) than the statewide level of 12%, and both Malheur and Harney County are considered environmental justice populations due to their low-income status. There is a relationship between ethnicity and poverty; people of Hispanic or Latino ethnicity constitute 33% of the population of Malheur County, but account for 45% of the individuals in the county living below the poverty level. Thus the main concern regarding ethnicity is low-income status (poverty). Alternatives that hamper economic development would be expected to result in negative effects on Hispanic/Latinos, as well as other low-income residents of Malheur and Harney counties.

As described in the Affected Environment section, about 18% of the jobs in Harney County and 11% of the jobs in Malheur County are in the agricultural sector, much higher than the statewide level of just over 2%. The travel and tourism-related sector also supports the local economy, providing 23% of the jobs in Harney County and 17% in Malheur County (these include establishments that also serve local residents, such as restaurants).

Alternative B has the potential to lead to the greatest effects on local economic uses because it would protect a high number of acres of lands with wilderness characteristics, designate by far the highest percentage of planning area designated as OHV Closed, designate the highest percentage of the planning area as VRM Class II, and designate the highest acreage as Exclusion for major ROWs. It would also have the potential to result in 28–146,720 AUMs lost for 20 years due to not meeting Standards for Rangeland Health due to existing livestock grazing. As noted above, this huge range makes it difficult to assess the severity of the impact. If the actual impact was at the high end of the range, it would be a significant economic effect.

Protection of lands with wilderness characteristics and the associated actions of Alternative B hamper some types of economic development that depend on the ability to modify the landscape, but would not necessarily preclude them. It's also conceivable that the tourism sector could benefit from increased landscape protection. However, these potential gains and losses are not possible to estimate in the absence of specific projects that are scheduled to occur. For example, the Recreation analysis did not anticipate

any specific changes in use levels or patterns that would result from Alternative B (or the other alternatives). The RFFAs, such as the Grassy Gold Mine could have substantial effects on the local economy but the size and scope of those effects are uncertain.

In conclusion, and especially given the uncertainty around the possible loss in AUMs, the BLM cannot conclude that Alternative B (or any of the other alternatives) would constitute a negative, disproportionate impact on low-income and Hispanic/Latino populations. As actions and projects take place under future management, the BLM should evaluate them for possible beneficial and negative impacts to low-income and Hispanic/Latino populations.

Social and Economic Values Cumulative Effects Summary

The effect of the alternatives on social and economic well-being is assumed to be most closely related to the number of acres of lands having wilderness characteristics that would be protected, although the other indicators do not always track these proportions.

The majority of the lands within the planning area already have vast amounts of roadless area providing for nonmotorized experiences due to the number of WSAs, covering 27% of the planning area, and the remoteness and lack of development on the lands having wilderness characteristics. Regardless of which alternative is adopted, the planning area will likely retain its rural character. Under all alternatives, BLM-administered lands would be generally available for Rights-of-way (ROWs), and objectives for fish and wildlife habitat would result in actions consistent with, and contributing to, achieving desired outcomes and conditions. This does not mean there will not be specific impacts—good and bad—to people, but that it is difficult to specify to whom and where.

As described in the Minerals section, there are no reasonably foreseeable future actions identified in Table 3-1 that would have an impact on leasable or saleable minerals development. Given there is no incremental effect to leasable or saleable mineral development with the future foreseeable actions, there is no cumulative effect on economic development. The proposed Grassy Gold Mine has the greatest potential to impact the well being of local and potentially regional communities, given the expected life of the project (10 years) and an estimated 100 family wage jobs. The Octagon and Malheur Queen gold mines also could impact local communities but to a far smaller level than Grassy Mountain. The lithium mineral exploration (two Notice-level projects and one Plan of Operation-level) all have the potential to impact local communities through equipment, fuel and lodging services, but likewise would be limited and of relative short duration. Exploration for lithium is highly specialized; beyond benefits from the service sector, additional socio-economic benefits are not expected as a result of exploration.

Any socioeconomic impacts of the alternatives would be in addition to those expected from implementation of Sage-grouse management actions in the planning area (although those plans are currently being reviewed). Protection of Sage-grouse habitat was expected to benefit a variety of nonmarket values as well as avoid impacts associated with the species being listed. The 2015 FEIS on Sage-grouse in Oregon (BLM 2015d) estimated a number of economic effects expected from adoption of the proposed action: some AUMs would be lost, and livestock operators could face costs or loss of farm efficiency associated with construction of new water developments, changes in livestock rotation or season of grazing, and restrictions to supplemental winter feeding. Wind energy development could be more expensive or, in some cases, denied; development of geothermal energy would be reduced due to No Surface Occupancy designations in habitat; increased closure of federal mineral lands to saleable mineral development would lead to job losses and could increase the cost of public projects; and ROW restrictions in Sage-grouse habitat could lead to higher adjacent landowner costs in some circumstances. In addition, the Sage-grouse planning process generated a great deal of social conflict within the planning area and among the public, which would be expected to be extended with the current planning effort.

One cumulative social impact that is occurring and likely to continue is social conflict. Protection measures for the Greater Sage-grouse were highly controversial in the planning area, generating huge

public meetings. The outcome of the Southeastern Oregon Resource Management Plan Amendment is likely to be controversial as well. While many appear to agree about the values of the southeastern Oregon landscape, they will likely continue to disagree about how to manage those values.

Considering past, present and reasonably foreseeable future actions, the alternatives would vary by their socioeconomic impacts on the broad range of uses and resources enjoyed by community residents in the planning area and others who care about public lands. Continuing management under the No Action Alternative imposes restrictions on any uses that could reduce the measure and extent of wilderness characteristics. Development is excluded, decreasing economic opportunities, for example, in new road construction, mining or energy development. Management of livestock grazing, and access along existing routes would be unchanged. Alternative A provides no additional protections for wilderness characteristics and no new restrictions on OHV use or current grazing; the area's wilderness characteristics would be expected to degrade over time.

Alternative B would provide a high priority on protecting wilderness characteristics but accomplishes this by placing the most restrictions on future development and has the greatest and longest-lasting negative potential impact on grazing if Standards for Rangeland Health are not met due to existing grazing management or if a voluntarily relinquished permit overlapped 2010 Settlement Agreement-specified areas. Given that the two main planning area counties have relatively low per-capita incomes and relatively high poverty levels, restrictions on existing uses and potential development are a concern.

Under Alternative C, approximately 167,709 acres in 27 units with wilderness characteristics are protected as a priority, while retaining existing management in the 49 remaining units for future development and allowing a high level of flexibility to respond to resource challenges of restoration and rehabilitation. Alternative C also retains 107,000 acres in open to OHV, providing opportunities for users interested in less restricted access to public lands and providing associated benefits.

Alternative D is the second most restrictive (after Alternative B) on development and in responses to the grazing issues (standards and permit relinquishment). While it is unknown where Standards for Rangeland Health may not be met due to existing grazing management where the standards process has not been completed, Alternative D would require an automatic response to reduce grazing under trends move toward attainment of standards. Alternative D would also apply the second most restrictive response if a permit was voluntarily relinquished in allotments or pastures that overlap National Conservation Lands. Alternative D is essentially the same as the No Action and Alternative A in management of OHV Open areas. Wilderness characteristics in 33 units, approximately 417,000 acres, would be protected, providing opportunities for those resources, and requiring additional design features to either protect or enhance wilderness characteristics, or both.

The PRMPA, as stated above, would be identical to Alternative D protecting 33 of lands with wilderness characteristics units; it would likely be favored more by ranchers, many landowners, and people who want to see the potential for more development, while not supported by those who expected a greater emphasis on wilderness characteristics.

3.7.15 Recreation

Key Point

There are five Special Recreation Management Areas within the Planning Area. The Oregon Trail SRMA is not impacted by any of the alternatives. Alternative B has the greatest impact to semi-primitive motorized opportunities within SRMAs.

Affected Environment

The *Federal Land Policy and Management Act* (FLPMA) provides for recreation use of public land as an integral part of multiple use management. BLM Manual 8300 directs the BLM to designate administrative units known as Special Recreation Management Areas (SRMAs) where there is a need for a higher level of financial investment or managerial presence than is typical of most BLM land. Remaining public land is designated as an Extensive Recreation Management Area (ERMA) where limited commitment of resources is required to provide extensive, and unstructured recreation activities. The planning area provides opportunities for resource-dependent recreation use for a wide variety of activities, including: driving for pleasure, camping, picnicking, hiking, hunting, fishing, viewing scenery, nature study, rafting, boating, swimming, rockhounding, and driving off-road motorized vehicles. Recreation use is increasing at a modest rate (two to three percent per year) and exceeded 445,000 visits in 2019 (BLM, 2019d). There are 14 developed or partially developed camping/picnic sites in the planning area, with additional popular undeveloped campsites (commonly associated with hunting) and trails/trailheads.

Special Recreation Management Areas (SRMA's), Extensive Recreation Management Area (ERMA) and management for other recreation resources is identified in the 2002 SEORMP and ROD (pp. 60–65). This plan Amendment does not make any changes to management objectives for SRMAs or ERMAs, nor to their boundaries; all lands in the planning area are within either management area.

SRMA areas within the BLM Planning area are managed to provide quality recreation opportunities while protecting resources values (Table 3-36). 673,424 acres of the planning area is managed as SRMAs. The Owyhee River complex (462,678 acres), and the Oregon National Historic Trail (9,174 acres) SRMAs were established in 1988. Three more SRMAs were identified in the 2002 SEORMP, which include the Trout Creek/Oregon Canyon Mountains (179,174 acres), Owyhee Below the Dam (11,042 acres), and Succor Creek (11,356 acres).

The Owyhee River Complex (which includes the Main, West Little, and North Fork Owyhee WSRs), Leslie Gulch and Honeycombs ACECs, Upper Leslie Gulch, Slocum Creek, Blue Canyon, Owyhee Breaks, Lower Owyhee Canyon, and Owyhee Canyon WSAs) has outstanding river canyon scenery, unique cultural sites, whitewater boating, hiking, camping, and sightseeing opportunities. Management objectives for the area are to preserve outstandingly remarkable and high-quality scenic, recreational, geologic, wildlife, botanic, and cultural values and to enhance opportunities for high-quality outdoor recreation experiences, environmental education, and scientific studies while maintaining the integrity of the area's natural systems and cultural resources.

The Oregon National Historic Trail provides opportunities to view wagon ruts and scenery along the trail and has interpretive facilities and trail markers. Recreation management direction will emphasize public education and enjoyment of the trail and its setting while protecting important cultural resource values.

The Trout Creek/Oregon Canyon Mountains has outstanding scenery, a threatened fish species, cultural resources, camping, backpacking, hiking, sightseeing, and nature study. There are five WSAs associated with this SRMA.

Owyhee Below the Dam provides for high-quality scenery, driving and walking/hiking for pleasure, photography, camping, and hunting. The fishery below the dam is a blue-ribbon brown trout fishery that draws anglers from across the nation.

Succor Creek Canyon provides high-quality scenery, driving and walking/hiking for pleasure, wildlife viewing, rock hounding, and photography, camping, and hunting. Overall Recreation management objectives for both Succor Creek Canyon and Owyhee Below the Dam SRMAs is to provide varied opportunities for semi primitive motorized, and semi primitive nonmotorized recreation and to provide for reasonable levels of tourism, environmental education, and interpretation while maintaining the integrity of the area's natural and cultural resource values.

Table 3-36. Primary values of SRMAs.

Value	SRMA				
	Trout Creek / Oregon Canyon	**Owyhee River Below the Dam**	**Oregon Trail**	**Succor Creek**	**Owyhee River Complex**
Associated interpretive opportunities	X	X	X	X	
Backpacking	X				
Camping	X	X		X	
Cultural resources	X		X		X
Driving for pleasure				X	
Fishing		X			X
Hiking	X	X	X	X	X
Hunting	X	X		X	
Nature study	X				
Outstanding scenery	X	X		X	X
Photography		X		X	
Primitive and unconfined recreation activities	X	X			X
Rock hounding	X				
Swimming		X			
Solitude	X	X			X
Sightseeing	X		X		X
Water play		X			
Whitewater boating					X
Wildlife and historic resource viewing		X	X	X	

The remaining 3,968,021 acres in the planning area are managed as ERMAs. ERMAs provide unique recreation opportunities and require various levels of management. ERMAs are generally managed in accordance with where there is a limited commitment of resources required to provide extensive, unstructured recreation activities. Management is primarily for semi-primitive motorized and semi primitive nonmotorized recreation opportunities and experiences. The only fee campground within the planning area is Chukar Park Campground located within the ERMA. This campground is located on the west side of the planning area, north of Juntura, Oregon and Hwy 20. Any potential changes in OHV use and users within the planning area would not affect the fees collected or impact the BLM's ability to maintain this campground.

The planning area (SRMA and ERMAs) provides a wide variety of recreational opportunities for recreationalists to experience the natural environment. The planning area primarily offers a dispersed (primitive and undeveloped) recreational experience. These dispersed activities include, camping, hunting, fishing, sightseeing, rafting, rock hounding, geological exploration, photography, viewing wild horses and wildlife, hiking, mountain biking, and pleasure driving (street-legal vehicles and OHVs).

There is a relatively low level of recreation user conflicts due to the size of the planning area and lower user numbers, (1-3 user interactions per day). It is very common to have no user interactions for several days. Use increases during the fall hunting season (5–10 interactions). Recreation use in the planning area is expected to increase due to population growth in the Boise area and the overall growing trend of people seeking out public lands and the opportunities they contain.

The Vale District manages between 40 and 50 special recreation permits (SRP) for commercial and educational organizations. SRPs are primarily issued for guide services float-boating on the Owyhee River, fly fishing at Owyhee below the Dam, and big game hunting throughout the planning area. There are also a minimal number of horseback riding events that happen each year and a minimal number of organized backpacking trips.

Of the 16 developed camping/recreation sites, eight are adjacent to, or in the vicinity of wilderness characteristics units (Table 3-37). There are several dispersed campsites within wilderness characteristics units.

Table 3-37. Wilderness characteristics units adjacent to recreation sites.

Unit ID	Wilderness Characteristics Unit	Recreation Site(s)	SRMA	ERMA
OR-034-007	West Fork Bendire	Castle Rock Campground, Hunter Spring		X
OR-034-023	Sand Hollow	Twin Springs		X
OR-034-113	Blue Canyon Contiguous	Birch Creek	X	
OR-034-115	Lower Owyhee Canyon Contiguous	Hole in the Ground	X	
OR-036-052	Lower Cow Lakes	Cow Lakes		X
OR-036-095	Little Groundhog Reservoir	Three Forks	X	
OR-036-091	Owyhee River Contiguous	Three Forks	X	
OR-036-045	Whitehorse Butte	Willow Creek Campground	X	

Note: The 2002 RMP identifies several potential new recreation or interpretive sites that could be developed, see Appendix U 2002 ROD. Site specific analysis would be conducted before development. New recreation or interpretive sites would conform to this amended RMP.

Recreation use in the planning area is almost always associated with some level of motorized access. The planning area is generally considered a "Lower" level service area. The Oregon State Parks 2020 OHV guides informs users that, "Designated riding areas tend to have *higher* levels of service, which may include amenities like regular trail maintenance, posted signs and maps, and staging area facilities, of which there are none in the planning area. *Lower* service level areas are less developed but provide more opportunities for exploration and solitude on your ride (ORSP 2020)."

For recreational OHV use the top six considerations in deciding where to ride include: direct access to riding areas, bathrooms, fire rings, campgrounds, staging areas, and RV campsites/large vehicle parking. Recreation users average about 60 miles when traveling from home for a day use experience and are willing to travel farther for multiple day trips (Lindberg 2015, Figure 3.3).

Motorized travel routes are common across the planning area, originally developed from prehistoric routes that became connectors for early settlers and have been further developed for: access to early (existing and now historic "ghost town") communities, management of grazing and facilities, access and maintenance of utility Rights-of-ways, and railroads. These routes provide access for a variety of forms of recreation such as hiking, hunting, or camping. The routes provide access to a diverse array of recreation opportunities and experiences. Many routes are associated with more than one recreation activity.

Recreation opportunities in the planning area generally provide primitive and remote experiences; recreation users often are drawn to the clear and expansive night skies and the natural or uninterrupted ambient sounds. Areas closer to developed areas provide lower quality air, while areas away from development provide for more dark sky and quietness experiences. Depending on local terrain and

vegetation conditions, existing general levels of ambient audible noise levels in fair weather range from about 20–40 dBA (BLM 2016b, B2H FEIS). Few areas were determined under the Oregon Greater Sage-Grouse ARMPA as being impacted by motorized use on what was categorized as "minor" (maintenance Intensity Levels 3 or 4) roads and major roads, defined as those with more than eight vehicles on a route in a 24-hour day (BLM 2015d). The majority of the planning area's primary road network is Maintenance Level 3, which receives annual or biennial maintenance and is generally passable for three season use. Only during high use (i.e., hunting) seasons is that threshold of use exceeded and for limited periods. Typical motorized group size in the planning area is two to three vehicles. OHV noise disturbances within the planning area can vary from abrupt or brief like the disturbance caused by single user passing by, to more extended disturbances like those resulting from higher traffic volumes on busy holidays or during hunting season. The primary sources of noise in the planning area are from managing ranching and cattle hauling, off-highway vehicle (OHVs) recreation use and other motorized travel, BLM administrative activities, BLM and County Road maintenance, and minerals exploration. These infrequent and short duration interactions with (other) motorized activities are commonly offset by long periods without seeing or hearing others.

The amount of time that different sounds could be heard varies with the terrain and speed at which motorized vehicles travel. The typical distance that motorized vehicle sound will travel is about 1.0–1.5 miles. The impact to non-motorized recreation activities like camping, hiking, and wildlife viewing etc. would be estimated by the length of time it would take a vehicle to travel one to 1.5 miles at different travel speeds. Higher maintenance level routes (level 4) can be driven at higher rates of speed while more primitive routes require slower speeds for safety. A vehicle traveling at 35 mph may be heard for about 1:43 to 2:34 minutes, while a vehicle traveling at 25 mph may be heard for about 2:24 to 3:36 minutes by someone that is within one to 1.5 miles of the travel route. People near highways in the Planning area would be impacted for shorter length of time 60–90 seconds at 55 mph.

Most routes within the SEORMP planning area see much less use than 8 vehicles per day even during holiday weekends or hunting season. From July–August and November–-February many routes would have reduced use due to fire closures or winter conditions. Motorized use throughout much of the planning area approaches zero between December and March.

Visitor group size can influence how noise is perceived or affects the users' experience, with large groups sometimes being less affected by noise. One explanation could be that group situations create more background noise or that recreationists in groups are more involved in foreground tasks, such as talking to other members of the group.

Under the No Action and Alternative A, noise impacts from motorized vehicle travel and OHV use could see a continued increase in OHV Limited areas (8,633 miles of routes) along all existing routes and in areas Open to cross-country travel (841 miles of routes). Current impacts from noise could increase between one to two percent per year based on the estimates of current Oregon OHV permits over the last 20 years.

Under the PRMPA, and Alternatives C & D noise impacts from OHV use could be reduced in areas that changed from OHV Open to OHV Limited areas. Noise impacts, in the areas that would remain OHV Open in Alt C (107,075 acres) and in Alt D (325,686 acres) may see an increase in use and noise over the life of the plan. Under the PRMPA 319,501 acres with 687 miles of routes would become OHV Limited areas, however, OHV noise impacts in the new OHV Limited areas could remain in the PRMPA, the No Action and Alternative A, C and D because no routes in previous open areas would be closed.

Based on Oregon ATV permits from Oregon Parks and Recreation Department for Malheur, Baker, Grant and Harney counties, there are 6114 recreational OHV users per year, with a third of the permits (2,038) from Malheur County. Assuming that not all 6,114 ATV permit holders would visit Malheur County in a given year, and assuming that users make one to three trips per year, the BLM counted all permit holders for Malheur County (2,038) and added an additional 25% (1,029) of users in the neighboring counties as

feasibly coming from Baker, Grant or Harney County estimating a total of 3.057 to visits the planning area. In 2009 the majority of OHV visitors to Eastern Oregon (defined in the report as Malheur, Harney, and Lake counties) came from Northeastern Oregon, with slightly less from Southern Oregon and slightly less again from Central Oregon, but the primary visits in Eastern Oregon are people living in the area and they are three times greater than visits from other regions (Lindberg, 2009). Of the visitors to seven different regions in Oregon in 2014–2015 about seven percent of the overall Oregon visits were spent in about eight Eastern Oregon counties. (Longwoods Travel USA 2015).

In the State of Oregon Permits on ATVs (four Classes) are required for accessing lands that are available for public access. Based on Oregon Parks and Recreation Department OHV Permit revenues (state–wide and four eastern Oregon counties, Baker, Malheur, Grant and Harney (listed in county order from most to least permits), over the last 12 years (2009–2021) the state has seen an average increase of .55% in permits every two years (although between 2009–2013 there was a 7.6% decrease in permits). Over the last nine years (2013–2021) the state and the four eastern Oregon counties have seen an average biennial OHV permit sales increase of 2.72% (average 1.36% per year), and for the years 2019–2021 a two percent average increase (or about one to two percent per year) in permit sales.

The Oregon Off-highway Vehicle Participation and Priorities study from 2015 (Lindberg, 2015), in support of the 2015–2024 Oregon Trails Plan, provided potential recreation use for Oregon and organized the data into several use regions. In that study this planning area falls within Region 11 (Harney and Malheur Counties). The study (see their Table 2.4) shows the OHV/All-terrain Vehicle (ATV) riding days per year by Oregon residents in Region 11 as an average of 71,721 user days. The report does not state if all of the use numbers are related to public lands available for OHV riders or just the identified sites. Malheur County does not have any Oregon OHV designated trail systems or Dunes listed that would draw visitors looking for those experiences to the planning area. The closest OHV play areas to the planning area are the BLM Radar Hill OHV area near Burns in Harney County, the USFS Blue Mountain OHV Trail Area near Unity in Baker County, and the BLM Hemmingway Butte and Rabbit Creek OHV areas in Owyhee County in Idaho.

The planning area is also seeing an increase in visits from southwest Idaho as the Boise/Treasure Valley population continues to grow. The Idaho Department of Labor's population model projects that the state population will grow at an annual rate of 1.1% through 2029, for a statewide total of 1,990,232 in 2029. (see https://lmi.idaho.gov/population-projections). The largest population growth is expected in the four age group ranges (each is five years) within the 70 to over 80 age groups and varies from 2.5% to 6% growth per year.

OHV use in the planning area has been estimated using ATV permit data from Oregon Department of Parks and Recreation (ODPR 2021), in the Oregon Off-highway Vehicle Participation and Priorities study (Lindberg and Bertone-Riggs 2015), and the 2019 Oregon Department of Fish and Wildlife hunting tag sales and harvest survey reports (ODFW 2019). The range of OHV use has been estimated at between 23,513 and 84,470 visitor use days per year, with daily averages between 129–464 users in the planning area on any one day during a 6-month use period). Based on professional experience of BLM staff in the field, these number could be higher than actual use; staff report that they commonly encounter one to three other vehicles in an eight-hour day any one route in the planning area.

Motorized use—including OHV—and mechanized activities can have an impact on recreation activities and experiences. The road and primitive route density across the planning area is low (approximately 1.25 miles per square mile on average); encounters between recreation users and other motorized and non-motorized activities can be rare. Motorized and mechanized activities can lead to occasional encounters and conflicts between users and other authorized activities. The BLM authorizes many types of motorized/mechanize activities, including but not limited to: permittee livestock management, restoration and rehabilitation treatments, wildland firefighting, monitoring and surveying, and larger events requiring special recreation permits.

Environmental Consequences

Analytical Methods

Management actions and allowable use decisions affect recreation and visitor services. Direct effects on recreation are those that allow, restrict, or prohibit recreation opportunities, including both the opportunity for access and opportunity to engage in specific activities. Indirect effects are those that alter the physical, social, or operational components of recreation setting characteristics. Effects on settings can either be the achievement of a desired recreation setting characteristic or the unwanted shift in recreation setting characteristics.

Indicators

- Access to recreational opportunities
- Visitor safety, education, and interpretation
- Resource protection of values inherent to recreational pursuits
- Variety of recreational opportunity spectrum
- Changes in recreation types, levels and opportunities

Assumptions

- Recreation use levels are increasing on public lands by one to two percent per year.
- Percentages of users participating in different recreation activities on public lands continues to evolve and change. Increasing interest in primitive recreation experiences continues to grow, with contrasting increases in OHV-related participation.

Issue 1

How would SRMAs, ERMAs, recreation use, and recreation sites be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Managing areas for wilderness characteristics is not anticipated to significantly affect recreation values and opportunities within the SRMA or ERMA areas because, under the PRMPA and all alternatives, objectives for recreation would continue to provide and enhance developed and undeveloped recreation opportunities, while protecting resources values as identified in the 2002 SEORMP and ROD (see Table 3-36 above). Impacts from the alternatives and PRMPA to the individual SRMAs are discussed below.

Owyhee River Complex SRMA—This SRMA covers 462,678 acres. In the No Action Alternative eight wilderness characteristics units (Alcorta Rim, Board Corral Spring, Burnt Mountain, Little Groundhog Reservoir, Owyhee River Contiguous, Quartz Mountain, Rookie Creek, and The Tongue) overlap 5% of the SRMA for a total of 24,608 acres. The primary values of the SRMA are outstanding river canyon scenery, unique cultural sites, high-quality fishery, whitewater boating, hiking, camping, outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities, and sightseeing opportunities. The SRMA is managed for primitive, semi-primitive nonmotorized, semi-primitive motorized, and roaded natural recreation opportunities and experiences. Alternative A would not protect any units and therefore would not affect the current recreation-oriented resource values and use opportunities of the SRMA. Alternative B would protect each of the overlapping units for wilderness characteristics and would enhance recreation opportunities within 24,091 acres for primitive and semi-primitive nonmotorized activities while affecting the same acres for semi-primitive motorized and roaded natural recreation opportunities within the eight wilderness characteristics units. Alternative C, D and the

The PRMPA would have similar impacts but on a slightly smaller scale. Alternative C would enhance recreation opportunities within 14,110 acres (three percent) for primitive and semi-primitive nonmotorized activities while affecting the same acres for semi-primitive motorized, and roaded natural recreation opportunities within five wilderness characteristics units. The PRMPA and Alternative D would enhance recreation opportunities within 12,116 acres (three percent) for primitive and semi-primitive nonmotorized activities while affecting the same acres for semi-primitive motorized, and roaded natural recreation opportunities within three wilderness characteristics units.

Trout Creek/Oregon Canyon—This SRMA covers 179,174 acres. Within the current SRMA boundary there are portions of five WSAs. The primary values of the area are outstanding scenery and opportunities for solitude and primitive and unconfined recreation activities, federally listed fish, cultural resources, hunting, camping, backpacking, hiking, sightseeing, nature study, and associated interpretive opportunities. In the No Action Alternative 75% of the Willow Creek Contiguous unit overlaps 1% of the SRMA for a total of 1,308 acres. Alternative A would not protect the Willow Creek unit and therefore would not affect the current recreation-oriented resource values and use opportunities of the SRMA. In the Alternatives B, C, D, and the PRMPA, 1,157 acres for 1% of the SRMA would further enhance the areas recreation opportunities and values for solitude and primitive and unconfined recreation activities and maintain the current recreation values of this SRMA.

Succor Creek—This SRMA covers 11,356 acres. In the No Action Alternative three wilderness characteristics units overlap 83% of the SRMA for a total of 9,479 acres, (Antelope Creek, McIntyre Ridge and Spanish Charlie Basin). Alternatives A, C, D or the PRMPA would not protect any lands with wilderness characteristics or affect the current recreation-oriented resource values and use opportunities of the SRMA which include quality scenery associated with the deeply cut and highly colorful canyon and its perennial stream, driving and walking/hiking for pleasure, wildlife viewing, rockhounding, photography, camping, and hunting. Overall recreation management objectives for the SRMA would continue to provide varied opportunities for roaded natural and semi-primitive motorized and nonmotorized recreation, as well as for environmental education and interpretation, while maintaining the integrity of the area's natural and cultural values. In Alternative B, portions of the 3 wilderness characteristics units (listed above) and cover 9,019 acres (79% of the SRMA) in the SRMA would be managed for nonmotorized recreational activities and where this occurs an opportunity to experience nonmotorized recreation would be enhanced. Activities like driving for pleasure, dispersed camping, rockhounding and semi-primitive motorized recreation experiences would be reduced and may be confined to 21% or less of the SRMA where those activities currently occur. Users may have a greater affect to these smaller areas or may be displaced and move to other locations to enjoy these recreation opportunities.

Owyhee Below the Dam—This SRMA covers 11,042 acres. In the No Action Alternative two wilderness characteristics units overlap 22% of the SRMA for 2,405 acres (Burnt Mountain and Sand Hollow). The current recreation values and use opportunities of the area include high-quality scenery, driving and walking/hiking for pleasure, varied wildlife and historic resource viewing, photography, camping, hunting, fishing, water play/swimming, interpretation and provides varied opportunities for roaded natural, semi-primitive motorized, and semi-primitive nonmotorized recreation. Alternatives A, D or the PRMPA would not protect any lands with wilderness characteristics or affect the current recreation-oriented resource values and use opportunities of the SRMA. Alternative C would protect only the Burnt Mountain unit and covers 888 acres (8% of the SRMA). The recreation values and opportunities in the SRMA would be maintained within the wilderness characteristic area for roaded natural or semi-primitive motorized use. In addition, the semi-primitive nonmotorized recreation activities would be retained. Alternative B would protect two wilderness characteristics units (listed above) and cover 2,305 acres (21% of the SRMA) in the SRMA. Opportunities for roaded natural or semi-primitive motorized use would be closed within this Section of the SRMA and could impact activities associated with motorized

use. In addition, the semi-primitive nonmotorized recreation activities would be retained or enhanced within this Section of the SRMA.

Oregon Trail–This SRMA is not impacted by any lands with wilderness characteristics units in any of the alternatives. All Alternatives remain the same and therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. The enjoyment of the trail and its setting would be preserved while continuing protecting important cultural resource values. The SRMA would continue to be managed for semi-primitive motorized and roaded natural recreation.

Recreation activity in both ERMAs and SRMAs would be impacted by protection of wilderness characteristics. Protection would be expected to provide additional opportunities for people interested in more primitive activities like hiking, hunting and dispersed (or undeveloped) recreation. The No Action Alternative and Alternative B would provide the highest level of benefit over the long term to this group due to restrictions on future development. People interested in hiking or equestrian access would experience the greatest benefit by protection of wilderness characteristics. These two alternatives would limit the potential impacts from the development of additional motorized access (new roads) and use and their impact on more primitive sight-seeing or hunting opportunities. Protection of all wilderness characteristics would favor public land recreational activities in all 76 units under the No Action Alternative (1,236,907 acres) and Alternative B (1,206,780 acres, excluding the boundary road setbacks). In Alternative B, visitors looking for quite experiences would have 76 proposed lands with wilderness characteristics units and 32 WSA's on about 2.5 million acres where they can experience solitude, and a natural, undeveloped setting.

Alternative D and the PRMPA (417,190 acres in 33 units), followed by Alternative C (167,709 acres, 27 units) would provide similar primitive recreational activities as Alternative B in the protected wilderness characteristics units, but in fewer acres. The No Action Alternative and Alternative A would not change the recreation opportunities described in the affected environment section.

Existing developed and dispersed recreation sites would continue to be available to all recreation user types in all alternatives. However, development of new recreation sites would be limited in protected units under all alternatives if that development did not meet the new objective for protected wilderness characteristics units.

Issue 2

How would SRMAs, ERMAs, recreation use, and recreation sites be affected by changes in OHV area designations across the planning area?

OHV area designations are not anticipated to significantly affect recreation opportunities within the SRMA's, ERMAs, or recreation sites, with the exception of Alternative B which closes all lands with wilderness characteristics and all WSAs to motorized vehicular use. Alternative B diminishes primitive route access in four SRMAs, closing 17% of the routes in the Owyhee River Below the Dam, 81% in the Owyhee River Complex, 59% in Succor Creek, and 74% Trout Creek/Oregon Canyon SRMAs; however, these areas are managed for primitive recreation opportunities, overlap with WSAs, and have a low route density which enhances the values of these SRMAs. See 3.7.19 Wilderness Study Areas for a discussion of route densities in WSAs. For the PRMPA, No Action and Alternatives A, C, and D, the objectives for recreation access are not proposed for change and would continue to provide opportunities for roaded natural, semi-primitive motorized, and semi-primitive nonmotorized recreation to provide for reasonable levels of tourism while maintaining the integrity of the area's natural and cultural resource values as identified in the 2002 SEORMP and ROD.

The differences in OHV designations, combined with the indicators as noted above (access, recreation opportunity spectrums, visitor safety, and resource protection) all rely on OHV designations that determine motorized travel and access opportunities. The PRMPA, No Action Alternative, and

Alternatives A, C and D would all have similar direct impacts whether wilderness characteristics units were protected or not because motorized use on existing primitive routes would continue in lands with wilderness characteristics and WSAs. Under Alternative B motorized access would be restricted to popular recreation destinations used for hunting and camping in areas protected for wilderness characteristics and WSAs because primitive routes would be closed to motorized use. However, the lack of disturbance while protecting wilderness characteristics could increase wildlife habitat and enhance primitive hunting opportunities for users. How the differing alternatives affect recreational opportunities depend on the recreational pursuits of the user. Users that enjoy non-motorized primitive types of recreation may have positive effects from the alternatives that limit OHV access due to less motorized intrusion. Users that enjoy motorized pursuits may have negative effects due to a reduction of available routes. While the number of wilderness characteristics units varies among Alternative C, and D and the PRMPA, restrictions to motorized access hunting areas would not be as impacted as it is under Alternative B. Motorized access, and its associated recreation opportunities, would be highest under the No Action Alternative and Alternative A where no changes to OHV allocations are proposed.

Overall, user access to developed recreation sites would not be affected under any of the alternatives (PRMPA, No Action and Alternatives A–D). Direct impacts to recreational pursuits are negligible under the PRMPA, No Action, Alternative A, and Alternatives C and D. Under Alternative B, where motorized use would be closed in WSAs and lands with wilderness characteristics units, the motorized recreational opportunities would be reduced around the recreation sites but not at or to the sites. This OHV closure would not measurably reduce overall visitation because OHV use is currently—and would continue to be—allowed on the numerous wilderness inventory roads (WSA and wilderness characteristics unit boundary roads) that exist in the planning area. Use and user conflicts may be reduced by the OHV Closed designation because overall access and visitor use mobility could be reduced over time. Table 3-38 summarizes the developed recreation sites which are adjacent to wilderness characteristics units and OHV designations for each of the alternatives. Other recreation sites exist within the planning area but are not adjacent to wilderness characteristics units. OHV maps and recreation sites for the No Action Alternative and Alternatives A–D may be found in DEIS Appendix M, Map OHV 1 to 4. Map OHV-5 is provided in Appendix M of the PRMPA/FEIS.

Table 3-38. Recreation sites that are adjacent to wilderness characteristics units.

Wilderness Characteristics Unit Name	Recreation Site(s)	OHV Area Designation by Alternative					
		No Action	A	B	C	D	PRMPA
Westfork Bendire	Castle Rock Campground and Hunter Spring	L /O	L /O	C	L	L	L
Sand Hollow	Twin Springs	L /O	L /O	C	L /O	L	L
Blue Canyon Contiguous E	Birch Creek	L	L	C	L	L	L
Lower Owyhee Canyon Continuous D	Hole in the Ground	L	L	C	L	L	L
Lower Cow Lakes G	Cow Lakes	L /O	L /O	C	L	L	L
Little Groundhog Reservoir	Three Forks	L	L	C	L	L	L
Owyhee River Contiguous D, E, F, G, H	Three Forks	L	L	C	L	L	L
Whitehorse Butte (A1, A2)	Willow Creek Campground	L	L	C	L* (A1) / L (A2)	L	L

Note: Shading indicates the wilderness characteristics unit would be protected under the respective alternative. Proposed OHV area designations for each unit for off-road motorized use are identified by the following: L = Limited, C = Closed, and O = Open. *Whitehorse Butte unit was split into areas A1 and A2 (along a primitive route) under Alternative C to address management associated with the contiguous WSA. Area A1 is not protected under Alternative C. See Appendix B for explanation of split unit.

Owyhee River Complex SRMA—The SRMA in the No Action Alternative contains the following OHV area designations, Open 213 acres (.05% of SRMA), Limited 447,967 acres (96% of SRMA), Closed 14,498 acres (3% of the SRMA). In the PRMPA, 213 acres of OHV Open would become Limited (which would increase Limited by 1% more than the No Action Alternative). In the No Action, A, C & D Alternatives, no new routes would be closed, therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. In Alternative B 456,734 acres (99% of SRMA) would be closed to OHVs and 5,944 acres (1% of SRMA) would provide limited motorized access opportunities. Alternative B also has the potential to limit camping and motorized sightseeing activities and may provide additional outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities. The closure of access to some of these areas would limit some semi-primitive recreation such as hunting, horseback riding, backpacking, sightseeing and other forms of recreation that rely on motor vehicles. In the No Action Alternative, 454 miles of travel routes are open to recreation use in this SRMA. Under Alternative B, 169 miles (37%) would be closed to motorized recreation use. The closure of primitive routes in the Owyhee River Canyon WSA would make some desired destinations inaccessible. Although administrative access would still be allowed, the closure could result in some areas becoming less accessible for such things as allowed emergency response times due to lack of use. For example, along the Owyhee River, there could be negative impacts related to emergency response time, or the absence of ground-based service for efficient search and rescue operations to reach individuals in need of medical response along the Owyhee River that results from a lack of access.

Trout Creek/Oregon Canyon—The SRMA in the No Action Alternative, Alternatives A, C and D contains 58 Acres of Closed area, 179,116 acres (99.97% of the SRMA) of Limited area and no Open. In the No Action, A, C, D and PRMPA Alternatives, no new routes would be closed, therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. In Alternative B 162,951 acres (91% of SRMA) would be closed to OHVs and 16,223 acres (9% of SRMA) would provide limited motorized access opportunities. Alternative B also has the potential to limit camping and motorized sightseeing activities and may provide additional outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities. In the No Action Alternative, 220 miles of travel routes are open to recreation use in this SRMA. Under Alternative B, 110 miles (50%) would be closed to motorized recreation use.

Succor Creek--The SRMA in the No Action Alternative, Alternatives A, C and D contains 11,356 acres (100% of the SRMA) of Limited area and no Open or Closed acres. In the No Action, A, C, D and PRMPA Alternatives, no new routes would be closed, therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. In Alternative B 9,479 acres (83% of SRMA) would be closed to OHVs and 1,876 acres (17% of SRMA) would provide limited motorized access opportunities. Alternative B also has the potential to limit camping and motorized sightseeing activities and may provide additional outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities. In the No Action Alternative, 40 miles of travel routes are open to recreation use in this SRMA. Under Alternative B, 23 miles (59%) would be closed to motorized recreation use.

Owyhee Below the Dam—The SRMA in the No Action Alternative, Alternatives A, C and D contains 11,042 acres (100% of the SRMA) of OHV Limited areas and no OHV Open or Closed acres. In the No Action Alternative, Alternatives A, C, D, and the PRMPA, no new routes would be closed, therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. In Alternative B 2405 acres (22% of SRMA) would be closed to OHVs and 8,637 acres (78% of SRMA) would provide limited motorized access opportunities. Due to the small change in Acres to Closed areas, Alternative B would not change current camping and motorized sightseeing activities or would there be much of an increase in outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities. In the No Action Alternative, 31 miles of travel routes are open to recreation use in this SRMA. Under Alternative B, five miles (17%) would be closed to motorized recreation use.

Oregon Trail SRMA—This SRMA has the following OHV designations: 9,174 Acres of Limited, and no Open or Closed acres. All Alternatives remain the same and therefore current and future recreational opportunities within the SRMA would continue and users would not be affected. In the No Action Alternative, 39 miles of travel routes are open to recreation use in this SRMA, and all alternatives remain the same.

Collectively the SRMA's cover a total of 673,423 acres. The SRMA's have the following total OHV allocations across all alternatives. The No Action and Alternative A have the following acres, Open—213, Limited—658,655 and Closed—14,555. Changes across the alternatives by OHV Allocation (Open, Limited and Closed) are as follows. The OHV Open allocations for alternative D would have 53 acres, and the PRMP, B, and C alternatives would have zero acres. The OHV Limited allocation for the PRMPA and C alternatives is 858,868 acres, alternative D 658,815 acres, and alternative B is 41,854 acres (a -94% reduction compared to the No Action Alternative). The OHV Closed allocations for the PRMP, C and D are the same as the No Action alternative, whereas alternative B increase the amount of closed to 631,569 (94% of the total SRMA acres) acres having the greatest effect on semi-primitive motorized and roaded natural recreation opportunities in the SRMA's.

Extensive Recreation Management Areas

The distance to services (e.g., gasoline, food, ice, water, hunting and fishing permits) limits the number current users in the area. Traveling off main roads requires good tires, maps and good preplanning, to ensure a safe visit. The closest services are available in Burns, Vale, Adrian, Rome, and Jordan Valley, Oregon; Marsing, Idaho and in McDermitt, Nevada. These services locations run along the outside or far east side (with the exception of Rome's limited services) of the planning area. In addition, there is only one major east-west highway route US Hwy 20 (Vale to Burns, 113 miles) in the top third of the planning area. There are two north-south routes running through portions of the planning area, on the north US Hwy 26 (Vale to John Day, 117 miles) and in the south US Hwy 95 (connecting Boise, Idaho with McDermitt, Nevada, 147 miles). In addition, for visitors coming from the west (Burns) they can use a southeasterly route Oregon Hwy 78 (Burns to McDermitt, Nevada 147 miles). Traveling the routes in the planning area often requires high clearance vehicles, off-road tires and can be very slow, on average visitors using maintained roads travel 20 miles in one hour. If travel is on primitive routes travel might be as low as from three to10 miles per hour. With the slow travel speeds at least one night camping would normally be needed to do any exploring (e.g., hiking, hunting). Visitors coming to eastern Oregon take a trip averaging 3.9 nights total and about 2.8 nights are spent in Eastern Oregon (Longwoods Travel USA, 2015).

If there were more services on the west and south side of the planning area visitors might stay more days. However, the need in the planning area for more specialized vehicle equipment and the slow travel rates would still limit the number of users getting very far off the main routes and traveling into the planning area. Although as new visitors learn about the area and gain local experience with areas easier to get too, they may return to explore other areas, or they may displace some current users looking for more quiet recreation who will find different locations to travel farther away from main routes. Some users camp nearer to main roads but bring ATV's and UTV's to travel deeper into areas or make several short trips to different sights from the same camp locations. Public land not designated as an SRMA within this planning area is designated as Extensive Recreation Management Areas (ERMA), and covers 3,968,021 acres, providing opportunities for unstructured recreation activities. Management is primarily for semi-primitive motorized, semi-primitive nonmotorized, and roaded natural recreation opportunities. Several developed camping and many undeveloped dispersed camping opportunities are available throughout the ERMA, although most of the recreation-related development within the ERMA is prioritized for protecting resource values and to serve as staging areas for resource-based use, and not as visitor attractions in and of themselves. In ERMAs, under the No Action and Alternative A there are 359,656 acres designated as OHV Open, 3,607,092 acres Limited, and 1,273 acres designated as Closed to OHV use. Changes across the alternatives by OHV Allocation (Open, Limited and Closed) are as follows. The change in the OHV Open allocations varies across alternatives with alternative D 325,639 acres (a reduction of -9% compared to the No Action), Alternatives C 107,075 and PRMPA 40,368 acres (reduction in Open by -70 and -89% compared to the No Action), with alternative B have zero acres (reducing Open by -100%). The change in the OHV Limited allocations varies across alternatives with alternative the PRMP, C and D alternatives increasing the amount of Limited up to 3,926,380, 3,859,673 and 3,641,114 acres (an increase of 9%, 7% and 1%), and decreasing alternative B to 2,085,748 acres (a -42% reduction compared to the No Action Alternative). The OHV Closed allocations for the PRMPA, C and D are the same as the No Action alternative, whereas alternative B increase the amount of closed to 1,882,273 acres (closing 47% of the total ERMA) having the greatest effect on semi-primitive motorized and roaded natural recreation opportunities. Alternative B also has the potential to limit camping and motorized sightseeing activities and may provide additional outstanding opportunities for solitude and primitive and unconfined outdoor recreation activities. The closure of access to some of these areas would limit some semi-primitive recreation such as hunting, horseback riding, backpacking, sightseeing and other forms of recreation that rely on motor vehicles.

Impacts to Recreation Across the Planning Area from OHV Area Designations

The greatest impact to recreation opportunities within the planning area, from OHV allocation changes would occur under Alternative B where the OHV area closure would close routes in WSAs (1,273,907 acres) and wilderness characteristics units (1,206,780 acres). The closure of 54% of the planning area would greatly restrict access to many areas and reduce opportunities to facilitate motorized and primitive recreation pursuits. Many nonmotorized recreational activities (i.e., hiking, camping, hunting) may still rely on continued motorized access to allow a motorized user to provide essential amenities such as water.

Access to some of the most scenic dispersed campsites, and travel time to reach them via nonmotorized modes would be reduced under Alternative B. The reduced level of disturbance (through lack of use over time) to these primitive campsites would cause them to be naturally reclaimed/rehabilitated. If recreation use continues to decrease over time, larger staging areas and some camping areas could be lost in areas that are closed. Under Alternative B, access to some of the sought-after resources for recreation such as the Owyhee River could become more limited to various user groups such as the elderly and people with disabilities who rely on motorized access. This reduction in motorized use along existing primitive routes that would become unavailable under Alternative B in Closed areas would result in fewer interactions and conflicts between motorized and non-motorized recreation users. Non-motorized users would experience benefits from the reduction in sounds produced by motorized users (e.g., vehicles, generators, larger parties), decreasing potential noise impacts by 25% along interior routes in areas closed to OHVs use. However, noise along the boundary roads could remain the same or increase by one to two percent per year due to new users and to fewer routes to disperse users wanting to enjoy and explore these areas. Under Alternative B, the greater distance between motorized activities and non-motorized users would likely result in improved recreation opportunities to experience solitude, quiet and dark skies.

Alternative B would significantly increase the opportunities for primitive experiences, while decreasing opportunities for off-route motorized activities. Opportunities for hiking and hiking for hunting, along with equestrian activities would be provided with extensive additional areas for their pursuits. The types and levels of BLM-provided recreation supply and demand would only vary between Alternative B and the other alternatives.

Under the PRMPA, No Action Alternative, and Alternatives A, C, and D there are no additional designations of OHV Closed. These alternatives would all have similar impacts where they share a OHV Limited or Open designation. The impacts would be slight at developed recreation sites that are located where OHV designations remain unchanged. Dispersed and primitive recreation would continue in the same manner and degree as it is currently occurring under Alternatives PRMPA, No Action and Alternatives A, C and D. The PRMPA would have the most OHV Limited area (4,585,249 acres) that would need to comply with the 2002 ROD, page 66; "Within areas with an OHV use designation of limited to existing routes, motorized vehicle-supported camping, unless otherwise posted to meet other resource management objectives, may occur up to 150 traveled feet off an existing motorized route."

As with Alternative B, the shift in designations from OHV Open to Limited acres for Alternatives PRMPA, C and D may impact access, including for seniors or others with mobility issues and those interested in activities like rock-hounding or game retrieval for hunters. The PRMPA would have the greatest potential impact by reducing unrestricted motorized use as a result of OHV Open areas becoming Limited, and Alternative D having the least impact among these three alternatives. OHV Open areas in these three alternatives would continue to provide unrestricted OHV opportunities, with: the PRMPA designating (continuing) 40,368 acres as OHV Open; Alternative C 107,075 acres; and Alternative D 325,686 acres as OHV Open. The PRMPA would have a positive benefit for the nearly two-thirds of visitors who enjoy quiet (nonmotorized) recreation activities, like camping, hunting, hiking and fishing (Pew Charitable Trusts 2016), by designating 4,585,249 acres as Limited. Alternative C would designate 4,518,539 acres as Limited, followed by 4,299,928 acres under Alternative D.

Alternative A and the No Action Alternative would maintain existing OHV-based pursuits while reducing hunting opportunities due to greater disturbance creating wildlife impacts. Access to popular hunting and fishing destinations would not be impacted under any other alternatives.

Issue 3

How would SRMAs, ERMAs, recreation use, and recreation sites be affected by the reduction or elimination of livestock grazing as a result of Standards for Rangeland Health not being met due to existing livestock grazing or through a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to recreation from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, under "Standards of Rangeland Health and Grazing Management Guidelines" the objectives of the Healthy Rangeland Initiative is to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Management responses to address resource conditions can enhance recreation opportunities and experiences.

All of the SRMAs and ERMAs provide various recreational opportunities and experiences; those opportunities and experience vary by season, location, and recreation activities. No change to Recreational Management Area designations are proposed in this Amendment. Across the planning area, livestock and the associated grazing management operations have been a fixture for over a century. While personal preference and public land management perspectives vary, livestock can impact recreation activities and uses in positive and negative ways.

Generally, cattle locate themselves away from known areas of prolonged visitor use and are not expected to have significant effects on the quality of the recreational experience for most users. Each of the alternatives may present conditions of conflict between recreation users and livestock operations.

Under the PRMPA, the No Action Alternative and Alternatives A and C, if Standards for Rangeland Health are not being met and existing livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards. Site specific NEPA analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but it is one of many management actions than could be used to improve conditions. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards. This management direction could result in benefits to recreation as a result of implementing action being taken to improve native vegetation condition and function and wildlife habitat (see also Section 3.7.6 General Vegetation and 3.7.11 Fish and Wildlife).

Under the PRMPA, reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, the PRMPA may provide a small increase in beneficial impacts to recreation over the No Action Alternative and Alternatives A and C alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to recreation as reductions in livestock grazing management may have a positive benefit to some members of the public recreating on public land. These added beneficial impacts from would be less than those identified in both Alternatives B and D. Reductions in livestock grazing management may have a positive benefit to some members of the public recreating on public land.

Conversely, some recreation users experience more positive opportunities in the presence of livestock and livestock operations (during gathers and pasture moves, herding, riding), appreciating Western traditions and livestock operations. Livestock management facilities also provide navigation aids that are otherwise not present in the planning area; facilities (cattleguards, reservoirs, developed springs, among other range improvements) typically have location indicators that enhance (particularly motorized) recreation opportunities.

At more developed recreation sites and for more mechanized and motorized recreation activities, the presence of livestock can have a positive, neutral, or negative impact on the experience. Many developed (full facilities or partial development) recreation sites are fenced from direct impacts and cattle typically shy away from active human activity. Signs of cattle use in and near developed sites can detract from the recreation experience for some users; trailing, reduction or elimination of vegetation, cut-banks and increased erosion, organic waste can negatively impact users. These impacts can be higher near water sources where interaction has a higher potential of conflict. However, direct contact is less likely at the higher use locations and during higher use seasons (for instance, during hunting seasons).

Impacts to primitive recreation users can also occur from livestock and livestock operations by reducing opportunities for solitude and increases in noise and nighttime motor vehicle light sources used by operators.

Motorized users may experience negative impacts from livestock operations at a lower level than primitive recreation use due to the shorter time of encounters. The expansive landscape and limited grazing season in most locations limit the chance for negative or positive encounters.

Under Alternatives B and D, recreational users and hikers would have a lower potential for encounters with livestock which could benefit the recreation experience, particularly for those engaging in more primitive recreation experiences, including at primitive recreation sites. The absence of cattle trampling vegetation may cause some existing dispersed sites to become abandoned in favor of new sites that may have experienced livestock concentrations in the past. Water sources and riparian areas may trend toward improved conditions in the absence of cattle. This may draw more recreationists to these areas as springs and riparian areas recover from grazing and have more vegetation and be more aesthetically pleasing. As these riparian areas also provide habitat to many wildlife species, recreationists may have increased opportunities for wildlife viewing, with less disturbance associated with livestock.

Under Alternative B closing areas or limiting OHV to existing roads and primitive routes use would reduce or eliminate conflicts between livestock and operators and OHV users as a result of removing or reducing the OHV traffic. This reduction of potential encounters would be further increased if livestock were reduced or eliminated due to Standards for Rangeland Health not being achieved due to existing livestock grazing or in the extensive set of areas (Appendix A, Table A-2) that would have livestock grazing made unavailable if a permit were voluntarily relinquished.

Alternative D would have a similar reduction in potential for encounters between OHV users and livestock but for a shorter duration (until trends shift toward meeting Standards or for the term of the grazing permit) if Standards were not met due to existing grazing. This potential reduction of encounters would also be similar to Alternative B if a permit were voluntarily relinquished, but for a smaller geographic area (Appendix A, Table A-4) under Alternative D. These reductions would be likely to benefit recreation users that prefer primitive experiences.

Recreation Cumulative Effects Summary

For recreation resources, the cumulative effects analysis area is the planning area and Special Recreation Management Areas noted in Table 10 of the 2002 SEORMP (BLM 2002, 61). The temporal scale would include impacts that are greater than 10 years. This Section will address any additional effects to recreation from reasonably foreseeable actions. and the effects of the actions of each of the alternative on the resource noted above. RFFAs with a potential effect on recreation are the Northwest Malheur Fuels, Grassy Mountain Gold mine, Octagon and Malheur Queen Gold mines, lithium exploration, and the Tri-state Fuel Breaks project. None of these projects would affect the SRMAs. The cumulative effects from these projects would occur in ERMAs and the effects would be to the recreationist, not the opportunity for recreation.

PRMPA, No Action, Alternatives A, B, C, and D

The Grassy Mountain gold mine could have a cumulative beneficial impact for motorized users by improving the road that leads to the proposed mine site and on to Twin Springs recreation site. Increased traffic and dust could have a negative impact on recreationists using the road to access the Twin Springs site. In the areas where Malheur Queen and Octagon mines are proposed, recreation pursuits are rare and it is likely that what recreation is occurring in those areas would be at least temporarily displaced or modified during operations. The Malheur Queen mine NEPA was completed and Decision issued in 2005, but operations have been slow in developing (continuing testing is occurring). Access in the vicinity has not been impacted. The Octagon project Plan of Operations has been determined to be complete, and the NEPA analysis is being developed. The project is small scale and is not anticipated to impact recreation except in the immediate area of the mine and during operations.

The lithium exploration in the McDermitt caldera at the extreme southwest corner of the planning area could displace recreationists and force them to seek other areas to recreate. The primary recreational pursuit in the area is OHV use on primitive routes or roads and to access rockhounding pursuits; it is possible access of OHV users could be blocked during exploration operations, resulting in user created routes. This, in turn, could cause increased use in other areas and potentially diminish the recreation experience in those other areas.

The Northwest Malheur Habitat Restoration and Fuels Project could have short term (less than five years) impacts to recreational use by displacing visitors and reduced visibility due to smoke. The Tri-state project may cause some short-term impacts to recreational use during implementation by displacing visitors or the intrusion created by heavy equipment. In the long term, benefits to recreation are expected with both projects as the risk of catastrophic wildfire is decreased and vegetative conditions improve.

3.7.16 Visual Resources

Key Points

- For the No Action Alternative and Alternative A, the Visual Resource Management (VRM) classes remains the same as identified in the 2002 SEORMP and ROD. The No Action and Alternative A provide the same amount of VRM classes by acreage.
- For Alternative B, all protected wilderness characteristics units would be VRM Class II unless already Class I. Setbacks would retain their current VRM Class as designated in the 2002 SEORMP and ROD.
- For Alternatives C, D and the PRMPA, wilderness characteristics units or parcels (or both) identified for protection would be VRM Class II, unless already VRM Class I. Boundary Road setbacks for these areas would retain their current VRM Class, as designated in the 2002 SEORMP and ROD.
- All Alternatives provide the same amount of VRM Class I.
- Alternative B provides the greatest amount of VRM Class II. The No Action Alternative and Alternative A provide the greatest amount of Class IV. Alternative D and PRMPA provide a balance between VRM Class II and Class III.

The PRMPA would prioritize the protection of 33 units (55 parcels composing 34% of the total acres in lands with wilderness characteristics) and designate those areas as VRM Class II unless currently managed as VRM Class I. Public land has been evaluated and assigned visual resource inventory classes according to the relative value of the visual resources. The BLM VRM system consists of the visual resource inventory (VRI) phase, the VRM planning phase, and the subsequent VRM plan implementation phase, where project proposals are analyzed using the visual contrast rating system (BLM 1986).

Affected Environment

The condition of visual resources in the planning area can currently be considered stable. The sparse population, limited level of development and relatively small population centers have left much of the region relatively natural looking. While much of the planning area consists of areas with relatively undisturbed characteristics, decades of grazing, fire suppression, mineral extraction, uncontrolled motorized use, and infrastructure (such as building roads and utilities) have left an imprint on the land and the overall scenic quality. Extensive portions of the planning area are not easily accessible, either through the lack of legal public access or due to terrain characteristics, which allowed the land to retain a higher level of natural appearance. In some areas accessible by motorized vehicles, OHV use has created new routes and trails which affects scenic quality. The degree of such impacts varies with the amount of use, accessibility to the area, its scenic quality, and the location of the area. During land use planning, the planning area's visual resources are assigned VRM classes with the following established objectives:

- Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Activities may be visible but should not attract attention.
- Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate. Activities may attract attention but should not dominate the view.

- Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

The 2002 SEORMP and ROD designated VRM classes across the planning area; visual resource inventories are periodically updated. Visual resource inventories were conducted in 2013 (south half of the planning area) and 2015 (north half). The Management of VRM classes may limit or prohibit certain disturbances and it is directed (BLM Manual 8400; BLM 1984) to avoid direct and indirect impacts to VRM classes.

The range of landscapes across the planning area provides visitors and residents with a wide variety of visual features in all classes of VRM management. Viewers are provided scenery ranging from broad vistas of rolling sagebrush/grassland to rugged basalt canyons to mountain peaks flanked by forests. Table 3-39 presents the existing VRM classes that were identified in the 2002 SEORMP and ROD.

Table 3-39. Summary of acres of existing visual resource management classes[38].

VRM Class	Acres of Existing Condition/No Action	Percentage of Planning Area
I	1,310,702	28%
II	219,040	5%
III	639,284	14%
IV	2,472,520	53%
Total	**4,641,546**	**100%**

Any ground disturbing activities that create contrast in form, line, color or texture of the characteristic landscape can impact visual and scenic resources. Past and ongoing actions that can have an effect to visual resources are livestock grazing (nonstructural and structural range improvements), existing motorized routes, vegetation and weeds management, pipeline, wildfires, and transmission lines. Transmission lines and pipelines create linear features on the landscape and can change its vegetation pattern. Both of these can affect the line and color of the landscape and, in some cases the landform. Transmission lines and communication sites (cell towers) create vertical features on the landscape, and they commonly create contrasts in form and line with the landforms and vegetation. Other ongoing vegetation manipulation projects could result in moderate short-term adverse impacts to VRM but could enhance VRM over the long term as areas become natural sagebrush-steppe habitat. These types of projects areas are seldom seen and mostly located in areas of VRM Class III or Class IV. On-going OHV activities would cause no change in effects for visual resources as it is assumed that existing primitive routes and roads, with road template, are already in place. Changing the road use, season of use, or vehicle class allowed to access the route would have no effect on scenery. The prohibition of cross-country motorized vehicles would not result in noticeable reductions of impacts in the short-term as the natural rehabilitation of unauthorized routes in WSAs and lands with wilderness characteristics would take longer than one year. The visual impact from unauthorized routes may be noticeable until these areas naturally rehabilitate. Most unauthorized routes and their associated visual impacts are not noticeable in key viewsheds due to topographic and vegetative screening. The vast majority of authorized routes and user created unauthorized routes are in areas of low visual sensitivity and seldom seen. Where unauthorized motorized routes intersect the road or highway, a short duration view of a low impact occurs. The unimproved road or trail may be noticeable until the route naturally rehabilitates. In the long term, unauthorized motorized vehicle routes and impacted areas would naturally rehabilitate, due to the BLM actively managing to decommission and rehabilitate the unauthorized route.

[38] Acres listed for VRM classes are estimated due to the vintage of the spatial data from the 2002 SEORMP ROD; and will be revised prior to publication of the ROD for this Amendment.

Environmental Consequences

Analytical Methods

Impacts on visual resources were assessed based on whether proposed management actions could directly or indirectly impact scenic values. The contrast rating system is a systematic process used by the Bureau of Land Management (BLM) to analyze potential visual impact of proposed projects and activities. The basic philosophy underlying the system is: the degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts.

Management decisions on protected wilderness characteristics units may result in changes to the existing acreages of VRM classes.

Indicators

- Acres of the planning area in each VRM Class.
- Changes in Scenic Values (scenic quality, sensitivity levels, and distance zones)
- Conformance to VRM objectives using project-level visual contrast ratings

Assumptions

- A visual impact that persists more than five years is evaluated as a long-term effect. A short-term ESR visual effect would not persist more than five years.
- There would be no change to the VRM classes for areas outside of wilderness characteristics units.

Issue 1

How would visual resources be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Changes to visual resource management from the protection of lands with wilderness characteristics would be specific to wilderness characteristics units that are identified for protection in Alternatives B, C, D, and the PRMPA; because those units would be given the VRM Class II designation unless they are already designated as VRM Class I. The BLM does not think that the effects from changes in VRM class within lands with wilderness characteristics units would extend beyond those units or affect visual resources in other locations within the planning area. Under the action Alternatives B, C, D, and the PRMPA, there would be an increase in acreage of VRM Class II acres. This increase is anticipated to result in a positive effect to the visual resources in the units where the level of VRM class has been elevated. Figure 3-4 (below) provides a comparison of VRM Classes for the entire planning area by alternative (see also Map VRM 5 in the PRMPA/FEIS Appendix M and Maps VRM 1 to VRM 4 in Appendix M of the DRMPA/DEIS).

Under VRM Class II objectives, the level of change to the landscape should be low; management activities may be seen but should not attract the attention of the casual observer. The VRM Class II designation would protect visual resources (as noted in other resource sections such as forestry, fuels,

general vegetation, and invasive species); project designs in protected units under the PRMPA and Alternative B, C and D would be required to meet VRM Class II objectives and could result in fewer acres treated in areas of VRM Class II due to the cost for implementation to meet the visual resource objectives.

The remaining lands with wilderness characteristics that are not managed to prioritize protection of those characteristics would be managed as VRM Class III or Class IV, unless already managed as Class I or Class II. The objective of VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Activities may attract attention but should not dominate the view. The objective of Class IV is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. Under all alternatives there would be a consistent level of VRM Class I (28%) across the planning area.

No Action Alternative

Under the No Action Alternative, no changes to VRM Class in lands with wilderness characteristics units would occur. However, the implementation of the terms of the 2010 Settlement Agreement requires that the 76 units, totaling 1,236,907 acres, with wilderness characteristics units cannot be reduced in size or have their wilderness characteristics removed. These requirements limit the types of actions that can occur in these areas and, as a result, impacts to visual resources in the lands with wilderness characteristics units would tend to be minimal even though this alternative does not change the VRM class of these 76 units.

In the 76 wilderness characteristics units, there are: 24,949 acres of Class I; 113,059 acres of Class II; 152,803 acres of Class III; and 946,027 acres of Class IV. Under the No Action Alternative, the 76 wilderness characteristics units identified as having wilderness characteristics would continue to have a variety of the four VRM Classes (I, II, III, or IV). Of the 76 units: one is wholly located in VRM Class I; one unit is in VRM Class II; 11 units are wholly VRM Class IV; 15 units contain all four classes (I, II, III, IV); 10 units are VRM Class III and IV; and of the remaining 38 units they contain VRM Class I or Class II and a combination of one or more of VRM Classes III or IV.

Alternative A

Under Alternative A, no changes to VRM class in lands with wilderness characteristics units would occur. Under Alternative A, there are no specific protections for the lands with wilderness characteristics and, therefore, the effects to the visual resource would be limited by the existing VRM Class requirements.

There are: 24,949 acres of Class I, 113,059 acres of Class II, 152,803 acres of Class III and 946,027 acres of Class IV within the wilderness characteristics units. Under Alternative A the VRM Class of all 76 units would remain the same as the No Action Alternative.

Alternative B

Under Alternative B, all 76 lands with wilderness characteristics units totalling1,206,780 acres, would be prioritized for protection and would be classified as VRM Class II if not already identified as VRM Class I. Under this alternative 148,839 acres that were previously VRM Class III and 923,502 acres that were previously VRM Class IV (for a total of 1,072,341 acres) would be reclassified as VRM Class II. On-going actions in these units would be managed to retain the visual resources to minimize new visual contrast. Under Alternative B, all portions of the 76 units that are VRM Class III or IV would become VRM Class II. Overall, under Alternative B, the 76 units would be managed as: one-unit VRM Class I, 41 units as VRM Class II, and 34 units would contain both VRM Class I and II acres.

Alternative C

Under Alternative C, 27 lands with wilderness characteristics units totaling 167,709 acres, would be prioritized for protection and would be classified as VRM Class II if not already identified as VRM Class I. Under this alternative 21,505 acres that were previously VRM Class III and 109,770 acres that were previously VRM Class IV (for a total of 131,275 acres) would be reclassified as VRM Class II. Under this alternative 21,505 acres that were previously Class III and 109,770 that were Class IV would be reclassified as VRM Class II. On-going actions in these units would be managed to retain the visual resources to minimize new visual contrast.

Under Alternative C, all portions of the 27 units that would be prioritized to protect wilderness characteristics would be designated as VRM Class II unless already VRM Class I. Overall under Alternative C, the 27 units would be managed as follows: one-unit VRM Class I, nine units VRM Class II, and 17-units contain both VRM Class I and II acres.

Seven of the 27 units that would be managed for wilderness characteristics are composed of multiple parcels; nine parcels would not be managed for wilderness characteristics. Those nine parcels would continue to be managed under their current VRM management category: one parcel contains all four VRM classes, one parcel contains Class III, and the remaining seven parcels contain Class I or Class II and a combination of one or more of VRM Classes III or IV. For the 49 units that would be managed to prioritize other multiple uses, they would continue to be managed under their current VRM management, as follows; one unit VRM Class II, nine units VRM Class IV, eight units contain all four class (VRM I, II, III, IV), eight units are VRM Class III and IV, and the remaining 23 units contain Class I or Class II and a combination of one or more of VRM Classes III or IV.

Alternative D

Under Alternative D, 33 lands with wilderness characteristics units totaling 417,196 acres, would be prioritized for protection and would be classified as VRM Class II if not already identified as VRM Class I. Under this alternative there are 38,741 acres that were previously VRM Class III and 320,580 acres that were previously VRM Class IV (for a total of 359,321 acres) that would be reclassified as VRM Class II. On-going actions in these units would be managed to retain the visual resources to minimize new visual contrast.

Under Alternative D, the 33 protected units (55 protected parcels) would be managed as VRM Class II, unless already VRM Class I. Of the 33 units, 10 units would be designated wholly as VRM Class II and 23 units would contain acres of both VRM Class I and II.

There are also 10 parcels in the 33 units that would be prioritized for other multiple uses and would continue to be managed under the following VRM classes: one parcel contains Class I and II, and the remaining nine parcels contain VRM Class I or Class II and a combination of one or more of VRM Classes III or IV.

Under Alternative D, the remaining 43 units—in addition to the 10 unprotected parcels—that would be managed for other multiple uses, would continue to be designated as the following VRM classes: one unit is VRM Class I, eight units are VRM Class IV, five units contain all four VRM classes, seven units are VRM Class III and IV, and the remaining 22 units contain Class I or Class II and a combination of one or more of VRM Classes III or IV.

PRMPA

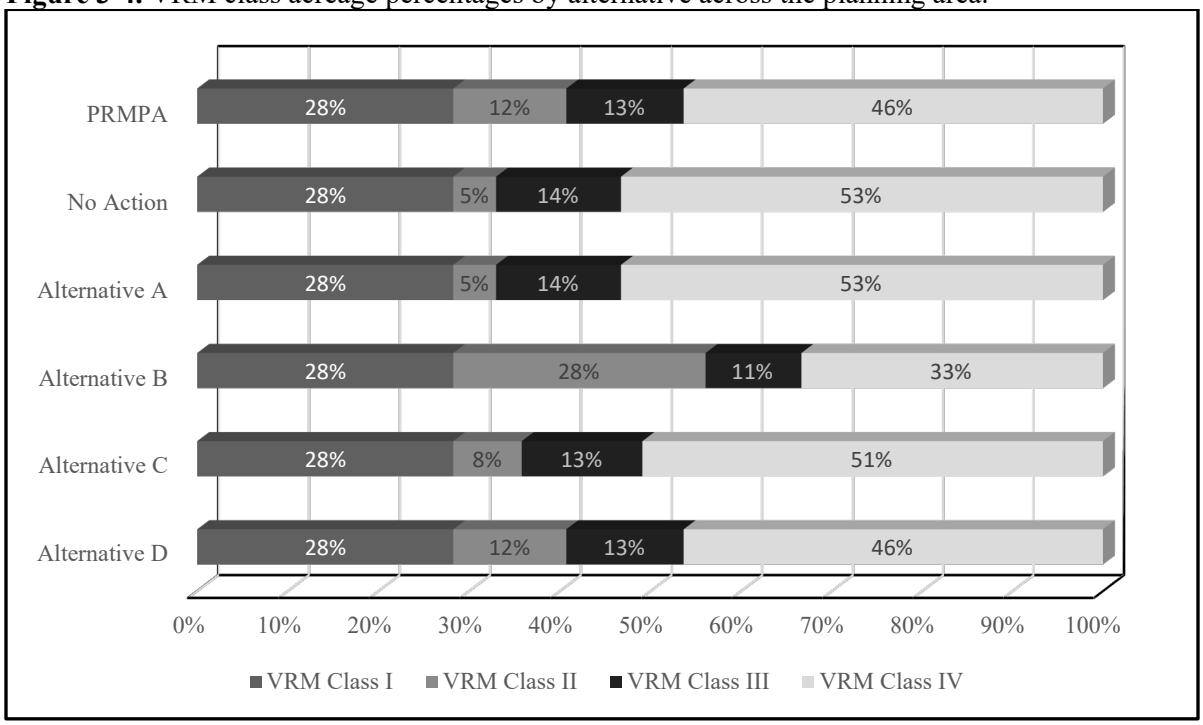
As with Alternative D, under the PRMPA, 33 protected units (55 protected parcels) totaling 417,190 acres would be managed as VRM Class II, unless already VRM Class I. Of the 33 protected units, 10 units would be designated wholly as VRM Class II and 23 units would contain acres of both VRM Class I and II.

There are also 10 parcels in the 33 units that would be prioritized for other multiple uses and would continue to be managed under the following VRM classes: one parcel contains Class I and II, and the remaining nine parcels contain VRM Class I or Class II and a combination of one or more of VRM Classes III or IV.

Under the PRMPA there are 38,741 acres that were previously VRM Class III and 320,580 acres that were previously VRM Class IV (for a total of 359,321 acres) that would be reclassified as VRM Class II.

Under the PRMPA the remaining 43 wilderness characteristics units—in addition to the 10 unprotected parcels identified above—would be managed for other multiple uses, and would continue to be managed under their 2002 SEORMP VRM designation: one unit is VRM Class I, eight units are VRM Class IV, five units contain all four VRM classes, seven units are VRM Class III and IV, and the remaining 22 units contain Class I or Class II and a combination of one or more of VRM Classes III or IV.

Figure 3-4. VRM class acreage percentages by alternative across the planning area.



Issue 2

How would visual resources be affected by a change in OHV area designations across the planning area?

- Potential effects from OHV area designations that the alternatives and related use may have on visual resources include degradation of visual quality from perpetuation of disruption to the natural appearance of landscapes when the routes do not follow natural landscape contours or change natural color and form from road cuts and fills and from OHV presence during time

of use. Other route use-related activities that can affect visual resources include littering and dumping, invasive or noxious weed expansion, and erosion scars.

- Alternatives with OHV Open or OHV Limited designations can contribute to the perpetuation of OHV use-related effects. Conversely, OHV Closed and Limited designations that prohibit OHV use wholly or in part can reduce or eliminate the perpetuation of the OHV use-effects, thereby benefitting visual resources.
- The recently completed Visual Resource Inventories (VRI) identified VRI Class I and II areas that were found to contain high quality visual resources despite the existing motorized roads and primitive routes. The visual resource inventory is an on the ground process that evaluated visual resources from key observation points which were recorded in contrast ratings that were used to identify boundaries of discrete VRI areas. The presence of the existing travel route network was a component of the potential boundaries of form, texture line and color. As potential boundaries of a VRI unit occurred, and while the presence of existing routes may impact the visual resource, the VRI I and II areas were nonetheless identified to possess high quality visual resources. Areas to be managed for VRM Class I and II areas are managed for high quality visual resources despite the existing routes. The VRM Classes III and IV allow for changes in form, line, and color.

No Action Alternative

Under the No Action Alternative, the OHV allocations for the planning area are: 359,869 acres designated as OHV Open to motorized use and access, including via existing roads and primitive routes; 4,264,748 acres designated as OHV Limited to existing roads and primitive routes; and 15,829 acres closed to motorized use and access. In areas that are closed to OHV use, no additional visual impacts from motorized use are occurring. In the closed areas, linear features of roads are either non-existent or visual scars from former OHV tracks are reverting to a more natural appearance over time.

In areas where OHV use is limited to existing routes, the visual effect of this is designation would continue to present a visual contrast where linear travel routes break the visual continuity (form and color) of the landscape. It is expected that where roads are maintained, this contrast would be increased, at least temporarily. Repeated use of primitive routes would continue to disrupt the visual continuity of the resource, but to a lesser degree than of maintained roads.

In areas designated as OHV Open, where cross country vehicle use is allowed, the visual effects from this cross-country use would be to increase the visual disruption to the viewshed as user-created routes proliferate. Continued use and maintenance of roads would maintain the visual contrast across the landscape.

Alternative A

Under Alternative A, the OHV allocations are the same as under the No Action Alternative and therefore the anticipated effects from these allocations are the same as described for the No Action Alternative.

Alternative B

Under Alternative B, the OHV allocations are: 2,513,842 acres OHV Closed; 2,127,604 acres OHV Limited (to existing roads and primitive routes); and no areas would be open to OHV motorized use (OHV Open). Under Alternative B, all WSAs and lands with wilderness characteristics would be closed to motorized use and access. This closure would help to enhance the scenic quality of these areas as the linear features of the roads and primitive routes revert to a more natural appearance over time and the visual scars from OHV tracks diminish. The linear feature of the primitive route will change on the landscape where vegetation could fill in and become less visible. The visual scars from OHV tracks will

revert back to a natural appearing landscape over the long term. The disruption to the natural appearance of the landscape from these routes would reduce over time and are expected to return to the natural landscape contours, color and form as OHV use is reduced along existing routes. It is also expected that other route use-related activities like littering, and route-related erosion would be reduced.

Under Alternative B, all public lands in the planning area that are not currently designated as OHV Closed (15,829 acres) under the No Action Alternative and are outside of WSAs and lands with wilderness characteristics units would be designated as OHV Limited. OHV use and access would be limited to existing roads and primitive routes in these areas. These areas would prohibit motorized use off these travel routes and can reduce or eliminate the perpetuation of negative OHV use-effects, thereby benefitting visual resources. Alternative B would provide the greatest benefit of all alternatives to visual resources from the OHV allocations.

Alternative C

Under Alternative C, the OHV allocations are: 15,829 acres OHV Closed; 4,518,539 acres OHV Limited to existing roads and primitive routes; and 107,075 acres would be designated as open to OHV motorized use (OHV Open). While Alternative C would not provide as much benefit to visual resources as the OHV area closures as Alternative B, the expansive area that would be designated as OHV Limited would restrict new user-created routes in all areas except those that would continue to be designated as OHV Open. As with Alternative B, the OHV Limited areas would likely continue to impact visual resources by the continued use of all existing routes in those areas and following road maintenance activities, as both impacts continue to reflect impacts to the natural landscape form and color, from the presence and use of available routes. Other use-related impacts from OHV activities would be expected to continue.

In the 107,075 acres that would continue to be managed as OHV Open, the current impacts to visual resources are expected to be maintained or increase. The existing roads and primitive routes would continue to see motorized use and user-created routes may proliferate. After Alternative B and the PRMPA, Alternative C would provide the most protection of visual resources as a result of the designation of an additional 252,794 acres as OHV Limited that are open to OHV use under the No Action Alternative and Alternative A.

Alternative D

Under Alternative D, the OHV allocations are: 15,829 acres OHV Closed; 4,299,928 acres OHV Limited (to existing roads and primitive routes); and 325,686 acres would be designated as open to OHV motorized use (OHV Open). Alternative D would have the same impacts to visual resources as described under Alternative B where OHV Open areas are designated as OHV Limited (34,183 acres). The OHV Limited designation is expected to limit user-created route proliferation but may concentrate OHV user-related impacts alongside roads and routes that continue to be available for use. The remaining OHV Open areas would be expected to continue to experience user-created route proliferation, and a continuation of use of existing motorized routes. The OHV Closed area is the same as the No Action Alternative and Alternative A and would continue to protect visual resources in those areas from impacts as a result of OHV activities. After the No Action Alternative and Alternative A, Alternative D would provide additional protection to visual resources; however, those protections would be lower than Alternative B, the PRMPA, and Alternative C.

PRMPA

After Alternative B, the PRMPA would provide the greatest protection of visual resources among the alternatives as a result of proposed OHV area designations. Under the PRMPA, OHV area allocations would be: 15,829 acres OHV Closed; 4,585,249 acres OHV Limited to existing roads and primitive routes; and 40,368 acres would (continue to) be designated as open to OHV motorized use (OHV Open).

As with Alternative B in OHV Limited areas, the impact to visual resources from OHV activities would be limited to those that occur on and adjacent to the existing roads and primitive routes. Negative impacts to visual resources would continue to be those that disrupt the natural contours or change the natural color and form from road cuts and from OHV presence during the time of use.

The two areas that would continue to be designated as OHV Open would be expected to have continued levels (acknowledging existing trends in population growth, vehicle technology changes, and the popularity growth of OHV activities as described in Section 3.7.2 Travel Management) of use and a potential for route proliferation.

Issue 3

How would visual resources be affected by BLM management actions that would reduce or eliminate livestock grazing as a result of Standards for Rangeland Health not being met due to existing livestock grazing or through a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to visual resources from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, under "Standards of Rangeland Health and Grazing Management Guidelines" the objectives of the Healthy Rangeland Initiative is to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Management responses to address resource conditions can enhance visual resources.

Under the PRMPA, the No Action Alternative and Alternatives A and C, if Standards for Rangeland Health are not being met and existing livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards. Site specific NEPA analysis would assess options to improve the conditions, including closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but is a management action than could be used to improve conditions. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards.

Under the PRMPA, reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, the PRMPA may provide a small increase in beneficial impacts to recreation over the No Action Alternative and Alternatives A and C alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur.

Under Alternatives B and D there is the potential for modification of grazing systems or reductions in or the removal of, livestock grazing in permitted areas — or both. This could occur as a result of either:

permitted areas not meeting Standards for Rangeland Health; or as the result of a voluntary permit relinquishment (for specific areas analyzed, see Appendix A Table A-2 for the identified areas addressed under Alternative B and Table A-4 for areas addressed under Alternative D). Because the BLM cannot predict where areas may not meet Standards for Rangeland Health due to livestock grazing or what area may receive a permit relinquishment, the effects under all of the alternatives are described generally instead of in relation to specific management (see Appendix A–Alternatives and Section 3.7.3 Livestock Grazing and Rangeland Management, Assumptions).

No Action, Alternatives A and C

Effects to visual resources from the assumed level of livestock grazing under these alternatives can include contrast between areas of livestock disturbance on soils and vegetation, and contrasts along fencelines where tumbleweeds accumulate. These effects to vegetation are described in Section 3.7.6 General Vegetation.

Alternative B

Under Alternative B, areas would be closed to livestock grazing for the duration of the plan if an area was found to not be meeting Standards for Rangeland Health due to either livestock grazing or if a permit was relinquished, or both. The effects of this removal of livestock grazing would be an increase in visual scenery resulting from assumed improvements in ecological function (either improved vegetation conditions or improved riparian area condition and function, or both) resulting from the removal of livestock. See Section 3.7.5 Water Resources and Section 3.7.6 General Vegetation and Section 3.7.7 Invasive Species for a detailed description of the anticipated effects resulting from the elimination of livestock grazing.

Visual resources would improve as bare ground around gates, fences, water and dietary supplement locations become filled in with vegetation. Overall, it is expected that potential reductions in livestock grazing resulting from Alternative B would benefit visual resources where those reductions occur. However, as noted in Section 3.7.9 Fire and Fuels Management, although Alternative B would provide the most visual protection to wilderness characteristics, approximately 72% of the landscape of the proposed units for protection are in a low resistance/resilience class (Map FF1, Resistance Resilience). Areas that have low resistance and resilience would likely not recover naturally and have a high potential for annual grassland conversion, this conversion does not lend itself to an increase in visual resources in the landscape.

Alternative D

Under Alternative D, areas would be temporarily closed to livestock grazing if an area was found to not be meeting Standards for Rangeland Health due to livestock grazing. Under Alternative D, livestock grazing could be resumed if the area began showing progress toward meeting Standards for Rangeland Health. The intensity and duration of the positive effects to visual resources may be somewhat less than under Alternative B where livestock grazing would be removed for the life of the RMP Amendment. However, under Alternative D the area would be showing progress toward meeting the Standards for Rangeland Health and so it is assumed that improved ecological processes would be underway and contributing to visual resource.

Under Alternative D, the BLM would eliminate or reduce grazing in a fewer subset of areas than Alternative B upon the receipt of a permit relinquishment. Either this elimination or reduction in grazing, or both, would result in improvements in ecological function resulting from the removal or reduction in livestock grazing and, therefore, a positive effect on visual resources is anticipated. The intensity and duration of the effect to the visual resource may be somewhat less than under Alternative B where

livestock grazing would be completely removed for the life to the RMP Amendment in a wider number of areas when a permit relinquishment is received.

Visual resources would improve as bare ground around gates, fences, water and dietary supplement locations become filled in with vegetation. Overall, it is expected that potential reductions in livestock grazing resulting from Alternative D would benefit the visual resources where those reductions occur.

PRMPA

Livestock management policy and guidance and their implementation under the PRMPA would be similar to the No Action Alternative and Alternatives A and C as described above. However, the PRMPA may provide a small increase in beneficial impacts to visual resources as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor. This policy could have a beneficial effect on visual resources to a greater extent than the No Action and Alternatives A and C as progress toward meeting Standards improves the natural landscape by enhancing the visual elements of color and texture. The PRMPA also proposes not increasing AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions. Not increasing AUMs in these areas could promote the maintenance of the existing visual resources to a greater extent than under the No Action Alternative and Alternatives A and C.

Visual Resources Cumulative Effects Summary

Cumulative effects common to all Alternatives

For visual resources, the geographic scale extends beyond the planning area to include viewsheds on the planning area's periphery. The RFFAs associated with the Boardman to Hemingway (B2H Project) 500-kV Transmission Line and mining projects including Octagon, Grassy Mountain, and lithium exploration and development have the potential to have long term impacts to visual resources.

The Tri-state Fuel Break project, the LCGMA Permit Renewal and Restoration, and the Northwest Malheur Restoration Habitat and Fuels and the Northwest Malheur Mineral Material Site projects may have an impact on visual resources, but those impacts would not change across the alternatives. Additionally, these projects are of a defined duration with higher visual contrasts during implementation and lessening with time and design features or rehabilitation efforts after project completion.

In the cases of the Boardman to Hemingway and Northwest Malheur Restoration and Fuels projects, the final Decision Record has been completed; the alternatives for each were analyzed and resource impacts, including to visual resources, was finalized. The B2H project avoided all wilderness characteristics units and thus would not impact a change under this Amendment to VRM Class. The Northwest Malheur Restoration project considered impacts to wilderness characteristics and was designed to conform to the 2010 Settlement Agreement; no additional incremental impact to visual resources would add cumulative impacts.

The Northwest Malheur Mineral Material Site project considers: the development of multiple new (a range of one to fourteen sites—individually up to 40 acres in size—is being considered) and one expanded material sites to produce gravel to restore existing deteriorated road surfaces that are intended to facilitate implementation of the restoration and fuels objectives of the NW Malheur Restoration project. Impacts to visual resources from this project would be limited to the development of the new material sites (for a period up to 20 years, after which they would be rehabilitated) and the temporary impacts of staging areas. The materials would be placed on existing road surfaces which would not impact visual resources above the existing break in texture and contrast along the roads. The color criteria

could have a temporary visual impact as a result of fresh rock being placed on the existing routes. These additional impacts to visual resources would be temporary, except at the material sites, which would be rehabilitated at the end of the 20-year period. After initial material site development (excavation and material stockpiling), sites may receive interim rehabilitation (seeding and invasive species management, for example) which would further reduce temporary visual impacts.

The Grassy Mountain, Malheur Queen and Octagon gold mine projects and construction or improvement of access routes are in areas where no VRM class is proposed for change in the alternatives. All three mines are located in VRM Class IV areas; the Grassy Mountain project is split by VRM Class III and IV. The impacts from these projects would be on hardening the access route for repeated heavy equipment access, realignment of some road segments, and additionally—in the case of the Grassy Mountain mine—the approximately 500 acres mining operation site. The active mining operations would result in visual contrasts to the existing landscape as a result of road upgrades and the mining disturbance; these contrasts would be obvious to most public land users. Only in the case of the Grassy Mountain project would these impacts be to the existing natural landscape; the Malheur Queen and Octagon projects are proposed in historically mined areas.

There is a potential for impacts to visual resources from the lithium exploration in the McDermitt caldera portion of the planning area. This area is wholly VRM class IV, in large part due to the historic uranium and mercury mining that occurred in the mid-20th century. The proposed exploration within the 9,120 acre project area would not meet the existing VRM Class II, or III objectives of the existing RMP. The existing character of the landscape would not be retained, and the level of change to the characteristic landscape would be noticeable and likely attract the attention of the casual observer, and would continue to have limited visual contrast after reclamation. Negative impacts to night sky during lithium exploration activities could occur due to more activity in the area but the impact would be temporary and short term.

VRM Class objectives allow up to five years for contrasts to fall within prescribed limits, and all projects, regardless of VRM class, must be designed to prevent unnecessary and undue degradation of resources, including visual resources. Project design features or mitigation measures help to ensure that the VRM Class is met and therefore, these project level measures help to decrease the visual resource management level impacts that could incrementally—directly or indirectly—contribute to cumulative impacts.

One project (the residential trespass) identified in the RFFAs in Table 3-1 could result in a change to VRM Class designations; however, the trespass is not located in an area possessing wilderness characteristics. Only wilderness characteristics units that are proposed for protection in of the alternatives are considered for changes in VRM Class designations. The Boardman to Hemingway (B2H) Project, proposing a 500kV powerline crossing the northeast portion of the planning area, made changes in the VRM classes (BLM 2017a, Section Land-use Plan Amendments). This change will alter 51 acres from Class III to Class IV and 20 acres from Class II to Class IV.

As noted in other Sections (3.7.6 General Vegetation, 3.7.7 Invasive Species, 3.7.8 Forest and Woodlands, and 3.7.9 Fire and Fuels Management) the number of acres requiring special design features required to adhere to VRM Class II in protected units in the alternatives, increases implementation planning, time to complete treatments and costs. Therefore, there would be a decrease in the number of acres being treated (due to limited funding) and may result in lower success of restoration treatments. In general, reasonably foreseeable future actions that are targeted at restoration or rehabilitation of degraded areas would have the overall effect of maintaining and improving visual resources by restoring the landscape's basic elements of form, line, color and texture through improved vegetation and overall ecology of the planning area. The boundaries between the treated and untreated areas will need to be designed to conform to form, and line using the topography and vegetation to reduce introducing visual contrasts and different landscape patterns.

The Tri-state Fuel Breaks project would use mowing, seeding of native and non-native species and a combination of mowing and seeding to create 220 miles of fuel breaks within 200 feet on either side of

proposed roads totaling 10,667 acres of proposed fuel break treatments within the analysis area. Additional ground disturbing actions included with the Tri-state Fuel Breaks project are road maintenance and the development of four wells and four gravel pits equal to 82 acres of new surface disturbance. These 82 acres would remain permanently disturbed resulting in both short- and long-term effects to visual resource however, these are located in visual resources areas that are seldom seen, have low sensitivity and would be located where there is vegetative and topographic screening. The 82 acres is disbursed through the Tri-state project area where visual impacts would be absorbed into the landscape. Tri-state project actions are designed to not contribute to visual resource impacts because the visual resources of vegetation composition would remain the same or tend toward more natural vegetation. In areas where disturbance is proposed that could be noticeable, the VRM is Class IV and would conform to this VRM Class or the development would be screened from primary travel corridors. There would be negligible long term cumulative impacts to visual quality because the treatment areas would not impact the setting of any viewsheds managed to VRM Class I, II, or III objectives, they would not result in any cumulative impacts to these VRM classes. The visual quality of the area would remain intact to the existing condition of visual resources in the Tri-state area.

If the Idaho District Court's preliminary injunction remains in effect and implementation of the Key RNA decisions in the 2015 Oregon Greater Sage-Grouse ARMPA (BLM 2015d) moves forward, up to approximately eight miles of new fencing could be constructed in Key RNAs that are also in areas that are designated as VRM Class I. This could result in approximately an additional 1–2 acres of ground disturbance in VRM Class I areas that are associated with fence construction and potential development of livestock trails adjacent to the new fences. This impact could have an impact in long-term visual contrast in VRM Class I, but the fence would be located in areas that have low sensitivity and are seldom seen. If the injunction is lifted and the 2019 Oregon Greater Sage-Grouse ARMPA (2019d) is implemented, approximately 9,354 acres would become available for livestock grazing once again. Under this scenario the potential for fencing described above (and the associated ground disturbance) would not occur.

Visual design features included in the LCGMA would result in vegetation treatment edges that mimic natural transitions between vegetation types that create little to no discernable contrast in form, line, color and texture. In the long term, once mixed vegetation communities are established, the visual variety created by the LCGMA could result in a more interesting visual landscape. Evidence of human created alteration to the vegetation should diminish considerably after five years which would not cumulatively impact visual resources. Under all livestock administration actions in the LCGMA, the fences and other visual environment elements characteristic of the landscape are either screened from view of primary travel corridors by landform and vegetation or the project elements are small enough and common enough to see in these landscapes as to be mostly unnoticeable to the casual observer.

No Action and Alternative A

The No Action Alternative and Alternative A continue the current levels of VRM classifications. Class I protection (1,310,702 acres) would be the same as Alternatives B, C and D, but VRM Class II would be lowest among the alternative (219,040 acres. Ongoing OHV use would remain unchanged, where the vast majority of OHV area designations throughout the district are already OHV Limited. Other on-going and RFFAs cumulative impacts would be the same as described for common to all alternatives, this Section.

Alternative B

Alternative B provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) but provides the most protection under a VRM Class II (1,291,381 acres) designation because all wilderness characteristics units (excluding boundary road setbacks) would be designated as VRM Class II. Alternative B also provides the most protection of visual resources by eliminating all OHV Open areas. Alternative B would not contribute to a measurable increase in long-term negative impacts to

visual resources as the individual projects would be designed and implemented to blend with the natural landscape character, meet VRM Class II objectives as appropriate, and successful restoration efforts would return areas to native plant communities thus improving the overall character of the landscape.

Alternative C

Under Alternative C, there would be 27 protected wilderness characteristics units that would be managed as VRM II. Alternative C offers less protection to visual resources on future projects in units with wilderness characteristics compared to the No Action Alternative and Alternatives B and D, but more than in Alternative A. Alternative C includes substantially more exclusion areas than the No Action Alternative, Alternative A, and the PRMPA but fewer than Alternatives B and D. Alternative C provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) and provides the third most protection to VRM Class II with more acres than the No Action Alternative, Alternative A, and the PRMPA.

Reasonably foreseeable future actions in the LCGMA project could affect two (Coyote Wells and Sacramento Hill) protected wilderness characteristics units under this alternative and the proposed projects in the two units would only take place if they could meet the lands with wilderness characteristics objective and VRM Class II. Reasonably foreseeable future grazing management actions for rehabilitation and restoration in the two protected wilderness characteristics units under Alternatives C would be designed to maintain VRM Class II or would not be allowed. The LCGMA project restoration and livestock grazing improvement actions could affect nine unprotected wilderness characteristics units and those projects could be implemented without creating cumulative visual resource impacts as the projects would be located in areas where there is an allowance for change to the visual setting, because they would be located in areas managed as VRM Class III or IV.

Under Alternative C, within the Northwest Malheur Restoration and Fuels Treatment project area, the West Fork Bendire wilderness characteristics unit would be prioritized for protection and would be managed for VRM Class II. The NW Malheur Restoration project alternatives were all analyzed for their impact on wilderness characteristics under the requirements of the 2010 Settlement Agreement; all actions were analyzed to ensure the continued protection of the wilderness characteristics and therefore would not have additional incremental impacts to wilderness characteristics. The unit totaling 10,514 acres would require additional design features for forest management operations, and would consist of managing stump height, camouflaging flush cut stumps with dirt or slash, minimizing pre-marked skid trails and distances, which would have a short-term negative effect on the visual quality. Although the design features would mitigate any long-term effects, design features to limit the visual impacts to meet VRM Class II objectives include rehabilitation of surface disturbance shortly after project conclusion. However, the improved ecological processes will have a long-term positive effect on visual quality. The short- and long-term positive cumulative effect is the reduction of the possibility of large scale, stand replacing fires; and long-term benefit of restoring ecological function.

The Northwest Malheur Mineral Material project would have temporary visual impacts during transport and placement of materials (gravel) to meet existing road objectives. The development of the material sites would have an additional impact to visual resources for an estimated 20 years, until the sites are rehabilitated.

Alternative D

Alternative D provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) and provides the second most protection to VRM Class II with 578,361 acres. Reasonably foreseeable future actions in the LCGMA project could affect eight protected wilderness characteristics units under this alternative; the cumulative impacts would be the same as Alternative C.

Under Alternative D, the Northwest Malheur Restoration projects cumulative impacts to visual resources would be the same as Alternative C.

As with Alternatives B and C, there is no additional impact as a result of the RFFAs that have not been considered in the project level analysis, with the exception of the Northwest Malheur Mineral Material Site project, which would have temporary impacts during operations, and long-term impacts as a result of the development of the material sources (pits), until rehabilitated.

PRMPA

The PRMPA provides the same amount of protection for VRM Class I as the other alternatives (1,310,702 acres) but provides the second most (same level as Alternative D) protection as a result of VRM Class II designations. Under the PRMPA, the cumulative impacts to visual resources would be the same as Alternatives C and D as a result of the Northwest Malheur Restoration projects.

As with Alternatives B, C and D, there is no additional impact as a result of the RFFAs that have not been considered in the project level analysis, with two exceptions. The Northwest Malheur Mineral Material Site project, which would have temporary impacts during operations, and long-term impacts as a result of the development of the material sources (pits), until rehabilitated. The Grassy Mountain, Octagon and Malheur Queen gold mining operations and exploration for lithium could have impacts to visual resources, but would have the same effects across all alternatives.

3.7.17 Areas of Critical Environmental Concern

Key Point

The 2002 SEORMP and ROD has processes in place to protect Areas of Critical Environmental Concern (ACECs) and Research Natural Areas (RNAs) relevant and important values (values). Wildfires that may occur after long-term removal of grazing, would have the most impact on ACECs and RNAs.

Affected Environment

Desired Conditions

The BLM desires to maintain or improve the designated relevant and important values of each ACEC and RNA.

Current Conditions

ACECs are parcels of public land that require special management attention to protect unique features or values. RNAs are a category of ACECs and are areas that contain natural resource values of scientific interest that are managed primarily for research and educational purposes. Currently, there are 28 ACECs covering approximately 206,920 acres in the planning area (Map SMA 1 in Appendix M) of which 17 are RNAs. Table 3-40 below summarizes the relevant and important values for each ACEC and RNA. A more detailed description of each ACEC and RNA is located in the 2002 SEORMP and ROD (73–102). Five ACECs have detailed management plans: Leslie Gulch ACEC, South Alkali Sand Hills ACEC, and the three Oregon Historic Trail ACEC parcels.

Table 3-40. Relevant and important values of ACECs and RNAs in the planning area.

Name—Original Designation Year	Acres[a]	Relevant and Important Values[b]
Black Canyon ACEC/RNA—2002	2,637	Stiff sagebrush/Sandberg bluegrass, western juniper/big sagebrush/bluebunch wheatgrass, riparian community dominated by coyote willow with Pacific willow, first to third order stream systems in sagebrush zone
Castle Rock ACEC—2002	22,798	Scenic, cultural, historic, and wildlife habitat. The scenic value surrounding Castle Rock is rated as a VRM Class II with "A" quality scenery and high sensitivity. Cultural values are associated with both prehistoric and historic use of the area as an important landmark for American Indians, as well as emigrants traveling through the area. Wildlife values are associated with the abrupt elevation change which has resulted in a unique area with many habitat types in close proximity to each other
Coal Mine Basin ACEC/RNA—2002	755	Two Special Status plant species, ash communities, and paleontological resources
Dry Creek Bench ACEC/RNA—2002	1,636	Mountain mahogany/whortleleaf snowberry/Idaho fescue and mountain mahogany/big sagebrush/Idaho fescue Basin and Range Province vegetation cells identified by the Oregon Natural Heritage Program (ONHP)
Dry Creek Gorge ACEC—2002	16,094	Scenery, Special Status fish and amphibian species and associated habitat, and rare geologic features
Hammond Hill Sand Hills ACEC/RNA—2002	3,713	Big sagebrush/antelope bitterbrush/Indian ricegrass and big sagebrush-greasewood/Indian ricegrass vegetation cells identified by the ONHP
Honeycombs ACEC/RNA—1983	15,855	Scenery, geologic formations, bighorn sheep and habitat, four Special Status plant species (sterile milkvetch, Ertter's senecio, grimy ivesia, and Owyhee clover), and big sagebrush/needle and thread grass on cinders plant community which meets a vegetation cell need identified by the ONHP
Jordan Craters ACEC/RNA–1983	31,332	Historic, cultural, scenic, wildlife habitat, Special Status animals and habitat, rare plants (numerous fern species in a desert environment), terrestrial plant community (threetip sagebrush/bluebunch wheatgrass), riparian plant community (freshwater pond system), and rare geologic features (multiple age lava flows)
Lake Ridge ACEC/RNA—2002	3,857	Low sagebrush/bluebunch wheatgrass community and low sagebrush/Idaho fescue community vegetation cells identified by the ONHP. Greater Sage-grouse, which frequent the area, and several leks have also been identified as a relevance and importance value
Leslie Gulch ACEC—1983	11,673	High scenic values associated with the colorful ash talus cliff, bighorn sheep and habitat, and five Special Status plant species, which include Packard's mentzelia, Grimy ivesia, sterile milkvetch, Ertter's senecio, and Owyhee clover. A detailed management plan was written for the area and signed in 1995
Little Whitehorse Creek Exclosure ACEC/RNA—2002	61	Vegetation cells identified by the ONHP: first to third order stream, high gradient reach, in sagebrush zone with mountain alder and red osier dogwood; riparian community dominated by mountain alder and red osier dogwood, with potential black cottonwood; and riparian community dominated by Pacific

Name—Original Designation Year	Acres[a]	Relevant and Important Values[b]
		willow and Wood's rose. Another relevant and important value associated with this ACEC/RNA is the presence of Lahontan cutthroat trout, a federally-listed threatened species located within Little Whitehorse Creek
Mahogany Ridge ACEC/RNA—1983	681	Habitat for the broad-tailed hummingbird and other neotropical migratory birds, a Special Status plant species (Owyhee clover), and the mountain mahogany-big sagebrush vegetation communities identified by the ONHP
Mendi Gore Playa ACEC/RNA—2002	149	Winterfat community and a small area representing a black sagebrush community, which are vegetation cells identified by the ONHP
North Fork Malheur ACEC/RNA—2002	1,774	Scenery, two Special Status fish and their habitat, and a Special Status amphibian and habitat
North Ridge Bully Creek ACEC/RNA—2002	1,568	Big sagebrush/Thurber needlegrass community and big sagebrush-threetip sagebrush/Idaho fescue community vegetation cells identified by the ONHP. Sage-grouse and their associated habitat have also been identified as a relevant and important value
Oregon Historic Trail ACEC Birch Creek—2002	119	Historic and scenic; a detailed management plan was written for the area and signed in 1995
Oregon Historic Trail ACEC Keeney Pass—2002	3,162	Historic, scenic, and a Special Status plant species—Cronquist's stickseed. A detailed management plan was written for the area and signed in 1995
Oregon Historic Trail ACEC Tub Mountain—2002	5,906	Historic, cultural, and scenic. The scenic values of this ACEC are associated with the integrity of the historical landscape. The rolling hills covered with sagebrush, grasses, and dust remain relatively unchanged since the emigrants passed through this country and contribute to the overall scenic value. A detailed management plan was written for the area and signed in 1995
Owyhee River Below the Dam ACEC—2002	11,217	High scenic values of diverse landscape elements in a substantially natural setting, a Special Status plant species (Mulford's milkvetch), the rare presence of a black cottonwood gallery in a riverine system, and the combined wildlife values of diverse habitat types supporting a large number of wildlife species and an important migratory corridor for neotropical birds
Owyhee Views ACEC—2002	52,548	Highly scenic properties associated with the area's virtually unaltered landscape, bighorn sheep and habitat, and Special Status plant species (sterile milkvetch, Ertter's senecio, and Owyhee clover). A former Special Status plant species (Cusick's chaenactis) is suspected to grow in the area. The visual sensitivity of the area is elevated due to the current level and expected future increases of recreation use, both on the reservoir and within the ACEC
Palomino Playa ACEC/RNA—2002	642	Shadscale saltbush/bunchgrass, black greasewood/bunchgrass community mosaic and bare playa community vegetation cells as identified by the ONHP, as well as the Special Status plant species, Davis' peppergrass
Saddle Butte ACEC/RNA—1983	7,056	Sensitive wildlife species and habitat, rare geologic features, and the lava tube cave system

Name—Original Designation Year	Acres[a]	Relevant and Important Values[b]
South Alkali Sand Hills ACEC—2002	3,520	Two Special Status plant species and their habitat.
South Bull Canyon ACEC/RNA—2002	789	Big sagebrush-antelope bitterbrush/Idaho fescue vegetation cell as identified by the ONHP
South Ridge Bully Creek ACEC—2002	620	Big sagebrush/Thurber needlegrass community and big sagebrush-squaw apple/Idaho fescue community vegetation cells identified by the ONHP. Sage-grouse, loggerhead shrikes, and their associated habitat have also been identified as relevant and important values
Spring Mountain ACEC/RNA—2002	995	Mountain big sagebrush/Idaho fescue, low sagebrush/bluebunch wheatgrass, and riparian community dominated by peachleaf willow and coyote willow with quaking aspen/whortleleaf snowberry vegetation cells identified by the ONHP. There are several quaking aspen patches associated with springs and north-facing talus slopes within the ACEC/RNA
Stockade Mountain ACEC/RNA—1983	1,767	Wildlife habitat and old growth western juniper/big sagebrush/bunchgrass communities within interspersed low sagebrush communities identified by the ONHP
Toppin Creek Butte ACEC/RNA—2002	3,995	Low sagebrush/bluebunch wheatgrass community in excellent condition and low sagebrush/Idaho fescue plant community vegetation cells identified by the ONHP. These plant communities will be specially managed for current and future research. Also identified as relevant and important values are Sage- grouse and associated habitat for neotropical bird migration
Total Acres	**206,920**	

Notes:
[a]Acreage estimates are based on current boundaries contained in a geographic information system dataset. Non-BLM lands are excluded from these estimates whenever possible.
[b]See the Potential RNA/ACEC inventory for the Malheur and Jordan Resource Areas (BLM 2002) for detailed descriptions of ACEC relevance and importance values.

Since 2002, large fires have burned large portions of ACECs and RNAs. ACECs and RNAs in which greater than 50% have been burned include the following: Coal Mine Basin RNA, Dry Creek Bench RNA, Leslie Gulch ACEC, Little Whitehorse Creek Exclosure RNA, North Ridge Bully Creek RNA, Oregon National Historic Trail ACEC—Tub Mountain Segment, Saddle Butte ACEC, South Ridge Bully Creek RNA, Spring Mountain RNA, and Stockade Mountain RNA. The majority of these ACECs and RNAs did not receive any post-fire rehabilitation and were allowed to recover naturally. Typically, ACECs and RNAs have a lower occurrence of noxious and invasive weeds or the relevance and importance values such as geologic, scenic, or cultural do not require rehabilitation to maintain the values. Leslie Gulch ACEC, North Ridge Bully Creek RNA, and South Ridge Bully Creek RNA are exceptions and received post-fire treatments with the herbicide imazapic in 2015 to help control invasive annual grasses, specifically cheatgrass. To provide competition with cheatgrass, in 2015, approximately 260 acres of Leslie Gulch ACEC was seeded with a locally sourced native seed mix in areas that could not be treated with herbicides.

There have been two notable changes to the management of ACECs and RNAs since 2002. The Wind Energy Programmatic EIS established the policy that all ACECs were to be excluded from wind development. IM 2009-043 changes this policy to ensure consideration of the purpose and specific environmental sensitivities for which the ACEC was designated (BLM 2009b). All new, revised, or amended land use planning efforts will address and analyze ACEC land use restrictions individually,

including restrictions to wind energy development. For future land use planning efforts, ACECs will not universally be excluded from wind energy site testing and monitoring or wind energy development but will be managed consistent with the management prescriptions for the individual ACEC. Existing land use plans and planning efforts may be amended as necessary, with an appropriate level of NEPA analysis and decision, to address this change in wind energy and ACEC policy, consistent with the procedures of 43 CFR 1610.5.5. A site-specific land use plan amendment to address this change in policy may occur concurrently with the processing of a wind energy application. Consistent with the management prescriptions for the individual ACEC, this revised policy will continue to provide protection of sensitive resource values in ACECs.

The 2015 Oregon GRSG ARMPA (BLM 2015d) made all or portions of 15 key RNAs unavailable for livestock grazing to serve as areas for baseline monitoring and research for plant associations that are important for Greater Sage-grouse[39]. There are nine key RNAs within the SEORMP planning area: Black Canyon, Dry Creek Bench, Lake Ridge, Mahogany Ridge, North Ridge Bully Creek, South Bull Canyon, South Ridge Bully Creek, Spring Mountain, and Toppin Creek Butte.

Activities in the planning area that are within ACECs and RNAs include the following: livestock grazing, wildfire suppression and Emergency Stabilization and Rehabilitation activities, road maintenance, recreation activities, the Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment, and noxious weed treatments. These projects have been designed to maintain or improve the relevant and important values of the ACEC or RNA they are within.

A discussion of the influence climate change may have on the relevant and important values is provided in the related resource Sections: 3.7.6 General Vegetation, 3.7.10 Special Status Plants, 3.7.11 Fish and Wildlife, and 3.7.13 Cultural and Paleontological Resources. Geologic and scenic relevant and important values are not impacted by climate change.

Trends

ACECs and RNAs are periodically monitored to assess the condition of the relevant and important values. The majority of ACEC and RNA monitoring has been observational, consisting of a visit to the ACEC or RNA, with observations documented on an Observation Record. These observations are qualitative and often do not occur at a set interval. The records do not show trends, but they do document the condition of the ACEC or RNA on that date. Table 3-41 below shows the most recent date of observational monitoring for each ACEC and if the relevant and important values are maintained. The Malheur Field Office is setting up long-term quantitative monitoring in ACECs and RNAs. Currently, monitoring plots have been established and base-line data has been collected in10 RNAs: Black Canyon, Dry Creek Bench, Lake Ridge, Mahogany Ridge, North Ridge Bully Creek, South Bull Canyon, South Ridge Bully Creek, Spring Mountain, Stockade Mountain, and Toppin Creek Butte. These RNAs will be monitored every five years to find trends and evaluate changes in the vegetative community.

For some ACECs and RNAs, it has been many years since the relevant and important values have been assessed. Conditions reported in Table 3-41 below may have changed since the last observations. Monitoring has identified all but four ACECs and RNAs as having their relevant and important values maintained. Castle Rock ACEC, Honeycombs RNA, and Mendi Gore Playa RNA identify disturbance to

[39] The 2015 GRSG ARMPA designated all or portions of nine (9,354 acres) "Key" Research Natural Areas (RNA) in the SEO planning area as unavailable to livestock grazing (ARMPA p 2-18, Table 2-6, BLM 2015d). In March 2019, BLM issued an additional Record of Decision (ROD) to amend this portion of the 2015 ARMPA to make the Key RNAs available to grazing; this decision was subsequently appealed. In October 2019, the US District Court of Idaho (1:16-CV-00083-BLW) enjoined the implementation of the March 2019 ROD. During this injunction, the 2015 ROD remains in effect. The BLM has begun the process of removing livestock grazing from all or portions of the Key RNAs as identified in the 2015 ARMPA.

vegetation communities due to wildfire as the factor leading to values being disturbed. The standards process has been completed for the Dry Creek Geographic Management Area that includes Dry Creek Gorge ACEC, which found OR/WA Standards 2 and 4 to not be met. It was determined the significant causal factors were existing livestock grazing and other factors. The Special Status fish and amphibian habitat value of the ACEC is disturbed.

Table 3-41. ACEC and RNA monitoring and the condition of relevant and important values.[a]

ACEC/RNA Name	Date Last Monitored	Condition of Relevant and Important Values[a]
Black Canyon ACEC/RNA	6/24/2014	Maintained. Riparian looks very healthy and not disturbed. Adjacent uplands look stressed due to drought.
Castle Rock ACEC	9/6/2007	Disturbed. The Irish Spring fire of 2007 disturbed Sage-grouse habitat in the northern portion of the ACEC. The fires in 2006 and 2007 did reduce the encroachment of western juniper which resulted in some habitat improvement.
Coal Mine Basin ACEC/RNA	8/26/2015	Maintained. 2015 Soda fire did not burn in the RNA. No sign of cheatgrass. Too late in the season to observe the Special Status plants.
Dry Creek Bench ACEC/RNA	6/11/2013	Maintained. 2012 Holloway fire burned through the RNA. The patchy burn left many mahogany stands intact. Vegetation has come back well and there are some mahogany seedlings.
Dry Creek Gorge ACEC	2006	Disturbed. Dry Creek [within the ACEC] is not meeting Standard 2 Watershed Function and Standard 4 Water Quality. The width to depth ratio is too high, the channel is recreating a new flood plain. Condition of riparian cover is poor on some stream segments. No trees and no woody vegetation other than mock-orange, red osier dogwood, coyote willow, and a few whiplash willows are present throughout the Geographic Management Area. Woody vegetation is browsed heavily by livestock and wildlife. Dominant riparian species are sedges and grasses, which are abundant in protected gorge areas but are heavily utilized in sites accessible to livestock. There were saltcedar plants scattered through the lower segment of Hurley Spring pasture[b].
Hammond Hills Sand Hills ACEC/RNA	5/23/2008	Maintained. Noxious weeds are present.
Honeycombs ACEC/RNA	7/25/2007	Disturbed. The 2002 Atkins Butte fire burned the southern portion of the RNA and changed the vegetation communities. Shrubs are still missing due to the fire and grasses in the burned area are mostly annuals. Scenic values remain and public use is light. No cattle observed but recent sign at end of road at lower Three Fingers Creek.
Lake Ridge ACEC/RNA	7/10/2017	Maintained. No signs of disturbance. Little sign of livestock use. No weeds observed.
Leslie Gulch ACEC/RNA	6/7/2017	Maintained. West side of ACEC veg looks good. 2015 observations discuss annual weeds along the main Leslie Gulch road, but plant sites are in good condition.
Little Whitehouse Creek Exclosure ACEC/RNA	6/17/2008	Maintained. In 2003 there was a grazing trespass that caused extensive damage to herbaceous vegetation and some damage to willows and alders. Observations made in 2008 noted no obvious disturbance or sign of cattle. Riparian and fish relevant and important values are functioning and intact.
Mahogany Ridge ACEC/RNA	7/17/2006	Maintained. In 2006, there was isolated heavy use of vegetation in flat areas due to cattle grazing.
Mendi Gore ACEC/RNA	8/15/2012	Winterfat community maintained, black sagebrush community in early seral state. The winterfat community was not affected by the Long Draw fire, the black sagebrush community was completely burned, unsure of how it will reestablish.

ACEC/RNA Name	Date Last Monitored	Condition of Relevant and Important Values[a]
North Fork Malheur River ACEC/RNA	10/16/2019	Maintained. The riparian vegetation appears to be in excellent condition with vigorous vegetation growth and a high percent bank cover of stabilizing riparian species. Grazing actions in the North Fork Malheur River were in compliance with the 2012 Biological Opinion[c].
North Ridge Bully Creek ACEC/RNA	5/4/2017	Maintained. RNA burned in in the 2012 Iron Complex and the 2015 Bendire fire. Sprayed with the herbicide imazapic fall of 2015. Little to no cheatgrass present. Native vegetation looks great.
Oregon Trail ACEC-Keeney Pass	8/16/2005	Maintained. Area within exclosure is good, but very dry. Tracks and broken grass visible in the vegetation due to weed spraying.
Owyhee River Below the Dam ACEC	8/5/2003	Maintained. Observations of off-highway vehicle use outside of designated routes.
Owyhee Views ACEC	5/11/2011, 4/23/2012 and 5/2/2012	Due to remoteness and difficult access of this ACEC, condition information is very limited. Scenic values are being maintained as evident in the Wilderness Study Area (WSA) monitoring that occurred in 2011 and 2012 in WSAs that overlap with the ACEC[d].
Palomino Playa ACEC/RNA	3/20/2013	Maintained. No new disturbance. Can still see old vehicle tracks in the playa. Access across the playa is still blocked. Sage-grouse are active on the lek. Veg looks good for early season.
Saddle Butte ACEC/RNA	3/20/2013	Maintained. No signs of disturbance. Veg looks good for early season.
South Alkali Sand Hills ACEC	5/10/2010	Maintained. In 2003, disturbance to vegetation due to cattle grazing and severe weather activity was observed, but there was no mention of damage to sensitive plants. More recent observations do not identify grazing damage and conclude the relevant and important values are protected.
South Bull Canyon ACEC/RNA	6/9/2017	Maintained. Southern portion of RNA was burned in 2016 Sheep Rock fire, burned bitterbrush and sagebrush. Grasses and forbs vigorous only small patches of cheatgrass.
South Ridge Bully Creek ACEC	5/4/2017	Maintained. RNA burned in in the 2012 Iron Complex and the 2015 Bendire fire. Sprayed with the herbicide imazapic fall of 2015. Little to no cheatgrass present. Native vegetation looks great.
Spring Mountain ACEC/RNA	6/13/2017	Maintained but missing sagebrush due to fire. Native grasses and forbs very healthy, grasses have filled the space that would have been occupied by sagebrush. No weeds observed.
Stockade Mountain ACEC/RNA	8/5/2014	Maintained but much of juniper burned in 2014 fire. 2014 Saddle Draw fire burned through the RNA killing much of the juniper including the old growth. Visit was shortly after the fire and too early to tell what the vegetation condition post fire will be.
Toppin Creek Butte ACEC/RNA	6/20/2017	Maintained. The relevant and important values of the Toppin Creek RNA are being maintained because functional/structural groups remain intact, and the presence of species expected in a low sagebrush community are present. Although cheatgrass was present in a number of nested frequency plots, AIM data and other observations indicate this is not representative of the entire RNA[e].

Notes: [a] Condition data from the Vale BLM RNA observation monitoring (BLM 2003–2019).
[b] Condition data from BLM 2009a pages 245, 250.
[c] Condition data from BLM 2019.
[d] Condition data from Vale District WSA monitoring (BLM 2011-2012).
[e] Condition data from BLM 2018 (BLM 2018c) page 73.

Environmental Consequences

Analytical Methods

Analysis for this Section is limited to the lands located within the ACECs and RNAs. Analytical methods for each value are described in detail in the following Sections:

- Scenic values—Visual Resource Section 3.7.16
- Wildlife and aquatic values—Fish and Wildlife Section 3.7.11
- Vegetation cell/community values—General Vegetation Section 3.7.6
- Special status plant values—Special Status Plant Species Section 3.7.10
- Historic and cultural values—Cultural and Paleontological Resources Section 3.7.13
- Geologic values are not analyzed in this Section because current and proposed action do not impact this resource and the value would be maintained equally in all alternatives including the PRMPA.

Indicator

Relevant and important values are maintained (Issue 2, 3a, and 3b)

Assumptions

For the ACEC section, "OHV Limited" is inclusive of limited to designated and limited to existing routes.

Issue 2

How would ACECs and RNAs be affected by BLM management actions that would change OHV area designations across the planning area?

The 2002 SEORMP and ROD (BLM 2002) designated all ACECs and RNAs as limited to designated roads and primitive routes or closed to OHV use (see the 2002 SEORMP ROD, Table 13, pp. 69–72). The ACECs and RNAs that are currently closed to OHV use, that is Little White Horse, Spring Mountain, and portions of Owyhee Views, have no roads or primitive routes through them. ACECs and RNAs that are limited to OHV use are closed to cross country OHV travel, providing short- and long-term protection of the relevant and important values from degradation caused by cross-country OHV use. ACECs and RNAs that are closed to OHV use have the same short- and long-term benefits as described for limited to OHV use, plus the additional short- and long-term benefits of reduced weed dispersal and better protections for cultural and paleontological resources because eliminating OHV use of roads reduces accidental and purposeful disturbance of cultural and paleontological sites. Additional, long-term benefits are increased vegetation and wildlife and plant habitat connectivity, as well as reduced visual disturbance as roads revegetate from closing primitive routes in select areas. See the analysis section for the specific resource for more details on effects, Cultural and Paleontological Resources Section 3.7.13, Visual Resources Section 3.7.16 Special Status Plant Species Section 3.7.10, and Fish and Wildlife Section 3.7.11. There are no OHV Open area designations in any of the ACECs or RNAs in the planning area.

Within ACECs and RNAs, the No Action Alternative, Alternatives A, C, and D, and the PRMPA have the same acres of limited (191,192 acres) and closed (15,544 acres). Alternative B has 42,893 acres of limited and 163,843 acres of closed. Seventy miles of primitive routes would be closed in Alternative B. It is assumed the majority of primitive routes that would be closed are four-wheel drive tracks that are unimproved with a natural surface and commonly with vegetation in the middle. Four-wheel drive tracks

are less of a weed vector than paved or improved roads (Gelbard and Belnap 2003). The level of weed infestation from four-wheel drive tracks is likely not greater than the combined vectors of wind, water, wildlife, and livestock (BLM, professional observation). The soil compaction on primitive routes limits the amount of natural vegetation recovery and increases the time for this recovery to occur (Bolling and Walker 2000). In the short term, the physical function and appearance of primitive routes would remain unchanged while in the long-term the roadbed would revegetate and blend in with the surrounding vegetation. While all alternatives protect the relevant and important values of the ACECs and RNAs, Alternative B does a better job reducing weed introductions, protecting cultural, paleontological, historic, and scenic resources, and increasing vegetation and habitat connectivity.

Issue 3a

How would ACECs and RNAs be affected by BLM management actions that would reduce livestock grazing due to Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to ACECs from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

ACECs and RNAs can be designated to protect the following relevant and important values: historic, cultural, and scenic values; fish and wildlife resources; natural systems or processes; and natural hazards. Livestock grazing may have an impact on some of these values, mainly fish, wildlife, and natural systems, including plant communities and rare plant populations, directly or through indirect effects, see the analysis section for the specific resource for more details on effects, Cultural and Paleontological Resources Section 3.7.13, Visual Resources Section 3.7.16, and Fish and Wildlife Section 3.7.11.[40] Through the Standards for Rangeland Health process, riparian, aquatic, vegetation, and wildlife relevant and important values would be assessed in the five standards. Historic, cultural, paleontological, and scenic values can also be impacted by livestock grazing, see Visual Resource and Cultural and Paleontological Resources Sections. While these resources are not part of the Rangeland Health assessments and evaluation, they are evaluated during the permit renewal process.

Rangeland Health Standard 1 addresses upland watershed function. Standard 2 addresses watershed function of riparian and wetland areas. Standard 3 addresses the ecological processes of energy flow and nutrient cycling. Standard 4 addresses water quality, and Standard 5 addresses native, threatened, and endangered species and locally important species.

As the Standards for Rangeland Health for allotments in the planning area are assessed, management actions are developed and implemented to improve conditions where standards are not being met, particularly when existing livestock grazing is found to be the causal factor. Additionally, the 2002 SEORMP and ROD has a process in place to protect the relevant and important values for each ACEC and RNA. When adverse impacts from livestock grazing are identified, existing livestock use would be adjusted using a variety of methods including but not limited to fencing, reduction in livestock numbers, and changes in grazing season. While all alternatives and the PRMPA provide an opportunity to maintain or improve the relevant and important values of the ACECs and RNAs, there is a difference in how quickly the value responds to management actions. The key difference among the alternatives is the closure of allotments or pastures to livestock grazing. With the No Action Alternative, Alternatives A, and C, and the PRMPA, if Standards for Rangeland Health are not being met due to existing livestock grazing, site specific NEPA analysis would assess management options to improve the conditions,

[40] For special status plant relevant and important values not analyzed, see the Issues Considered but Not Analyzed section.

including closure of areas to livestock grazing, changing season of use, adjusting AUMs, or rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in the PRMPA, the No Action Alternative, and Alternatives A and C if Standards for Rangeland Health are not being met due to existing livestock grazing, but it is one of many management actions than could be used to improve conditions. Additionally, under the PRMPA, if Standards for Rangeland Health are not being achieved, regardless of causal factor, BLM would consider taking action to make progress toward land health standards and land use plan objectives, even if existing livestock grazing is not determined to be a significant causal factor for non-attainment of Standard(s). The PRMPA also proposes to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

There would be similar positive impacts to terrestrial and aquatic wildlife and their habitat, vegetation, and scenic values among the PRMPA and all alternatives. However, when Standards for Rangeland Health are not met and existing grazing is determined to be a causal factor, the time scale of achieving these benefits would be accelerated in Alternatives B and D, with the closure or suspension of grazing. Under Alternative B, the grazing closure would be for the life of the plan (SEORMP), whereas under Alternative D the closure would be temporary either for the duration of the permit or until monitoring shows significant progress toward meeting Standard. When livestock grazing is removed, plants have more biomass throughout the entire growing season. This leads to more seed added to the seed bank, more litter on the ground, and more biomass for nutrient cycling. If the relevant and important values for the ACEC or RNA are related to vegetation, wildlife, aquatic, or scenic values, Alternatives B and D would be more beneficial in the long term to ACECs and RNAs than the other alternatives because the time scale of improved conditions would be accelerated. Alternative B would likely improve the condition of the values in ACECs and RNAs in a shorter timeframe than Alternative D because livestock grazing could be suspended for a longer period than in Alternative D. Due to the response time of vegetation from the removal of livestock grazing, it is unlikely there would be any short-term changes to the values. Alternatives B and D would be a greater benefit to cultural, paleontological, and historic resources in the short- and long-term when compared to the No Action Alternative, Alternatives A and C, and the PRMPA, through the removal of livestock grazing.

Issue 3b

How would ACECs be affected by BLM management actions that would reduce livestock grazing due to BLM receiving a voluntary relinquishment of a grazing permit?

The 2002 SEORMP and ROD has a process in place to protect the relevant and import values for each ACEC and RNA. When adverse impacts from livestock grazing are identified, existing livestock use would be adjusted to maintain the relevant and important values using a variety of methods, including but not limited to fencing, reduction in livestock numbers, and changes in grazing season. Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike Alternatives A and C, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur.

In Alternative B if a livestock grazing permit were relinquished and the pasture overlapped an ACEC or RNA, permitted livestock grazing would be appropriately reduced (for common allotments with other permittees or in situations where partial relinquishments of grazing permits occurred) or eliminated (individual permittees or specified areas of use by permittees within common allotments) for the duration of the plan. In Alternative D, if a livestock grazing permit were relinquished and a pasture overlaps with lands managed under the National Conservation Lands(NCL), livestock grazing would be reduced or eliminated, respectively, for the overlapping area, for the life of the plan (RMP). Approximately half of

the ACECs and RNAs overlap with NCL. See Appendix G, Table G-3 for details on how individual and common allotments would be addressed under Alternatives B and D, should permits be voluntarily relinquished.

A reduction or removal of livestock grazing through permit relinquishment would maintain or improve the relevant and important values of the ACECs and RNAs in the planning area for cultural, paleontological, and historic values, by reducing or eliminating the intensity of impacts from livestock; scenic values, by reducing bare ground; and aquatic resource values by increasing connectivity. See Cultural and Paleontological Resources Section 3.7.13, Visual Resources Section 3.7.16, and Fish and Wildlife Section 3.7.11 for a more detailed analysis.

As noted in the General Vegetation Section (3.7.6), the lack of grazing allows for the accumulation of fine fuels, leading to greater mortality of vegetation during a fire and a higher abundance of cheatgrass post fire when compared to areas grazed to 30–40% utilization that have no to low presence of cheatgrass pre-fire (Davies et al. 2009; Davies et al. 2016). An increase in cheatgrass could impact wildlife or plant community vegetation values. This impact would be greatly reduced if treatments to reduce the abundance and spread of invasive annual grasses occur. See General Vegetation (Section 3.7.6) and Terrestrial Wildlife (Section 3.7.11) for a specific analysis of the effects.[41] Vegetation and wildlife habitat would be negatively impacted if livestock grazing was removed, and a wildfire caused an increase in invasive annual grasses. These negative impacts would be greater than the benefits of grazing reduction or removal in Alternatives B and D. Conversely, removal of grazing benefits the research and education purpose of RNAs. RNAs are areas that contain natural resource values of scientific interest that are managed primarily for research and educational purposes, there are 17 RNAs in the planning area that encompass 39,720 acres. These areas may represent units of particular ecological uniqueness, including plant and animal species richness, or may encompass especially fine representations of more common ecological types. While the General Vegetation Section 3.7.6 analysis for voluntary relinquishment shows The No Action Alternative, Alternatives A and C, and the PRMPA may be more beneficial than Alternatives B and D when the benefit of reduced wildfire risk is considered, the analysis for RNAs should consider one of the purposes of RNAs is to allow for areas where research can be conducted. Thus, Alternative B would be more beneficial to RNAs if a permit were to be relinquished because it would provide BLM and researchers more areas/acres for baseline vegetation monitoring without the influence of livestock grazing. Alternative D would have the same benefit as Alternative B but only where RNAs overlap National Conservation Lands, which is seven RNAs and 25,759 acres. The No Action Alternative, Alternatives A and C, and the PRMPA would be more beneficial to ACECs with wildlife values because they would have less acres negatively impacted by wildfire and removal of grazing. If treatments after wildfire were to occur to reduce the abundance and spread of invasive annual grasses, there may be no difference between the alternatives.

ACECs and RNAs Cumulative Effects Summary

The following is summary of the issues and effects by alternative.

There are no areas within ACECs and RNAs that are open to OHV use. Areas closed to OHV have the most benefit to ACECs and RNAs because with no OHV travel there would be reduced weed introductions, better protection of cultural, paleontological, historic, and scenic resources and increased vegetation and habitat connectivity. Alternatives with the most acres closed to OHV would have the greatest benefit to ACECs and RNAs. The most beneficial to least beneficial alternatives would be Alternative B, the PRMPA, A, C, D, and No Action. The acres of OHV Closed are equal in the PRMPA, A, C, D, and No Action alternatives.

[41] For the Special Status plant relevant and important values not analyzed, see the Issues Considered but Not Analyzed section.

Suspending permitted livestock grazing when Standards for Rangeland Health are not being met due to existing livestock use is beneficial to ACECs and RNAs because the time scale of improved conditions would be accelerated. Alternatives with the longest suspension of permitted grazing would have the greatest benefit to ACECs and RNAs where rangeland standards are not being met. The most beneficial to least beneficial alternatives would be B, D, PRMPA, A, C, and No Action.

The impacts of reduced or eliminated livestock grazing due to BLM receiving a voluntary relinquishment would benefit ACECs with cultural, paleontological, and historic values, by reducing or eliminating the intensity of impacts from livestock; scenic values, by reducing bare ground; and aquatic resource values by increasing connectivity. If a permit were to be relinquished and livestock grazing were to become unavailable in an RNA, it would provide BLM and researchers more areas/acres for baseline vegetation monitoring without the influence of livestock grazing. Relinquishment of a grazing permit is least beneficial in ACECs with wildlife values in communities with low resistance and resilience because they are at greatest risk of invasion from invasive annual grasses. Given changes to vegetation conditions with/without grazing and before/after wildfire, alternatives with the least acres of reduced or eliminated grazing due to voluntary relinquishment would have the greatest benefit to wildlife habitat. If treatments were to occur to reduce the abundance and spread of invasive annual grasses, there may be no difference between the alternatives. The impacts of permit relinquishment to ACECs and RNAs vary by value being protected. Because the majority of the ACECs and RNAs have cultural, paleontological, historic, scenic, aquatic, or natural process values, the most beneficial to least beneficial alternatives would be Alternatives B, followed by D. The PRMPA could benefit ACECs and RNAs more rapidly than the No Action Alternative and Alternatives A and C where a permit is relinquished and grazing is, through appropriate analysis, designated as unavailable to grazing because additional land use planning-analysis would not be required. The impacts to ACECs and RNAs under the No Action Alternative and Alternatives A and C would have the same level of impact.

No Action Alternative, the PRMPA, and Alternatives A and C

Overall, the PRMPA would benefit ACECs and RNAs more than Alternative C, followed by both Alternative A and the No Action Alternative because the PRMPA would have the most acres designated as OHV Limited, , a more flexible management response if Standards of Rangeland Health are not achieved regardless of causal factor, and a shorter period of time to implement the land use plan decision to designate an area as unavailable to grazing if site-specific analysis determined that livestock grazing is incompatible with other resources, including relevant and important values for which an ACEC or RNA is designated.

Alternative B

Alternative B would be most beneficial to ACECs and RNAs because it has the most acres of closed to OHV, the longest suspension of permitted livestock grazing if Standards for Rangeland Health are not met due to existing grazing, and the most acres that would have reduced or eliminated livestock grazing if a permit were to be relinquished.

Alternative D

Alternative D is slightly less beneficial than B because it has less acres closed to OHV, a shorter suspension of permitted livestock grazing if Standards for Rangeland Health are not being met, and fewer acres what would have reduced or eliminated livestock grazing if a permit were to be relinquished.

Cumulative Effects

The cumulative effects analysis area for ACECs and RNAs is the designated ACEC/RNAs because activities outside their boundaries do not impact the relevant and important values of ACECs and RNAs. This Section will address any additional effects to ACECs and RNAs from reasonably foreseeable actions. These effects are in addition to the effects of the actions of each of the alternatives on the resource noted above. Reasonably foreseeable future actions that would occur within ACECs or RNAs are: the Northwest Malheur County Greater Sage-grouse Habitat Restoration, Tri-state Fuels , the LCGMA Permit Renewal and Restoration Treatments, and the Owyhee Pump Storage Energy Development projects. These projects have been, or are anticipated to be, designed to maintain, or improve the relevant and important values of the ACEC or RNA they are within.

The 2015 ROD (BLM 2015d) made (all or portions of) nine Key RNAs unavailable to grazing; the subsequent 2019 ROD amended the former, making the Key RNAs available to grazing.

If the Idaho District Court's preliminary injunction remains in effect and implementation of the Key RNA decisions in the 2015 *Oregon Greater Sage-Grouse ARMPA* (Ibid.) moves forward up to approximately 25.7 miles of new fencing would be constructed within RNAs to exclude livestock from these areas. This would result in approximately an additional 15.6 acres of ground disturbance associated with fence construction and potential development of livestock trails adjacent to the new fences. Design features would be implemented as needed to protect the relevant and important values of the RNA from fencing impacts. Long-term disturbance to vegetation values would be diminutive as less than 1% of the vegetation would be disturbed.

If the injunction is lifted and the 2019 *Oregon Greater Sage-Grouse ARMPA* (BLM 2019d) is implemented, approximately 9,354 acres would become available for livestock grazing once again. Under this scenario the fencing described above (and the associated ground disturbance) would not occur. Livestock management actions under the PRMPA, No Action, Alternative A and Alternative C, allow for flexibility in grazing management options to address areas not meeting Standards for Rangeland Health due to existing grazing management, or where relevant and important ACEC and RNA values are not being maintained. There are a range of management responses to address existing livestock grazing management when found to be a significant causal factor to not meeting one or more Standards for Rangeland Health or maintaining values, such as either reducing AUMs, temporary closing areas to grazing, or changing seasons of use, or any combination. Implementation of range improvements could continue with site-specific analysis and adherence to design features to limit impact to relevant and important values. These management options allow for maintenance of relevant and important values as well as public land grazing.

Under the PRMPA, No Action, Alternative A and C, options for adjusting livestock grazing management are variable, and do not automatically result in the suspension of grazing. Therefore, it is expected that grazing management changes when Standards for Rangeland Health are not met due to existing livestock grazing could offset the impacts of grazing to RNAs in the nine Key RNAs. Under Alternatives B and D grazing would continue in the Key RNAs unless a Standards for Rangeland Health evaluation found one or more standards to not be met due to existing livestock grazing, at which time grazing would be suspended, this would also offset any impacts of grazing and maintain relevant and important values.

Under Alternative B if a livestock grazing permit were relinquished and the pasture overlapped a Key RNA, or under Alternative D where a Key RNA overlaps with an area designated as a National Conservation Lands (NCL), permitted livestock grazing would be appropriately reduced or removed for the duration of the plan. The reduction or removal of livestock grazing would have a beneficial impact to ACECs and RNAs as analyzed in Issue 3b.

In general, resumption of grazing in the Key RNAs under the 2019 Oregon Greater Sage-Grouse ARMPA would not have long-term impacts to ACEC and RNA relevant and important values as all alternatives have corrective measures that would be implemented if existing grazing is a causal factor in not meeting Standards for Rangeland Health, though there would be a greater benefit to ACECs and RNAs with Alternatives B and D.

All of the alternatives protect the relevant and important values for each ACEC and RNA. The actions identified in this PRMPA/FEIS combined with the effects of the future foreseeable actions would help maintain or improve the relevant and important values.

3.7.18 Wild and Scenic Rivers

Key Points

- Protection of wilderness characteristics units that are adjacent to designated and suitable Wild and Scenic Rivers (WSRs) would supplement protection of pertinent Outstandingly Remarkable Values (ORVs) of the WSRs. Protecting these adjacent areas will prevent actions that might indirectly affect the recreation and scenic ORVs. The recreation and scenic ORVs are enhanced by the protection of adjacent lands beyond the WSR boundary.
- This added protection is in addition to the *National Wild and Scenic Rivers Act*'s (NWSRA) mandate to protect *and* enhance ORVs, water quality, and free-flowing condition and maintain the river's classification.
- Among the action alternatives (A–D) and the PRMPA, Alternative A provides the least amount of supplemental protection for Wild and Scenic River ORVs. Supplemental protection includes but is not limited to a reduction in unauthorized motorized vehicle use and reduced visual affect from adjacent energy, mineral or facility developments.

Affected Environment

There are three designated and four eligible and administratively suitable Wild and Scenic Rivers in the planning area (BLM 2002, 102–104). The "Main, West Little, and North Fork Owyhee National Wild and Scenic Rivers Management Plan" (BLM 1993) established desired future conditions, objectives, and a comprehensive set of actions to direct and guide future management of these three designated rivers.

The Main Owyhee River is 120 miles long and its boundaries encompass 34,844 acres of BLM Land. Its ORVs are cultural, geologic, recreation, scenic, and wildlife. The West Little Owyhee River is 58 miles long and its boundaries encompass 12,771 acres of BLM Land. Its ORVs are recreation, scenic, and wildlife. The North Fork of the Owyhee is 10 miles long and its boundaries encompass 1,872 acres of BLM Land. Its ORVs are recreation, scenic, and wildlife. In all designated river segments, the recreation ORV is identified as primarily primitive in nature (hiking, photography, fishing, hunting, camping, boating, and rock-hounding) in the 1993 Main, West Little and North Fork Owyhee National Wild and Scenic Rivers Management Plan and Environmental Assessment (BLM 1993).

The administratively suitable rivers are Antelope Creek (8.6 Miles, 1,448 acres on BLM Land, tentative classification—wild); Dry Creek (16.8 miles, 5,344 BLM acres, tentative classification—wild); North Fork Malheur River (3.6 miles, 990 BLM acres, tentative classification—wild); and the Owyhee below the Dam (13.5 miles, 3,514 BLM acres, tentative classification—recreational). Table 3-42 below includes the ORVs for each suitable river. WSAs have also been included in Table 3-42 because many of them are not only contiguous or adjacent to wilderness characteristics units but they help to protect the ORVs of the WSRs corridors.

Table 3-42. Designated and administratively suitable Wild and Scenic Rivers with overlapping and adjacent lands with wilderness characteristics units or WSAs.

WSR	ORVs	Wilderness Characteristics Unit (Unit ID)[a]	Acres of Wilderness Characteristics that Overlap or are Adjacent to WSR		Name of WSA Overlapping WSR
Designated Wild and Scenic Rivers					
			Overlap	**Adjacent**	
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Quartz Mountain (OR-034-051)	98	32,668	Owyhee River
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous H (OR-034-091)	118	8	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous G (OR-034-091)	12	30	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous F (OR-034-091)	249	34	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous E (OR-034-091)	24	112	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous D (OR-034-091)	17	5,989	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Owyhee River Contiguous A (OR-034-091)	0	632	Owyhee River Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Lower Owyhee Canyon Contiguous D (OR-034-115)	159	0	Lower Owyhee Canyon
Main Owyhee	recreation, scenic, geologic, cultural, wildlife	Blue Canyon Contiguous. A (OR 034-113)	0	649	Blue Canyon
Main Owyhee	recreation, scenic, geologic,	Blue Canyon Contiguous. E (OR 034-113)	1,861	73	Blue Canyon

WSR	ORVs	Wilderness Characteristics Unit (Unit ID)[a]	Acres of Wilderness Characteristics that Overlap or are Adjacent to WSR		Name of WSA Overlapping WSR
Designated Wild and Scenic Rivers					
			Overlap	**Adjacent**	
	cultural, wildlife				
North Fork Owyhee	recreation, scenic, wildlife	Little Groundhog Reservoir (OR-036-095)	1,778	3,494	Owyhee River Canyon
West Little Owyhee River	recreation, scenic, wildlife	Alcorta Rim (OR-036-030)	127	53,475	Upper West Little Owyhee
Total Acres Wilderness Characteristics Unit Overlap (and Adjacency) with Designated WSR			**4,443**	**96,532**	
Administratively Suitable Wild and Scenic Rivers					
			Overlap	**Adjacent**	
Owyhee Below the Dam	scenic, recreational, geologic, fish, wildlife	Sand Hollow (OR-034-023)	.01	12,276	Dry Creek
Owyhee Below the Dam	scenic, recreational, geologic, fish, wildlife	Burnt Mountain (OR-034-024)	22	8,087	Dry Creek
Dry Creek	geologic, fish, wildlife, hydrologic	Keeney Creek (OR-034-035)	2,003	22,142	Dry Creek
Dry Creek	geologic, fish, wildlife, hydrologic	Juniper Creek (OR-034-047)	11	37,466	None
Antelope Creek	cultural, recreation, scenic	none	0	0	Owyhee River Canyon
North Fork Malheur	fish, recreation, scenic, wildlife	none	0	0	none
Total Acres Wilderness Characteristics Unit that Overlap or are Adjacent with WSR			2,035	79,971	

Note: Shaded rows indicate that a wilderness characteristics unit is proposed for protection under the PRMPA.

[a] Most wilderness characteristics units/parcels listed as overlapping WSRs extend beyond the boundary of the designated or suitable river corridor and thus are also adjacent to the WSR.

The current OHV area allocation of all designated and administratively suitable WSR segments is OHV Limited. Refer below to Table 3-43.

Table 3-43. Overlap of wild and scenic rivers with wilderness characteristics units and OHV designations by alternative.

WSR	Wilderness Characteristics Unit (Unit ID)[a]	Supplemental Protection under the Alternative (OHV Designation)					
		No Action	A	B	C	D	PRMPA
Designated Rivers							
Main Owyhee	Quartz Mountain (OR-034-051)	L	L	C	L	L	L
Main Owyhee	Owyhee River Contiguous H (OR-034-091)	L	L	C	L	L	L
Main Owyhee	Owyhee River Contiguous G (OR-034-091)	L	L	C	L	L	L
Main Owyhee	Owyhee River Contiguous F (OR-034-091)	L	L	C	L	L	L
Main Owyhee	Owyhee River Contiguous E (OR-034-091)	L	L	C	L	L	L
Main Owyhee	Owyhee River Contiguous D (OR-034-091)	L	L	C	L	L	L
Main Owyhee	Lower Owyhee Canyon Cont. D (OR-034-115)	L	L	C	L	L	L
Main Owyhee	Blue Canyon Contiguous E (OR 034-113)	L	L	C	L	L	L
North Fork Owyhee	Little Groundhog Reservoir (OR-036-095)	L	L	C	L	L	L
West Little Owyhee River	Alcorta Rim (OR-036-030)	L	**L**	C	L	L	L
Suitable Rivers							
North Fork Malheur River	No Overlap or Adjacent Unit	L	L	C	L	L	L
Owyhee Below the Dam	Sand Hollow (OR-034-023)	L	L	C	L	L	L
Owyhee Below the Dam	Burnt Mountain (OR-034-024)	L	L	C	L	L	L
Dry Creek	Keeney Creek (OR-034-035)	L	L	C	L	L	L
Dry Creek	Juniper Creek (OR-034-047)	L	L	C	L	L	L
Antelope Creek	No Overlap or Adjacent Unit	L	L	C	L	L	L

Note: Shading indicates that the wilderness characteristics unit is protected under the respective alternative or the PRMPA. OHV designations include: O—Open, L—Limited, and C—Closed.

[a] Most wilderness characteristics units/parcels listed as overlapping WSRs extend beyond the boundary of the designated or suitable river corridor and thus are also adjacent to the WSR.

The Main, West Little, and North Fork Owyhee National Wild and Scenic Rivers are withdrawn from locatable mineral entry. See DEIS Appendix M, Map MIN 4. Ten of the units determined by the BLM to have wilderness characteristics overlap with either designated or suitable Wild and Scenic River corridors (Table 3-42). The Main Owyhee, West Little Owyhee, Antelope Creek, and portions of Dry Creek WSRs are within WSAs and have overlapping management objectives.

A majority of the Main, West Little, and North Fork of the Owyhee WSRs were either made unavailable to livestock grazing as a result of the 2000 Order of Modified Injunction (CIV No. CV 98-97-RE) or the 2002 Southeastern Oregon Resource Management Plan (SEORMP, Appendix O: Areas Not Available to Grazing Within or Adjacent to the Owyhee WSR). The removal of livestock from the identified areas of concern has resulted in vegetation re-establishment, reductions in the presence of bare soils, and in certain locations establishment of either desirable or invasive vegetation, or both. In some areas, the increase in vegetation is reducing the availability of primitive dispersed campsites. Interaction between recreation users in and on the WSR and permitted livestock grazing and livestock management operations is rare. An exception within the unavailable to grazing areas is livestock operators are authorized to trail across the river corridor at specific locations to move between pastures. Minimal grazing occurs during these crossing activities because time limitations are a component of the authorization. In some locations, the administrative boundary of the Owyhee WSR goes beyond the rim of the canyon, onto the upland areas; these areas are available to livestock; however, the WSR corridor is unavailable to livestock due to the topography. The Quartz Mountain and Morcom Allotments overlap with the WSR and are authorized for winter grazing. Livestock have access to the river in these two allotments.

There are four river segments that were determined during the 2002 SEORMP to be administratively suitable for designation. Most of the 16.8 miles (5,344 acres) of Dry Creek is available to livestock and is also on a winter grazing schedule. Winter grazing is preferable when managing for riparian resources because livestock do not congregate on the water sources. The 8.6 miles (1,448 acres) of Antelope Creek (within the designated Owyhee WSR corridor) is unavailable to livestock due to topography, with the exception of approximately eight acres where livestock can access Antelope Creek from the Ambrose-Maher Allotment. The 3.6 miles (996 acres) of the North Fork Malheur River is managed in cooperation with USFWS for the protection of Bull Trout, and livestock grazing is minimal. Most of the 13.5 miles (3,973 acres) at Owyhee below the Dam, is available to livestock, however due to potential recreational conflicts, grazing schedules are designed to minimize grazing in the area.

Environmental Consequences

Analytical Methods

Indicator

Acres of protected lands with wilderness characteristics units adjacent to designated Wild and Scenic River corridors in the planning area.

Acres of protected wilderness characteristics units adjacent to or overlapping administratively suitable Wild and Scenic River corridors in the planning area.

Assumptions

Protection of wilderness characteristics units that are adjacent to (i.e., upslope from) a designated Wild and Scenic River (WSR) or that overlap or are adjacent to an administratively suitable WSR corridor could provide some level of supplemental protection of scenic and recreation outstandingly remarkable values (ORV) of the WSR. The distinction is made because areas of overlap of a protected wilderness characteristics units would only provide supplemental protection to suitable WSRs. The *Wild and Scenic*

Rivers Act already provides a stricter mandate for designated segments to not only protect, but also to enhance ORVs, water quality, and the free-flowing condition of designated WSRs. The BLM's evaluation of impacts to WSRs and their ORVs from the alternatives is based on either the acres of adjacency or overlap of protected wilderness characteristics units with designated and administratively suitable WSRs, or both.

Issue 1

How would designated and suitable Wild and Scenic Rivers be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

The protection of wilderness characteristics units where they overlap the designated Owyhee WSR corridor would not provide additional supplemental protection due to the stricter mandate afforded by the NWSRA to protect the ORVs, water quality and free-flowing condition of the designated WSR, and to maintain the river's classification (Wild, Scenic or Recreational).

There could be benefits to designated and suitable WSRs from protection of wilderness characteristics units that are adjacent to or upslope of a designated WSR corridor. Water quality in the WSR would benefit over the long term from protection of wilderness characteristics as a result of limiting development and surface disturbing actions as vegetation communities are restored (naturally or through management actions; see Sections 3.7.3 Standards for Rangeland Health, 3.7.4 Soils and 3.7.5 Water Quality and Riparian Area/Wetlands Management). The benefits would depend on the vegetation condition and potential, and the success of restoration. Downstream (draining into the WSR corridor) effects could result in reductions in side-channel stream temperature and sedimentation.

No actions included in the alternatives would affect the free-flowing nature of either the designated or administratively suitable rivers, because no actions propose new development, impoundments, or change access within the WSR corridors.

There are no wilderness characteristics units that overlap with or are adjacent to the North Fork Malheur River or Antelope Creek administratively suitable Wild and Scenic River segments. Due to the lack of adjacent units, there are no anticipated effects or benefits to these segments from the lands with wilderness characteristic designations. The Owyhee below the Dam administratively suitable WSR (proposed for WSR Recreational River classification) would not be affected or receive any benefits by protection of wilderness characteristics under any of the alternatives.

Under Alternatives B and D and the PRMPA, there could be benefits to the Dry Creek administratively suitable segment as a result of protecting the Keeney Creek and Juniper Creek wilderness characteristics units, which include acres adjacent to Dry Creek. The water quality of this segment could benefit from these protections (including potential reductions in sedimentation through runoff) as a result of more limited development in protected units. Until a decision on WSR designation is completed, protection of the wilderness characteristics of these two units may provide supplemental interim protection of the administratively suitable segments, by further restricting development (no surface mining for leasable minerals, no saleable mineral development, and no new road development, for example).

The No Action Alternative would provide 16,366 acres (from five lands with wilderness characteristics units) of supplemental protection of designated WSR values due to protection of adjacent lands with wilderness characteristics. Alternative B would provide slightly fewer acres of supplemental protection 16,360 acres (from five lands with wilderness characteristics units) due to boundary road setbacks not being protected for wilderness characteristics. Alternative C and Alternative D would offer progressively less supplemental protection, with Alternative C offering 10,315 acres (from three wilderness characteristics units) of protection and Alternative D offering 7,839 acres (from three lands with wilderness characteristics units). The wilderness characteristics units protected under the PRMPA are the same as Alternative D and would thus provide the same supplemental protection of WSRs. Alternative A

would not provide additional protections for wilderness characteristics and offers zero acres of supplemental protection to WSRs. Generally, all alternatives with the exception of Alternative A provide some supplemental protection for the ORVs of administratively suitable WSRs.

Issue 2

How would designated and suitable Wild and Scenic Rivers and their associated outstandingly remarkable values (ORVs) be affected by BLM management actions that would change OHV area designations across the planning area?

Motorized access to the designated Owyhee WSR (9.25 miles of primitive routes) and each of the four administratively suitable WSRs (1.27 miles primitive routes in two areas, one has zero miles) is very limited, with the exception of the Owyhee below the Dam (5.97 miles of primitive routes). Owyhee below the Dam is a popular area for fishing, camping, and general recreation opportunities that are all based on the easy motorized vehicle access; however, there are no existing primitive routes in the Owyhee below the Dam administratively suitable segment that overlap WSAs or protected wilderness characteristics units. Because of this there is no impact to this administratively suitable river segment under any alternatives as a result of changes in OHV area designations.

All other WSR segments are generally inaccessible to motorized access due to either the poor condition of the unimproved primitive routes in the corridor or the topography along the river limits, or both, which limits or excludes motorized vehicle access.

PRMPA, No Action Alternative, and Alternatives A, C and D

Under the PRMPA, No Action Alternative, and Alternatives A, C, and D, all designated and administratively suitable WSRs continue to be managed as OHV Limited (see Table 3-43). Continuation of the OHV Limited designation has the effect of meeting the objectives to protect and enhance the recreation, scenic, cultural and wildlife ORVs of the WSR. This management would continue to protect the free-flowing nature of the WSR, water quality, and ORV (e.g., recreation) of designated river segments, and administratively suitable segments awaiting action by Congress. Under these alternatives, no additional OHV area closures are proposed in designated or administratively suitable WSRs.

Continuing the OHV Limited designation would maintain the current motorized access which provides long-term benefits to soils and riparian vegetation and continues to benefit the scenic, wildlife, and recreational ORVs in both the designated and suitable WSRs. There are approximately a dozen (12) primitive route segments in the designated Owyhee WSR corridor, with an estimated cumulative length of less than 3.5 miles scattered between the upstream boundary of the West Little Owyhee River downstream to the Owyhee Reservoir. Most of these short segments receive little to no use. There are approximately seven miles of primitive routes in the administratively suitable river corridors; these routes would continue to be available for OHV use. Maintaining the current low density and presence of existing routes—and thus the limited motorized activity—would continue to protect the scenic quality and wildlife habitat and the wildlife that are dependent on the resources in the WSR corridors. Primitive recreation opportunities would continue to be protected by improved scenic quality and wildlife viewing opportunities.

Alternative B

Alternative B would close OHV access and use in all WSAs and lands with wilderness characteristics, including where WSAs and wilderness characteristics units overlap designated or administratively suitable WSRs. The portions of the WSRs that do not overlap WSAs or wilderness characteristics units would be managed as OHV Limited under Alternative B.

There are 44,207 acres (of the total 49,487 acres) of the designated Owyhee Wild and Scenic River (all designated segments) corridor that overlap WSAs; those areas and about 3.7 miles of primitive routes (in the Main Owyhee) would be closed to OHV use and access. There are 2,036 acres (of the total of 11,295 acres) of administratively suitable WSRs that overlap lands with wilderness characteristics units that would be protected under Alternative B; the overlapping portions of Dry Creek (2,014 acres, and .6 miles of primitive routes) and Owyhee below the Dam (22 acres, and zero miles of primitive routes) suitable WSRs would also be designated as OHV Closed. These OHV area closures in WSRs under Alternative B would help to enhance the outstandingly remarkable values (recreation and scenic) by excluding all OHV use within the corridors. The remaining portions of the designated WSRs (4,800 acres) and suitable WSRs (9,725 acres) would continue to be managed as OHV Limited to existing routes. Particularly in the context of the very few miles of existing motorized routes in the WSRs, the OHV Limited designation would continue to protect and enhance the ORVs in the Wild and Scenic River segments. In particular the primitive recreation ORV would continue to benefit from limitations on motorized activities.

Where any of the designated Owyhee WSR corridors (all segments) or of the N.F. Malheur, Dry Creek, Antelope Creek and Owyhee below the Dam administratively suitable WSR corridors overlap protected lands with wilderness characteristics units or WSAs, they would be closed to OHV use under Alternative B. Under Alternative B, there are 4,446 acres of five WSAs (Blue Canyon, Lower Owyhee, Owyhee Breaks, Owyhee River Canyon and Upper West Little Owyhee) that overlap the designated Owyhee WSR. Additionally, there are 2,035 acres of lands with wilderness characteristics that overlap two administratively suitable WSRs (Owyhee below the Dam and Dry Creek). These areas would be designated as OHV Closed under Alternative B.

There are approximately a dozen (12) primitive route segments in the designated Owyhee WSR corridor, with an estimated length of less than 3.7 miles scattered between the upstream boundary of the West Little Owyhee River downstream to the Owyhee Reservoir. Most of these short segments receive little to no use. Closing all WSAs to OHV use under Alternative B would have the effect of closing these routes; the OHV area closure would benefit the primitive recreational experience by reducing encounters between motorized and non-motorized users.

In the few places where primitive routes can be discerned from the viewshed of recreationists, there would be an improvement to visual resources as primitive routes revegetate from lack of use. The wildlife ORV would benefit by a reduction of encounters between motorists and wildlife, reducing stress and disrupting breeding activities. (See 3.7.11 Fish and Wildlife). The Cultural ORV would benefit from the decrease in opportunities for accidental discovery or damage by recreationists and vehicles. (See 3.7.13 Cultural and Paleontological Resources.) A reduction of motorized use would benefit water quality by decreasing soil surface disturbance and sedimentation input into water sources. (See 3.7.5 Water Resources and Riparian/Wetland Areas).

Issue 3

How would designated and administratively suitable Wild and Scenic Rivers and their associated outstandingly remarkable values (ORV) be affected by a reduction or elimination of livestock grazing as a result of Standards for Rangeland Health not being met due to existing livestock grazing or through a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to Wild and Scenic Rivers from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

Effects to Wild and Scenic Rivers and their associated ORVs from the assumed level of livestock grazing under the alternatives can include effects to the free-flowing nature and water quality of the suitable and designated WSRs and the ORVs.

No Action Alternative, and Alternatives A and C

In the No Action, and Alternatives A and C there would be no change or addition of Management Objectives for livestock grazing as a result of this Amendment. Management responses to where Standards for Rangeland Health are not met due to existing grazing or processing a voluntary relinquishment of a grazing permit would continue as defined under the 2002 SEORMP (BLM 2002). As it pertains to implementation of actions to address Standards for Rangeland Health and to permit relinquishment, this continuation of current livestock grazing management would continue to protect the free-flowing nature and water quality of the suitable and designated WSRs, and to protect and enhance the ORVs.

As described in the Affected Environment section above, most of the designated Owyhee WSR is unavailable to grazing; changes in grazing management would not impact these areas. Where grazing is still authorized within the designated corridors the impact of grazing would include a very limited interaction between livestock and activities in the WSR because grazing is predominantly winter use only. There would be signs of livestock use of vegetation and waste. Interaction between livestock and recreational users of the river would occasionally occur at trailing locations.

Impacts of continued grazing on administratively suitable WSR corridors, the BLM would continue to assess and evaluate rangeland health and make adjustments where Standards are not being achieved. These adjustments would be within the areas where livestock grazing continues to be authorized in the WSR and can contribute to the ORVs of the WSRs by enhancing water quality, natural appearance of the landscapes, wildlife habitat and recreation opportunities. Overall, the effect of livestock grazing on the Owyhee WSR (all segments) would be limited to: the limited locations where trailing is authorized, in the 10% of the designated corridor that is available for winter grazing, maintenance of authorized livestock management facilities like fences. As discussed in Sections 3.7.11 Fish and Wildlife, 3.7.5 Water Resources and 3.7.6 General Vegetation, appropriate grazing management prescriptions can benefit ecologic function and resource services. See Appendix O for acres by allotment—and portions of pastures—that are not available to grazing within the designated Owyhee WSR (all segments).

Alternative B

In the designated Owyhee WSR corridor, under Alternative B a reduction or elimination of livestock grazing has the potential to enhance water quality, the natural appearance of the landscape and the ORVs of cultural, scenic, wildlife and recreation in the areas where grazing is currently authorized. The enhancements to the ORVs would be relatively minor overall because: 72% of the designated river system is administratively closed to grazing; 18% of the river system is administratively open to grazing but is topographically inaccessible to livestock; and 10% of the river system is open to winter grazing.

In areas of heavy grazing use, such as congregation and trailing areas, livestock can damage cultural resources through trampling and soil compaction, soil churning, and erosion. Closing livestock grazing would reduce impacts to cultural resources by reducing or eliminating the intensity of impacts from livestock in the limited areas where livestock use is authorized (see Section 3.7.13 Cultural and Paleontological Resources). In the three allotments where winter grazing is authorized, riparian objectives are being met; however, the reduction or removal of grazing could provide a slight improvement to riparian vegetation, potentially enhancing scenic and wildlife ORVs.

In the three allotments within the designated river corridor where grazing is authorized, an elimination or reduction of grazing could improve dispersed and primitive camping opportunities because indications of livestock presence would be reduced or eliminated. Recreational river users and hikers would have fewer encounters with livestock which could benefit the recreation ORV in the early spring while winter grazing is currently taking place, depending on if the user considers an encounter with livestock negatively. A reduction or removal of livestock in grazing allotments that are near but not overlapped by the WSR corridor could have an indirect positive effect on the ORVs and water quality of the WSR. Livestock

occasionally stray into the WSR from adjacent grazing allotments. If livestock were removed from those allotments, there would be less likelihood for out-of-compliance livestock in the WSR. Where the WSR is overlapping with, or adjacent to WSAs or lands with wilderness characteristics, reducing or removing grazing could improve the upland vegetation, improving watershed function and water quality of the WSR.

The removal of livestock grazing could also improve the recreational and wildlife ORVs as a result of improvements in ecological function (either improved vegetation conditions or improved riparian area condition and function, or both). See Section 3.7.5 Water Resources and Section 3.7.6 General Vegetation and Section 3.7.7 Invasive Species for a detailed description of the anticipated effects resulting from the elimination of livestock grazing. Where Standards of Rangeland Health are not being met due to existing livestock grazing, the removal of livestock could also benefit the primitive recreational experience by reducing encounters between recreationists and livestock/livestock operations. The wildlife ORV could benefit by an increase in riparian area conditions, thereby improving habitat. (See 3.7.11 Fish and Wildlife).

In the administratively suitable WSRs, reductions in grazing levels may also impact the ORVs. Antelope Creek is unavailable to livestock due to topography, with the exception of approximately eight acres. On those eight acres, under Alternative B a reduction or elimination of livestock grazing would improve the vegetative community, water quality and has the potential to enhance the scenic and recreation ORVs. The 16.8 miles of Dry Creek is grazed in the winter. Riparian objectives are being met; however, the reduction or removal of grazing could provide a slight improvement to riparian vegetation, potentially enhancing scenic and wildlife ORVs. (See 3.7.5 Water Resources and Riparian/Wetland Areas).

The 3.6 miles of the North Fork Malheur River is managed in cooperation with USFWS for the protection of bull trout. There would be negligible improvement in Alternative B because livestock grazing is currently limited for the protection of bull trout habitat.

On the 13.5 miles of the suitable Owyhee below the Dam WSR, Alternative B would have a beneficial impact on the scenic, recreational, fish, and wildlife ORVs. However, there could be an increased risk of wildfire as a result of a reduction in livestock grazing and a subsequent increase in invasive annual grasses and fuel loading that could impact the scenic, fish and wildlife ORVs. In Alternative B the potential for reduction or elimination of livestock numbers would decrease the potential for encounters between recreationists and livestock. BLM cannot determine that this is either a positive or negative impact. When livestock are present, or indications of their presence are encountered, it may detract from a recreational or dispersed camping experience. Many recreationists feel that grazing is an inappropriate use of public lands, and livestock encounters may have a negative impact on their experience. For others, the presence of livestock may have no impact on their recreational experience.

Alternative D

Under Alternative D, as under Alternative B, if a permitted area for livestock grazing in a WSR was found to not be meeting Standards for Rangeland Health due to existing livestock grazing, the overlapping area would be closed to livestock grazing. However, under Alternative D the grazing would be suspended only for the term of the grazing permit or until monitoring determines significant progress is being made toward meeting Standards. The benefits to the recreation, scenic and cultural ORVs and to water quality would occur as a result of Standards being achieved. If a grazing permit was to be voluntarily relinquished for a permitted area overlapping the designated Owyhee WSR, the area would become unavailable for grazing.

The impacts to the WSR of reductions or elimination of grazing under either scenario would be the same as under Alternative B, except that the duration of the reduction of grazing if Standards for Rangeland Health were not met due to existing grazing would be shorter. The impacts to the WSR would result in positive effects to the ORVs resulting from assumed improvements in riparian areas resulting from the

removal of livestock. Under Alternative D, livestock grazing could be resumed if the area began showing progress toward meeting Standards for Rangeland Health. The intensity and duration of the effect to the riparian areas may be somewhat less than under Alternative B where livestock grazing would be removed for the life of the RMP Amendment. However, under Alternative D the area would be showing progress toward meeting the Standards for Rangeland Health and so it is assumed that improved riparian areas would be underway and benefitting the ORVs of recreation, cultural scenic and wildlife. The benefit to the ORVs would otherwise be the same as described above under Alternative B.

PRMPA

Under the PRMPA, impacts to Wild and Scenic Rivers resulting from reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, there may be a small increase in beneficial impacts over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to Wild and Scenic Rivers. These added beneficial impacts would be less than those identified in both Alternatives B and D.

Wild and Scenic Rivers Cumulative Effects Summary

The cumulative effects analysis area for WSRs is the planning area. Wild and Scenic Rivers would not experience cumulative effects from any of the reasonably foreseeable future actions identified in Table 3-1 because none of the RFFAs are proximate to or spatially connected with the WSRs. It should also be noted that future actions will only be implemented if they either protect or enhance (or both) water quality, free flow, and ORVs, and are in conformance with Manual 6400, Wild and Scenic Rivers.

3.7.19 Wilderness Study Areas

Key Points

- Only Congress can act to designate a Wilderness Study Area (WSA) as Wilderness or release it from WSA status. If Congress releases a WSA from further consideration as wilderness, these lands would no longer be managed according to Manual 6330, Management of Wilderness Study Areas (BLM 2012f). They would instead be subject to any congressionally defined provisions or land use plan allocations underlying the WSA. If a WSA was released, it would no longer support any size exception for contiguous wilderness characteristics units under 5,000 acres that depended on the adjacent WSA lands to meet minimum wilderness size criteria. The lands would be managed according to any other specific RMP provisions or in a manner similar to surrounding public lands.
- All existing WSAs are managed in accordance with Manual 6330, Management of Wilderness Study Areas (BLM 2012f) under all alternatives to maintain their suitability for Wilderness designation by Congress.
- Protection of areas determined by the BLM to possess wilderness characteristics that are contiguous to WSAs may enhance the manageability of, and contribute to, the naturalness and opportunities for solitude and primitive, unconfined recreation values of the WSA, depending on the size and configuration of the contiguous units and any additional values they bring.

Affected Environment

The SEORMP planning area includes parts or all of 32 WSAs (1,274,101 acres; see Map WC-1 to WC-6), including portions of three WSAs in the Andrews Field Office of the Burns District which traverse the Vale District administrative boundary. Presently, there are no congressionally designated Wilderness areas within the planning area.

In the 1976 *Federal Land Policy and Management Act* (FLPMA), Congress directed the BLM to evaluate all of its land for the presence of wilderness characteristics (i.e., the area's size, apparent naturalness, outstanding opportunities for solitude or primitive recreation, and any supplemental features). Identified areas eventually became WSAs. Until Congress makes a decision to designate a WSA as wilderness, or ends consideration (i.e., releases the WSA from consideration for wilderness designation), the BLM manages these lands so as not to impair their suitability for wilderness designation. This is known as the non-impairment standard.

Section 603 of the FLPMA required the BLM to review and present its wilderness recommendations to the President within 15 years of the date of the FLPMA's enactment in 1976. The BLM completed its initial inventory of areas with wilderness characteristics in 1980 and provided its recommendations within the specified time frame. Presidents George H. W. Bush and William J. Clinton submitted wilderness recommendations to Congress, many of which are still pending.

The BLM manages all WSAs in accordance with BLM Manual 6330 Management of Wilderness Study Areas (BLM 2012f). Under this manual (pages 1-10 through 1-13) any new permanent use or facility or any use or facility that will create new surface disturbance must meet one or more of the following seven exceptions to the non-impairment standard in order to occur:

A. The action or facility is necessary due to an emergency.

B. The action or facility is necessary to protect public safety.

C. The action or facility restores an impact to wilderness characteristics from a violation or action taken during an emergency.

D. The action is necessary for the exercise of a valid existing right (e.g., mining claim, mineral lease, or Rights-of-way authorization).

E. The action is necessary for the exercise of grazing, mining, and mineral leasing uses and facilities that were allowed on the date of approval of the *Federal Land Policy and Management Act* (October 21, 1976). Note that this exception covers the continuation of uses and facilities that existed on the date of this act (including repair and replacement of facilities), but not new grazing facilities.

F. The action or facility protects or enhances wilderness characteristics or values. Actions that clearly benefit a WSA by protecting or enhancing wilderness characteristics are allowable even if they are impairing, though they must still be carried out in the manner that is least disturbing to the site. Under BLM policy (6330 Manual—page 1–17) this exception can be used for new livestock structure's benefits to the natural functioning of the ecosystem outweigh the increased presence of human developments and any loss of naturalness or outstanding recreational opportunities caused by the new development.

G. The action or facility is required to meet an obligation imposed by another law.

The 2002 SEORMP designated all WSAs as OHV Limited (to existing routes). Motorized vehicle use in WSAs is limited to primitive routes that remain open under the 2002 SEORMP, unless otherwise administratively authorized. Motorized use in WSAs in the planning area is typically low, and largely limited to three seasons. The highest levels of use are in spring for wildlife and plant viewing and in the fall for hunting. The dominant visitors are livestock permittees, BLM field operations staff, and back country recreationists.

All actions analyzed in this FEIS that would occur within WSAs would meet either the non-impairment standard or an exception. Between 2002 and 2020, the BLM has performed monitoring patrols in each of the WSAs. Recreational use of volume and locations were noted where appropriate. Fires have been noted in each WSA and restoration plans in accordance with Manual 6330 have been implemented. Intrusions from off road two tracks have been mitigated with signage and reclamation where appropriate to prevent further degradation.

Wilderness Study Areas with Contiguous Lands with Wilderness Characteristics Units

Under the FLPMA, the BLM has a responsibility to maintain inventories of resources under the agency's administration. In the SEORMP area, this includes the inventory for the presence of wilderness characteristics outside of designated WSAs. As described in Section 3.7.1 Lands with Wilderness Characteristics, the BLM's inventory update (2006–2012) determined that there are 76 "units" that possess the criteria for wilderness characteristics. In some cases, the BLM grouped multiple smaller areas (parcels) that were geographically associated, and shared boundaries with a WSA into single units for record keeping purposes; however, each parcel meets the inventory criteria independently. Of these 76 units within the planning area, 33 units (67 parcels) have boundaries that are contiguous to WSAs. Of these 67 parcels, 49 rely on the adjoining WSA to meet the minimum size criteria. The remaining 18 contiguous parcels meet the minimum size requirement independent of an adjoining WSA. WSAs with the contiguous wilderness characteristics units and parcels are identified in Table 3-44.

Table 3-44. Summary of WSA acres and miles of primitive routes and contiguous wilderness characteristics units/parcels and acres.

WSA	WSA Acres in Planning Area	Miles of Routes in WSAs Closed under Alternative B	Contiguous Wilderness Characteristics Unit/Parcel	Acres of Contiguous Wilderness Characteristics Unit
Alvord Desert	138,613	47	Alvord Desert Contiguous A OR-036-093*	39
			Alvord Desert Contiguous B OR-036-093	321
Beaver Dam Creek	19,080	4	None	
Blue Canyon	12,621	4	Blue Canyon Contiguous A OR-034-113	649
			Blue Canyon Contiguous B OR-034-113*	44
			Blue Canyon Contiguous D OR-034-113*	1,114
			Blue Canyon Contiguous E OR-034-113*	1,934
Bowden Hills	59,031	22	Cherry Well A OR-036-032*	157*
			Cherry Well B OR-036-032*	3278
			Cherry Well C OR-036-032*	4,816
Camp Creek	19,881	5	Prava Peak OR-034-042*	20,618
			Squaw Creek OR-034-034*	12,599
Castle Rock	6,151	zero	None	
Cedar Mountain	33,433	8	Rinehart Creek OR-034-059*	2,695
			McNulty OR-034-053*	19,629
			Lower Owyhee Canyon Contiguous E OR-034-115	84
Clarks Butte	31,291	zero	Clarks Butte Contiguous B OR-036-057	3,649
			Clarks Butte Contiguous A OR-036-057*	5,042
Cottonwood Creek	8,110	2	Rufino Butte OR-034-043*	16,084
Disaster Peak	13,748	7	Disaster Peak Contiguous OR-036-094*	66
Dry Creek	23,353	9	Wall Rock Ridge OR-034-052*	9,856
Dry Creek Buttes	51,285	11	Dry Creek Buttes Contiguous OR-034-117*	2,497
Fifteenmile Creek	50,352	44	Whitehorse Butte OR-036-045*	9,491
			Oregon Canyon Mountain OR-036-050*	8,247
Gold Creek	13,591	1	Prava Peak OR-034-042*	20,618
			Squaw Creek OR-034-034*	12,599

WSA	WSA Acres in Planning Area	Miles of Routes in WSAs Closed under Alternative B	Contiguous Wilderness Characteristics Unit/Parcel	Acres of Contiguous Wilderness Characteristics Unit
Honeycombs	38,771	4	Steamboat Ridge OR-034-058*	3,907
			Honeycomb Contiguous OR-034-116*	438
			Rookie Creek OR-034-019*	890
Jordan Craters	27,761	2	Jordan Craters Contiguous A OR-036-092*	681
			Jordan Craters Contiguous B OR-036-092*	970
			Lower Cow Lake A OR-036-052*	658
			Lower Cow Lake B OR-036-052*	3
			Lower Cow Lake C OR-036-052	22
			Lower Cow Lake D OR-036-052	74
			Lower Cow Lake E OR-036-052	0.16
			Lower Cow Lake F OR-036-052	0.46
			Lower Cow Lake G (G1 and G2) OR-036-052*	972
Lookout Butte	66,194	47	None	
Lower Owyhee Canyon	75,089	17	Clark Ranch OR-034-060*	17,670
			Lower Owyhee Canyon Contiguous A OR-034-115*	18
			Lower Owyhee Canyon Contiguous D OR-034-115	159
			Lower Owyhee Canyon Contiguous E OR-034-115	84
			Lower Owyhee Contiguous OR-036-077*	1,901
			Rinehart Creek OR-034-059*	2,695
Oregon Canyon	42,071	12	Oregon Canyon Contiguous A OR-036-035*	10
			Oregon Canyon Contiguous B OR-036-035	5
			Oregon Canyon Contiguous C OR-036-035	11,236
			Oregon Canyon Contiguous D OR-036-035	197
			Oregon Canyon Contiguous E OR-036-035*	15
			Oregon Canyon Contiguous F OR-036-035	4,357

WSA	WSA Acres in Planning Area	Miles of Routes in WSAs Closed under Alternative B	Contiguous Wilderness Characteristics Unit/Parcel	Acres of Contiguous Wilderness Characteristics Unit
Owyhee Breaks	13,109	4	Blue Canyon Contiguous E OR-034-113*	1,934
			Lower Owyhee Canyon Contiguous D OR-034-115	159
Owyhee River Canyon	187,345	95	Black Butte OR-036-008*	12,048
			Hanson Canyon OR-036-016*	16,476
			Owyhee River Contiguous A OR-036-091*	632
			Owyhee River Contiguous B OR-036-091*	461
			Owyhee River Contiguous C OR-036-091*	31
			Owyhee River Contiguous D OR-036-091	6,006
			Owyhee River Contiguous E OR-036-091*	136
			Owyhee River Contiguous F OR-036-091*	282
			Owyhee River Contiguous G OR-036-091	42
			Owyhee River Contiguous H OR-036-091	127
Palomino Hills	54,256	24	None	
Saddle Butte	85,766	27	Saddle Butte Contiguous OR-034-120*	5,780
Sheepshead Mountains	31,071	20	None	
Slocum Creek	7,528	Zero	None	
Sperry Creek	5,296	3	Sperry Creek Contiguous OR-034-119*	148
			Prava Peak OR-034-042	20,619
Twelve Mile Creek	28,111	16	Twelve Mile Creek Contiguous A OR-036-044*	2,158
			Twelve Mile Creek Contiguous B OR-036-044*	806
			Twelve Mile Creek Contiguous C OR-036-044	6,704
Upper Leslie Gulch	2,911	Zero	Bannock Ridge OR-034-095	10,060
Upper West Little Owyhee	61,489	18	Alcorta Rim OR-036-030	53,602
Wild Horse Basin	12,967	2	Board Corral Spring OR-034-016*	5,414
Wildcat Canyon	26,193	12	None	

WSA	WSA Acres in Planning Area	Miles of Routes in WSAs Closed under Alternative B	Contiguous Wilderness Characteristics Unit/Parcel	Acres of Contiguous Wilderness Characteristics Unit
Willow Creek	27,438	23	Willow Creek Contiguous (Border) E OR-036-087*	5
			Willow Creek Contiguous A OR-036-087*	423
			Willow Creek Contiguous B OR-036-087*	9
			Willow Creek Contiguous C OR-036-087*	10
			Willow Creek Contiguous D OR-036-087*	1,287

Notes: Shading means the wilderness characteristics unit would meet size without being contiguous to the WSA.
* (Asterisk) indicates that the unit boundary is at least in part made up of a road that would be identified as a boundary road setback in alternatives B, C and D and the PRMPA where that unit or parcel is prioritized for protection of wilderness characteristics. In these cases, the acreage protected would be reduced (see Boundary Road Setbacks, Chapter 2 and Appendix A).

Environmental Consequences

Analytical Methods

Indicators

The indicators used to analyze impacts to WSAs are the criteria for wilderness characteristics:

- Size
- Naturalness
- Outstanding opportunities for solitude or a primitive, unconfined type of recreation
- Identified supplemental values
- Miles of routes in the WSAs that would remain available for motorized use
- Acres of the WSA that would be closed to motorized use
- Acres where the reduction or elimination of grazing might occur
- Impacts to the ecologic processes at work in the WSA
- Number of contiguous acres of protected lands with wilderness characteristics

Assumptions

- Manageability of WSAs which have contiguous, protected wilderness characteristics units could preserve or enhance WSA values over the long term if the contiguous wilderness characteristics units are protected.
- Management actions that improve natural, ecological processes within a WSA enhance its naturalness. These ecological processes include watershed function, water quality, and vegetative health and habitat quality.

Issue 1

How would Wilderness Study Areas be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

The protection of wilderness characteristics in areas adjacent to a WSA would enhance the manageability and improve the BLM's ability to protect wilderness characteristics in the pertinent WSA. WSAs without lands with wilderness characteristics that are contiguous (i.e., share an external boundary and not separated by a constructed road, existing developed right of way, or change in ownership) would be unaffected by the BLM's decision to protect or not protect lands with wilderness characteristics. Because of this, the analysis under this issue addresses only the wilderness characteristics units (and individual parcels) that are contiguous to WSAs. The total amount of public land in the 32 designated WSAs encompasses 1,273,907 acres. Twenty-five of these 32 WSAs have contiguous wilderness characteristics units totaling 289,746 acres (23% of the total 1,236,907 acres of wilderness characteristics units in the planning area).

Wilderness characteristics can be enhanced, and the BLM's ability to protect WSAs can be increased where contiguous lands would also be managed to protect their wilderness characteristics. This is due to the recognition that these contiguous areas: possess identical or compatible wilderness characteristics, meet the wilderness characteristics criteria, and reflect common resource conditions and opportunities. Protecting these contiguous areas will prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary. That the contiguous lands possess wilderness characteristics is also an indication that management has led to there being no boundary (e.g., a road) separating the contiguous unit from the WSA. That is, upon completing the inventory update (2006–2012), the BLM found that public lands that were determined during the original inventory to be separated from a WSA now have no boundary feature (BLM Manual 6330; 2012f) between the inventory unit and the WSA.

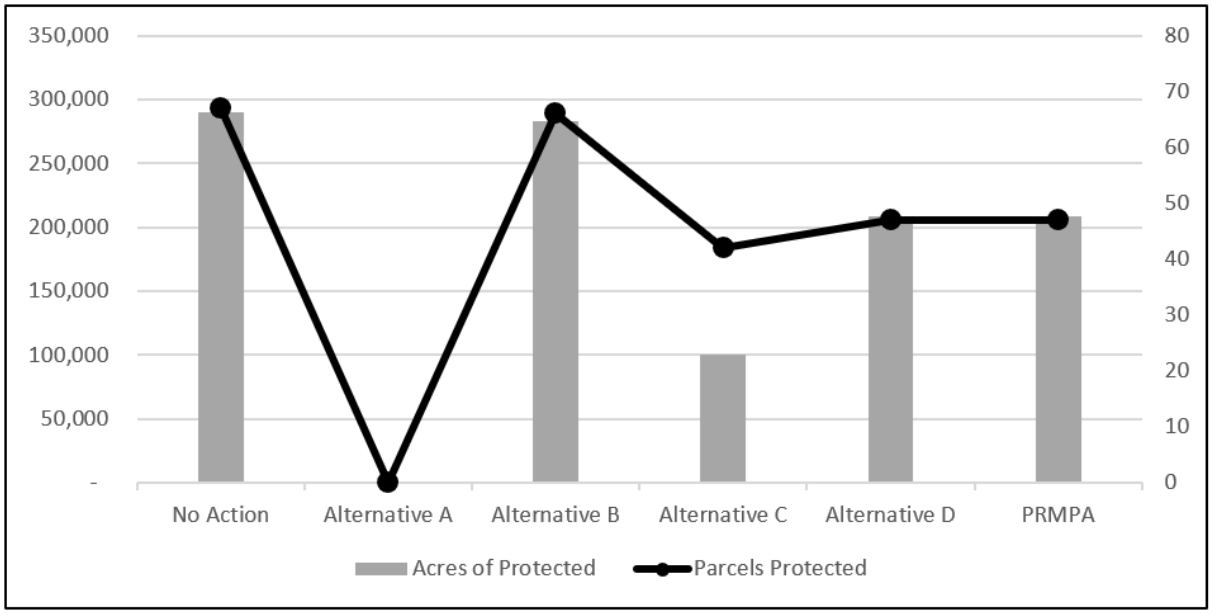
The PRMPA would protect 46 parcels that are contiguous to WSAs, totaling 208,154 acres within 24 protected wilderness characteristics units. The No Action Alternative would protect 67 contiguous parcels (within 33 wilderness characteristics units), resulting in the greatest benefit to the management of the WSA(s), followed by Alternative B which would protect 66 parcels totaling 283,199 acres (within the same 33 wilderness characteristics units). The acreage in Alternative B is lower than the No Action alternative because Alternative B includes 6,546 acres of boundary road setbacks. Due to the setbacks, one parcel (Lower Cow Lake B) is also eliminated from protection in Alternative B.

Alternative C protects 43 contiguous parcels totaling 100,540 acres within 20 protected wilderness characteristics units. As with the PRMPA, Alternative D protects 46 contiguous parcels totaling 208,154 acres within 24 protected wilderness characteristics units that are contiguous. Alternative D and the PRMPA protect more than double the acreage of contiguous parcels as compared with Alternative C.

Alternative A would add no additional protections to the 33 units (67 parcels) that are contiguous to WSAs and would not result in any beneficial effects to WSAs.

Figure 3-5 illustrates the acres and number of protected wilderness characteristics parcels that are contiguous to WSAs by alternative.

Figure 3-5. Acreage of protected wilderness characteristics parcels contiguous to WSAs by alternative.



Issue 2

How would Wilderness Study Areas be affected by changes in OHV area designations?

No cross-country motorized vehicle travel is allowed in WSAs; this would continue to be the case under all alternatives and the PRMPA. The only exception to this prohibition is for uses that meet an exception to the non-impairment standard (see background above).

Under the No Action Alternative, OHV use in WSAs would continue to be Limited to existing routes. This same OHV Limited designation in WSAs would continue under Alternatives A, C, D, and the PRMPA. Alternative B would close all existing primitive routes to motorized use in WSAs.

The PRMPA, No Action Alternative, and Alternatives A, C, and D

Under the PRMPA, No Action Alternative and Alternatives A, C, and D the BLM would continue to manage WSAs as OHV Limited. The noise from, and presence of, vehicles would continue to affect opportunities for solitude and unconfined recreation (for additional recreation analysis see 3.7.15 Recreation). The ongoing presence and use of motorized primitive routes would continue to detract from the naturalness of the WSAs.

Alternative B

Alternative B would designate all WSAs as closed to OHV use. Four of the WSAs (Castle Rock, Clark's Butte, Slocum Creek, and Upper Leslie Gulch) within the planning area (13% of the total area in WSAs) have no existing motorized routes and would thus be unaffected by changes to OHV designations.

The overall the overall route density of all the WSAs is less than one-quarter (0.24) mile per square mile, with the highest mileage in the Fifteenmile Creek unit (0.56 miles per square mile). While this density is relatively modest, an OHV Closed designation in the WSAs would benefit naturalness and solitude

Under Alternative B:

- fewer than 10 miles of primitive routes would be closed in each of13 WSAs (Cottonwood Creek, Wild Horse Basin, Honeycombs, Jordan Craters, Gold Creek, Beaver Dam Creek, Camp Creek, Cedar Mountain, Owyhee Breaks, Blue Canyon, Dry Creek, Sperry Creek, and Disaster Peak.
- between 10–30 miles would be closed in each of 11 WSAs (Wildcat Canyon, Palomino Hills, Bowden Hills, Willow Creek, Sheepshead Mountains, Twelve mile Creek, Saddle Butte, Upper West Little Owyhee, Oregon Canyon, Lower Owyhee Canyon, and Dry Creek Buttes);
- between 30–50 miles would be closed in each of three WSAs (Fifteenmile Creek, Lookout Butte, and Alvord Desert); and
- approximately 95 miles would be closed in one WSA (Owyhee River Canyon). While Alternative B would close the most primitive route miles in the Owyhee River Canyon WSA, the overall route density is only 0.3 miles/square miles.

Table 3-44 provides the miles of primitive routes that would be closed to OHV motorized use.

Closing WSAs to OHV use under Alternative B would benefit WSAs and their wilderness characteristics. Lack of motorized use on primitive routes would improve naturalness as the routes reclaim naturally, in time, through non-use. This reclamation would reduce the imprint of man on the landscape, enhancing naturalness. As described in Section 3.7.11 Fish and Wildlife, as the routes reclaim, there may be some reconnection of fragmented areas and a decrease in disturbance to wildlife from motorized use. Section 3.7.4 Soils and 3.7.5 Water/Wetlands and Riparian areas describe that reduced motorized use may enhance soil recovery, decrease sediment input to streams and decrease erosional factors. Depending on the conditions in the WSA, these ecologic responses to the OHV closure may enhance the overall natural conditions over time.

The absence of OHVs under Alternative B would improve opportunities for solitude and primitive and unconfined recreation in the WSAs. Primitive and unconfined recreation is, by definition, non-motorized. The visual and aural impact of other visitors on opportunities for solitude is amplified by visitors using motorized vehicles. For example, a hiker is more likely to be aware, and to be aware for a longer period of time, of another visitor in a motorized vehicle than they are of another hiker. Designating an area with wilderness characteristics as closed to OHVs would also, over time, result in an improvement to the area's naturalness as the impacts of existing primitive routes lessen.

In Alternative B, the motorized vehicle closure in the lands with wilderness characteristics units that are contiguous to WSAs would further enhance the naturalness of the contiguous WSAs. See Table 3-45.

Among the alternatives, Alternative B would have the greatest benefit to WSAs and their contiguous lands with wilderness characteristics units.. This reclamation would reduce the imprint of man on the landscape, enhancing naturalness.

Table 3-45. Summary of wilderness characteristics units that are contiguous to Wilderness Study Areas and the associated OHV designations by alternative.

WSA	Wilderness Characteristics Unit	OHV Designation					
		No Action	A	B	C	D	PRMPA
Upper West Little Owyhee	Alcorta Rim	L	L	C	C	L	L
Alvord Desert	Alvord Desert Contiguous A	L	L	C	L	L	L
	Alvord Desert Contiguous B	L	L	C	L	L	L
Upper Leslie Gulch	Bannock Ridge	L	L	C	L	L	L
Owyhee River Canyon	Black Butte	L	L	C	L	L	L
Blue Canyon	Blue Canyon Contiguous A	L	L	C	L	L	L
	Blue Canyon Contiguous B	L	L	C	L	L	L
	Blue Canyon Contiguous D	L	L	C	L	L	L
Owyhee Breaks/Blue Canyon	Blue Canyon Contiguous E	L	L	C	L	L	L
Wild Horse Basin	Board Corral Spring	L	L	C	L	L	L
Bowden Hills	Cherry Well A	L	L	C	L	L	L
	Cherry Well B	L/O	L/O	C	L	L	L
	Cherry Well C	L	L	C	L	L	L
Lower Owyhee Canyon	Clark Ranch	L	L	C	L	L	L
Clarks Butte	Clarks Butte Contiguous A	L	L	C	L	L	L
	Clarks Butte Contiguous B	L	L	C	L	L	L
Disaster Peak	Disaster Peak Contiguous	L	L	C	L	L	L
Dry Creek Buttes	Dry Creek Buttes Contiguous	L	L	C	L	L	L
Owyhee River Canyon	Hanson Canyon	L	L	C	L	L	L
Honeycombs	Honeycomb Contiguous	L	L	C	L	L	L
Jordan Craters	Jordan Craters Contiguous A	L	L	C	L	L	L
	Jordan Craters Contiguous B	L	L	C	L	L	L
	Lower Cow Lake A	L	L	C	L	L	L
	Lower Cow Lake B	L	L	E	E	E	E
	Lower Cow Lake C	L/O	L/O	C	L	L	L

WSA	Wilderness Characteristics Unit	OHV Designation					
		No Action	A	B	C	D	PRMPA
	Lower Cow Lake D	L/O	L/O	C	L	L	L
	Lower Cow Lake E	L	L	C	L	L	L
	Lower Cow Lake F	L	L	C	L	L	L
	Lower Cow Lake G1	L/O	L/O	C	L	L	L
	Lower Cow Lake G2	L/O	L/O	C	L	L	L
Lower Owyhee Canyon	Lower Owyhee Canyon Contiguous A	L	L	C	L	L	L
Owyhee Breaks/ Lower Owyhee Canyon	Lower Owyhee Canyon Contiguous D	L	L	C	L	L	L
Cedar Mountain/Lower Owyhee Canyon	Lower Owyhee Canyon Contiguous E	L	L	C	L	L	L
Lower Owyhee Canyon	Lower Owyhee Contiguous	L/O	L/O	C	L	L	L
Cedar Mountain	McNulty	L	L	C	L	L	L
Oregon Canyon	Oregon Canyon Contiguous A	L	L	C	L	L	L
	Oregon Canyon Contiguous B	L	L	C	L	L	L
	Oregon Canyon Contiguous C	L	L	C	L	L	L
	Oregon Canyon Contiguous D	L	L	C	L	L	L
	Oregon Canyon Contiguous E	L	L	C	L	L	L
	Oregon Canyon Contiguous F	L	L	C	L	L	L
Fifteenmile Creek	Oregon Canyon Mountain	L	L	C	L	L	L
Owyhee River Canyon	Owyhee River Contiguous A	L	L	C	L	L	L
	Owyhee River Contiguous B	L	L	C	L	L	L
	Owyhee River Contiguous C	L	L	C	L	L	L
	Owyhee River Contiguous D	L	L	C	L	L	L
	Owyhee River Contiguous E	L	L	C	L	L	L
	Owyhee River Contiguous F	L	L	C	L	L	L
	Owyhee River Contiguous G	L	L	C	L	L	L

WSA	Wilderness Characteristics Unit	OHV Designation					
		No Action	A	B	C	D	PRMPA
	Owyhee River Contiguous H	L	L	C	L	L	L
Camp Creek/ Gold Creek/ Sperry Creek	Prava Peak	L	L	C	L	L	L
Lower Owyhee Canyon/Cedar Mountain	Rinehart Creek	L	L	C	L	L	L
Honeycombs	Rookie Creek	L	L	C	L	L	L
Cottonwood Creek	Rufino Butte	L	L	C	L	L	L
Saddle Butte	Saddle Butte Contiguous	L	L	C	L	L	L
Sperry Creek	Sperry Creek Contiguous	L	L	C	L	L	L
Camp Creek/Gold Creek	Squaw Creek	L/O	L/O	C	L	L	L
Honeycomb	Steamboat Ridge	L	L	C	L	L	L
Twelve Mile Creek	Twelve Mile Creek Contiguous A	L	L	C	L	L	L
	Twelve Mile Creek Contiguous B	L	L	C	L	L	L
	Twelve Mile Creek Contiguous C	L	L	C	L	L	L
Dry Creek	Wall Rock Ridge	L	L	C	L	L	L
Fifteenmile Creek	Whitehorse Butte						
Willow Creek	Willow Creek Contiguous (Border) E	L	L	C	L	L	L
	Willow Creek Contiguous A	L	L	C	L	L	L
	Willow Creek Contiguous B	L	L	C	L	L	L
	Willow Creek Contiguous C	L	L	C	L	L	L
	Willow Creek Contiguous D	L	L	C	L	L	L

Note: Shaded grey means that unit is identified for protection in that alternative. OHV designations include: O—Open, L—Limited, and C—Closed.

Issue 3

How would Wilderness Study Areas be affected by a reduction or elimination of livestock grazing due to (a) Standards for Rangeland Health not being met where BLM determines that existing livestock grazing management is a causal factor, and (b) BLM receiving a voluntary relinquishment of a grazing permit?

The BLM cannot predict the specific allotment(s) where either Standards for Rangeland Health may not be met or a grazing permit relinquishment may occur. Because of this, the analysis of impacts to Wilderness Study Areas from the elimination or reduction of grazing that could occur under the alternatives are discussed qualitatively.

As presented in Section 3.7.3, "Standards of Rangeland Health and Grazing Management Guidelines" subsection, the objectives of the Healthy Rangeland Initiative is to understand the condition of public rangelands and manage them to promote and restore healthy and properly functioning ecosystems in a sustainable manner. Rangeland Health assessments and evaluations disclose the ecologic function and condition of vegetation communities for an area and inform the BLM on causal factors if Standards are not being achieved.

Under all alternatives, the wilderness characteristic of "apparent naturalness" (from the perspective of a casual observer) in the WSAs would continue to be affected primarily by the forces of nature, with any work of human beings being substantially unnoticeable. The effects of alternatives from the assumed level of livestock grazing evaluates the impacts of varying levels of grazing on the wilderness values of naturalness and outstanding opportunities for solitude and primitive recreation.

No Action Alternative and Alternatives A and C

Under the, No Action Alternative and Alternatives A and C there would be no change in how the BLM would assess, evaluate, and implement actions in response to Standards for Rangeland Health, nor where a livestock grazing permit is voluntarily relinquished. If Standards for Rangeland Health are not being met, regardless of the causal factor, the BLM would conduct site specific NEPA analysis and would assess options to improve the conditions, including but not limited to: closure of allotments or pastures to livestock grazing, changing season of use, adjusting AUMs, or implementing rest-rotations grazing systems. Closure of allotments or pastures and suspension of livestock grazing is not required in these alternatives if Standards for Rangeland Health are not being met, but it is one of many management actions than could be used to address achieving Standards, thereby improving conditions of a WSA's naturalness. Also, under these alternatives, if a livestock grazing permit is voluntarily relinquished, the BLM would follow policy (see Section 3.7.3, Voluntary Permit Relinquishment) to evaluate future forage allocations, including to other resources.

The, No Action Alternative, and Alternatives A and C would continue to manage WSAs according to MS 6330; livestock grazing is an authorized use in WSAs and existed at the time the WSAs were designated. Nonetheless, livestock grazing can alter natural conditions and affect wilderness characteristics. These impacts include changes to water quality, wildlife habitat and the overall ecological function at both the local (site) level and across the landscape; assessment of these impacts is, in part, the product of Rangeland Health evaluations. As Table 3-13 (Section 3.7.3 Livestock Grazing) shows, impacts from livestock grazing as a causal factor in not attaining standards is more common near water (developed projects and natural sources). Areas where livestock congregate can remove vegetation, leaving bare soils, thus negatively impacting naturalness of the wilderness resource. While not identified as a principal source of invasive plant species (see Section 3.7.6 Invasive Species), grazing can also expose soil and remove vegetation, providing a niche for weeds; this may have a negative impact on naturalness.

Wilderness values of a WSA can also be impacted by livestock grazing in terms of opportunities for solitude and primitive recreation. Livestock can remove or trample vegetation (see Soils Section 3.7.4 and General Vegetation Section 3.7.5), and livestock management operations can negatively impact

opportunities for solitude. Livestock grazing management infrastructure is present in many areas in WSAs; although these range improvements were present on the date of WSA designation, they continue to have an impact to the naturalness of WSAs. Livestock and related management operation can lead to interactions between livestock and operators with WSA users, thus reducing solitude and impacting primitive recreation opportunities. In the WSAs in the planning area, the effect of ongoing livestock practices continues to be both authorized and to have the above types of impacts to the wilderness resource at certain locations and is expected to continue. However, the BLM will continue to: coordinate with permittees to adapt grazing to meet the Terms and Condition of the permit, monitor resource conditions and identify utilization by livestock and resource concerns, and to annually tailor the grazing system to address resource and livestock management to meet objectives.

For some members of the public who visit WSAs for primitive recreation, they consider that the continuation of western traditions is a benefit to their wilderness recreation experience.

Under the No Action and Alternatives A and C, continuation of livestock grazing would not impair the ability of Congress to designate the WSAs as Wilderness, as required by Manual 6330 (BLM 2012c).

Alternative B

Under Alternative B, a WSA would be closed to livestock grazing for the duration of the plan if an area were found to not be meeting Standards for Rangeland Health due to existing livestock grazing or if a permit was voluntarily relinquished. The effects of this removal of livestock grazing would be an enhancement of the condition of naturalness resulting from assumed improvements in ecological function (either improved vegetation conditions or improved riparian area condition and function, or both) resulting from the removal of livestock. See Section 3.7.5 Water Resources and Section 3.7.6 General Vegetation and Section 3.7.7 Invasive Species for a detailed description of the anticipated effects resulting from the elimination of livestock grazing.

Scenic qualities would improve as bare ground around gates, fences, water and dietary supplement locations become filled in with vegetation. Overall, it is expected that potential reductions in livestock grazing resulting from Alternative B would benefit the apparent naturalness (appearance of the landscape) of the WSAs where those reductions occurred. These benefits to naturalness could also improve the opportunity to experience primitive and unconfined recreation. The removal of livestock would reduce encounters between recreationalists, livestock operations (gathering, moving between pastures, and mineral supplements) and livestock; however, the BLM cannot determine that this is either a positive or negative impact to the experience of unconfined recreation. The removal of these encounters would improve opportunities for solitude depending on the location, season and intensity of the area's current livestock use. Many wilderness users feel that grazing is an inappropriate use of wilderness resources and that it conflicts with the fundamental tenets of wilderness. For others, the presence of livestock may not detract from their experience and may enhance their primitive recreational experience.

Alternative D

Under Alternative D, a WSA would be closed to livestock grazing, for the term of the grazing permit or until monitoring determines significant progress is being made toward meeting Standards, if an area was found to not be meeting Standards for Rangeland Health due to existing livestock grazing. This would result in positive effects to naturalness resulting from assumed improvements in ecological function resulting from the removal of livestock. Under Alternative D, livestock grazing could be resumed if the area began showing progress toward meeting Standards for Rangeland Health. The intensity and duration of the effect to naturalness may be somewhat less than under Alternative B where livestock grazing would be removed for the life of the RMP Amendment. However, under Alternative D the area would be showing progress toward meeting the Standards for Rangeland Health and so it is assumed that improved ecological processes would be underway and contributing to the naturalness of the WSA.

Under Alternative D, the BLM would eliminate or reduce grazing associated with a voluntarily relinquished permit, where the permitted area overlaps the WSA(s). As with Alternative B, either this elimination or reduction, or both, in grazing would result in improvements in ecological function and would, therefore, be a positive effect on naturalness. This impact would be the same as under Alternative B where the permitted portion of the allotment or pasture area within the WSA would become not available to grazing for the life of the RMP. See Section 3.7.5 Water Resources and Section 3.7.6 General Vegetation and Section 3.7.7 Invasive Species for a detailed description of the anticipated effects resulting from either the elimination or reduction, or both, of livestock grazing.

PRMPA

Under the PRMPA, impacts to Wilderness Study Areas resulting from reductions in or the elimination of livestock grazing would be similar to the No Action Alternative and Alternatives A and C. However, there may be a small increase in beneficial impacts over these alternatives as a result of a more flexible set of management options including the potential to change grazing or other management, to address areas where Standards for Rangeland Health are not met, regardless of causal factor and as a result of direction to not increase AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional planning level analysis and amendment would not be required. This difference could increase the speed with which potential benefits from the changed management could occur. The potential elimination or reduction in livestock grazing in these areas from these policies could result in an increase in beneficial effects to Wilderness Study Areas by improving ecological processes and adding to naturalness. These added beneficial impacts would be less than those identified in both Alternatives B and D.

Wilderness Study Areas Cumulative Effects Summary

The cumulative effects analysis area for WSAs is the planning area. This Section will address any additional effects to the WSAs from reasonably foreseeable actions (see Table 3-1).

The reasonably foreseeable actions that have the potential to affect WSAs are the LCGMA project, the Tri-state Fuels Break project, and the Northwest Malheur County Greater Sage-grouse Habitat Restoration project. The treatments in the LCGMA project could improve the ecological function of WSAs by treating invasive annual grasses, replacing invasive annual grasses with preferred perennial grasses, planting sagebrush, and reducing sagebrush where the overstory is denser than optimal for Sage-grouse habitat. These treatments would need to meet an exception to the non-impairment standard in order to be implemented and their benefit to WSAs would need to be identified. They would also need to be implemented in the least disturbing manner possible. Impacts to naturalness from vegetation treatments are greatest immediately after treatment (short-term). In the long term, the impacts would fade to minor.

Fuel break projects planned under the Tri-state project would occur along the boundary of three WSAs totaling 1.48 miles. These treatments would involve fuel breaks and have the effect of short-term impacts to vegetation but would not affect naturalness because of design features. Under the NW Malheur restoration project, one WSA (Castle Rock) would receive high elevation and low elevation fuels treatments throughout the WSA (treatments occurring on a total of 462 acres). The treatments would be allowed because they meet the protect and enhance exception to the non-impairment standard and are being conducted in accordance with Manual 6330. Project design features will be implemented to limit negative impacts on wilderness characteristics.

As identified in Table 3-1 Reasonably Foreseeable Future Actions, new fencelines may be necessary to make portions of three key RNAs unavailable to grazing (see also, Table 2-6 2015 GRSG ARMPA ROD, p.2-18, BLM 2015d). There are three key RNAs (Lake Ridge, Toppin Creek Butte, and Dry Creek Bench) that are located in three WSAs (Camp Creek WSA, Owyhee River Canyon WSA and Twelve Mile Creek WSA, respectively) totaling 4,271 acres that could impact the wilderness characteristics of the WSAs. These potential fences would be analyzed to determine whether they meet an exception to the WSA non-impairment standard because they protect or enhance wilderness characteristics (in this case, meeting research objectives identified in the 2015 Greater Sage-grouse ARMPA and enhancing naturalness by improving ecological processes).

If the Idaho District Court's preliminary injunction is lifted and the 2019 Oregon Greater Sage-Grouse ARMPA (2019d) is implemented, all Key RNAs would become available for livestock grazing once again. Under this scenario the potential for fencing described above (and the associated ground disturbance) would not occur.

With regard to proposed locatable mineral development and exploration RFFAs, there are sixteen mining claims in or adjacent to WSAs in the planning area; none of these claims may be developed as they do not predate designation of the WSA. Based on the BLM's current management of Wilderness Study Areas, mining activities like exploration and development that would impact the wilderness characteristics of a WSA would not be authorized unless the mining claims pre-date the designation of the WSA.

No Action Alternative

The No Action Alternative adopts the requirements of the 2010 Settlement Agreement and would require the BLM to allow no action that would diminish or eliminate wilderness characteristics in any of the 32 lands with wilderness characteristics units that are contiguous to WSAs. Protecting these contiguous areas will prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary. Under the No Action Alternative, the assumed effects from the ongoing OHV Limited designation and livestock grazing practices would continue to protect wilderness characteristics of the WSAs. Existing OHV designations would continue under the No Action Alternative and no new routes are proposed under any alternative.

In allotments where standards for Rangeland Health are not being met within WSAs, the naturalness characteristic would continue to be negatively impacted. BLM Manual 6330 (BL 2012f, Section 3.c) states: "If rangeland within a WSA is failing to achieve Rangeland Health Standards, the significant factors contributing to this failure will be determined through monitoring and a review of existing uses. If existing grazing management practices are found to be a significant factor in the failure to achieve standards, new grazing management practices may be established as needed if they meet the non-impairment standard or one of the exceptions." The ecologic function of WSAs would remain at its current condition under the No Action Alternative and the areas would continue to have their same level of apparent naturalness.

Incremental effects from the LCGMA, Tri-state and the Northwest Malheur projects on WSAs would be negligible as these projects would need to meet the protect and enhance exception to the non-impairment standard and be conducted in accordance with Wilderness Manual 6330. Project design features will be implemented under these projects to limit negative impacts on WSAs.

Alternative A

Alternative A would provide the least protection of wilderness characteristics because no specific land use planning-level management of this resource would be implemented and because this alternative provides no protections for the 33 contiguous lands with wilderness characteristics units (67 parcels, 289,746 acres). As under the No Action Alternative, the assumed effects from ongoing OHV Limited designations and livestock grazing practices would be the same as the no action alternative.

Incremental effects from the LCGMA, Tri-state and the Northwest Malheur projects would be negligible as described for the No Action Alternative above.

Alternative B

Under Alternative B, all 33 contiguous wilderness characteristics units (66 parcels and 283,199 acres) would be protected. Protecting these contiguous areas would prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary.

Under Alternative B, the closure of WSAs to motorized vehicle use would further enhance the naturalness of the 27 (five have no internal primitive routes) WSAs where motorized access currently occurs. The natural reclamation of primitive routes and lack of vehicular use would result in enhanced ecological processes and benefit the overall naturalness of the areas and landscape. Closure of the WSAs to motorized vehicles would also benefit solitude and opportunities for primitive and unconfined recreation due to the lack of noise from, and presence of, vehicles.

Benefits to naturalness are also achieved under Alternative B through the removal of livestock grazing in WSAs where Standards for Rangeland Health are not met due to either existing livestock grazing or when a grazing permit is voluntarily relinquished, or both.

As a result of the lands with wilderness characteristics protections, OHV allocations, and livestock grazing management actions, Alternative B provides the greatest overall benefit to WSAs.

As noted under the No Action Alternative and Alternative A, the incremental effects from the LCGMA, Tri-state and the Northwest Malheur projects on WSAs would be negligible as these projects would need to meet the protect and enhance exception to the non-impairment standard and be conducted in accordance with Wilderness Manual 6330. Project design features will be implemented under these projects to limit negative impacts on WSAs.

Alternative C

Under Alternative C, 20 contiguous wilderness characteristics units (43 parcels and 100,540 acres) would be protected. Protecting these contiguous areas will prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary. Under the Alternative C, the assumed effects from ongoing OHV Limited designations and livestock grazing practices would be the same as the no action alternative.

As noted under the No Action Alternative and Alternative A, the incremental effects from the LCGMA, Tri-state and the Northwest Malheur projects on WSAs would be negligible as these projects would need to meet the protect and enhance exception to the non-impairment standard and be conducted in accordance with Wilderness Manual 6330 (BLM 2012f). Project design features will be implemented under these projects to limit negative impacts on WSAs.

The cumulative effects from the LCGMA project would only apply to three WSAs where there are proposed vegetation treatments. These treatments are to enhance the ecological functions of the WSAs.

The improved ecological function will be a long-term benefit to naturalness characteristic of these WSAs. The Tri-state fuel breaks proposed alternative would propose a fuel break in the ROW along the boundary of the Owyhee River Canyon Contiguous Parcel D which is contiguous to the Owyhee River Canyon WSA. The fuel break is designed to not impair the naturalness of the wilderness characteristics unit and is adjacent to the WSA, but not located in the WSA. Ongoing OHV use would be the same as the No Action Alternative; the contiguous wilderness characteristics units and WSA continue to be OHV Limited.

Alternative D

Under Alternative D, 24 contiguous wilderness characteristics units (46 parcels and 208,154 acres) would be protected. Protecting these contiguous areas will prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary.

Under Alternative D, the assumed effects from the continuation of the OHV Limited designation would continue to (describe its continued effect on WSAs).

Benefits to naturalness are also achieved under Alternative D through the elimination or temporary removal of livestock grazing in WSAs where Standards for Rangeland Health are not met either due to livestock grazing or when a grazing permit is voluntarily relinquished, or both. The intensity and duration of the effect to naturalness may be somewhat less than under Alternative B where livestock grazing would be completely removed for the life to the RMP Amendment.

As noted under the No Action Alternative and under Alternative A, B, and C, the incremental effects from the LCGMA Permit Renewal and Restoration Treatments, Tri-state and the Northwest Malheur projects on WSAs would be negligible as these projects would need to meet the protect and enhance exception to the non-impairment standard and be conducted in accordance with Wilderness Manual 6330. Project design features will be implemented under these projects to limit negative impacts on WSAs.

PRMPA

Under the PRMPA, 24 contiguous wilderness characteristics units (46 parcels and 208,154 acres) would be protected. Protecting these contiguous areas will prevent actions that might indirectly affect the WSA. Both the ecological integrity of a WSA, and its opportunities for solitude and primitive and unconfined recreation, are enhanced by the protection of adjacent lands beyond its boundary. Under the PRMPA, the assumed effects from ongoing OHV Limited designations would be the same as the no action alternative; the designation of approximately 320,000 acres of currently OHV Open areas are outside of WSAs. The additional Management Direction for livestock grazing and rangeland management would provide additional potential benefits to WSAs as a result of increased flexibility of management responses.

As noted under the No Action Alternative and Alternatives A, B, C, and D, the incremental effects from the LCGMA, Tri-state and the NW Malheur projects on WSAs would be negligible as these projects would need to meet the protect and enhance exception to the non-impairment standard and be conducted in accordance with Wilderness Manual 6330. Project design features will be implemented under these projects to limit negative impacts on WSAs.

3.7.20 Mineral Resources

The BLM manages the federal mineral estate for the United States. The land surface overlying this estate can be owned by a nonfederal entity such as the state of Oregon or private interests; these lands are referred to as split estate lands. The Malheur Field Office (MFO) manages the surface of 4,641,445 acres of public lands within the planning area boundary and 5,002,115 acres of mineral estate. Of these, 598,767 acres are split estate lands. Mineral estate ownerships occur in a variety of combinations, ranging from total federal ownership to situations where only specific minerals are retained in federal ownership. Maps MIN 1 and 2 illustrate the mineral estate in the planning area. The mineral estate of a split estate lands may be owned by entities such as the state of Oregon, private individuals, or corporations. Detailed information is on file in master title plats maintained in each BLM District Office.

Specific minerals are categorized as locatable, leasable, and saleable depending upon regulations contained in 43 CFR. Locatable minerals are minerals for which mining claims can be located under the General Mining Law of 1872 as amended. These include precious and base metals and some nonmetallic minerals. Leasable minerals include oil, gas, geothermal, and some solid mineral resources such as coal, oil shale, sodium, phosphate, and potassium. Saleable minerals include common variety mineral materials such as sand, gravel, and other aggregate material. Although similar in many ways, each classification is administered differently and has different requirements for acquisition, exploration, and development.

The Minerals Section is split between three "sub" resource topics to allow a comprehensive Affected Environment section to address locatable, leasable, and saleable minerals.

Key Points

- Approximately 16% of the planning area has already been withdrawn or proposed for withdrawal from locatable mineral entry. The planning area will remain open to locatable mineral entry in the action alternatives except where lands have already been withdrawn. Alternative B would place the most constraint on locatable mineral development by designating all wilderness characteristics units identified for management to protect wilderness characteristics as closed to OHV use and designating the most acreage as VRM Class II. The No Action and Alt A would retain the current locatable mineral management. Protected wilderness characteristics units may lead to the BLM requiring additional mitigation due to the designation of these units as VRM Class II. Alternative C protects the least area for wilderness characteristics, followed by Alternative D and the PRMPA—which both protect 33 units—and Alternative B which protects all 76 units.
- Lands designated as No Surface Occupancy (NSO) for leasable minerals would increase from 35% of the planning area under the No Action Alternative and Alternative A to between 36 and 45% for the other action alternatives. Geophysical exploration would not be impacted by the NSO designation as long as wilderness characteristics and visual impairment criteria are met. Alternative B would place the most constraint on leasable mineral development by designating the most acreage as NSO and VRM Class II. After the No Action Alternative and Alternatives A and C, the PRMPA and Alternative D would place the greatest constraint on leasable mineral development by designating the most acreage as NSO and VRM Class II.
- Lands closed to new mineral material sales would increase from 61% of the planning area under the No Action Alternative and Alternative A to between 62% and 71% for the other action alternatives. Lands impacted by the "closed" designation would remain open to free-use permits and mineral material sales in existing authorized pits and common use areas as long as visual impairment criteria are met. Alternative B would place the most constraint on saleable mineral development by designating the most acreage as closed to new mineral material sales and as VRM Class II. Aside from the No Action Alternative and Alternative A,

the PRMPA would place the least constraint on saleable mineral development by designating the least acreage as closed to new mineral material sales and as VRM.

Locatable Minerals

Affected Environment

Locatable minerals are managed under the *General Mining Act of 1872* (Mining Law) (30 United States Code [USC] 22-42) as amended, and regulations at 43 CFR 3700 and 3800. The Mining Law provides United States citizens the right to prospect, explore, and develop these minerals on public domain lands not withdrawn from locatable mineral entry by Congress or the Secretary of the Interior. Exploration for and development of locatable mineral resources under the Mining Law provides a possessory property right to claimed minerals on public lands open to mineral entry, where the BLM cannot prohibit the public from locating mining claims or from conducting reasonably necessary activities required for the prospecting, exploration, and development of valuable locatable mineral deposits. The 3700 regulations describe the use and occupancy of the public lands for the development of locatable mineral deposits by limiting such use or occupancy to that which is reasonably incident to mining. The 3800 regulations describe how to locate and maintain mining claims, how the BLM prevents "unnecessary or undue" degradation (UUD) of public lands as defined in 43 CFR 3809.415, and the requirements for mining on federal lands. Since the January 1, 1981, issuance of 43 CFR 3809 regulations, the BLM has had the authority to regulate mining activities and require changes in a mining Notice or Plan of Operations to ensure activities do not result in unnecessary or undue degradation of the environment (43 CFR 3809.4).

Locatable Mineral Occurrences

A variety of locatable minerals are found within the planning area due to its geologic diversity, including significant precious and base metal deposits of gold, uranium, and mercury; industrial metal deposits of bentonite, zeolite, and diatomite; and other rocks and minerals such as picture jasper, thundereggs, sunstones, blue opal, and plume agates.

The most significant metallic deposits are hot spring- and epithermal-related gold, silver, and mercury, as well as volcanogenic uranium. The gold and silver deposits are found mainly in the Oregon-Idaho graben in the eastern part of the planning area. The Oregon-Idaho graben is a 35-mile wide, north-trending rift zone approximately 70 miles long. This graben subsided and evolved until approximately nine million years ago, when regional extension migrated to the western Snake River Plain. During its five-million-year history, more than 5,000 feet of sedimentary and volcanic rocks were deposited, and numerous hydrothermal systems produced hot springs and epithermal gold-silver deposits, the most widely known being the Grassy Mountain deposit (Ferns 1997). Gold and silver deposits also occur in the Mormon Basin District in the northern part of the planning area and in the McDermitt Caldera Complex in the southwestern corner of the planning area. Approximately 16 million years ago, extensive eruptions of rhyolitic ash in the McDermitt area formed several large calderas, making up the McDermitt Caldera Complex. Hot spring and epithermal mercury and volcanogenic uranium are located mainly in the McDermitt Caldera Complex (Smith 1994, B1–B23; Peters et al. 1996).

Extensive deposits of zeolite and sodium-rich bentonite clay are found in the Miocene tuffaceous lake sediments that occur throughout much of the planning area. The largest bentonite resource in Oregon and an exceptionally large occurrence of zeolite is located in the Succor Creek drainage south of Adrian. Other large occurrences of bentonite and zeolite are found in the Sheaville and Rome areas, and a lithium-rich variety of bentonite (hectorite) is located in the McDermitt area. Extensive deposits of diatomite are found in the Miocene and Pliocene Lake sediments that occur throughout much of the planning area, most notably in the Harper Basin and Rome area.

A number of other commodities are known or suspected to occur in small, isolated deposits. The more significant of these include porphyry deposits of copper, copper-gold, copper-molybdenum, low-sulfide gold-quartz veins, picture jasper, thundereggs, blue opal, and agates. Other less significant deposits include halloysite, asbestos, talc, fluorite, silica, sunstone, and perlite.

Locatable Mineral Potential

The mineral potential classification system, described in BLM Manual 3031, Illustration 3 (BLM 1985), is used to evaluate the potential for locatable and leasable minerals in the planning area (Appendix F). As used in this classification, "potential" refers to the potential for occurrence of specific mineral resources rather than their economic viability (Goudarzi 1984). Locatable mineral potential in the planning area were determined for the more significant resources and include data from Smith's (1994) quantitative resource assessment for locatable minerals published in the 2002 SEORMP and ROD and data from a more recent mineral potential study conducted for locatable minerals in the southern portion of the planning area. This more recent study was prompted by the 2016 proposed Sagebrush Focal Area Mineral Withdrawal EIS and was published by the United States Geological Survey in 2016 (Vikre et al. 2016, 47–87). Mineral potential was estimated on the basis of deposits with either production or defined resources (or both), prospects, hydrothermal alteration, stratigraphy and structure of host rocks, geochemical and geophysical characteristics, records of active and historic mining claims and surface management plans, and other geologic characteristics of deposit types for these commodities (Smith 1994, C2; Vikre et al. 2016, 61). Map MIN 3 depicts the composite high and moderate potential of locatable minerals in the planning area. This includes a combined locatable mineral potential for precious and base metal deposits of gold, copper, molybdenum, uranium, and mercury, and industrial metal deposits of bentonite, zeolite, and diatomite. The map also illustrates Vikre et al.'s (2016) study area boundary and findings located in the southern portion of the planning area. Eighteen percent (approximately 1.2 million acres) of the planning area has a high locatable mineral potential, and 39% (approximately 2.5 million acres) of the area has a moderate locatable mineral potential.

Locatable Mining Activity

The BLM classifies mining operations in three categories: casual use, Notice-level operations, and Plan-level operations (43 CFR 3809.10).

Casual use: Casual use generally includes the collection of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, or nonmotorized sluicing and may include use of small portable suction dredges. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, motorized vehicles in areas when designated as closed to OHV, chemicals, or explosives (43 CFR 3809.5). If operations do not qualify as casual use, operators must submit a Notice or Plan of Operations (43 CFR 3809.10[a]).

Operations requiring a Notice: Notice-level operations are exploration activities that exceed the level of casual use and cause five acres or less of surface disturbance on federal lands (43 CFR 3809.21).

Operations requiring a Plan of Operations: Plan-level operations are commercial activities that exceed the level of casual use and Notice-level operations. Some exploration activities that exceed casual use require a Plan of Operations, including any bulk sampling in which 1,000 tons or more of presumed ore will be removed for testing, or if operations occur in certain special status areas such as designated ACECs, areas designated as "closed" to OHV use, etc. These special status areas are defined in 43 CFR 3809.11.

As of July 10, 2020, the planning area contained 2,191 active mining claims, the majority of which do not have active mining activities occurring. As of July 2, 2020, the planning area has five active Plans of Operations: one bentonite mine located in the Succor Creek area, one mill processing bentonite ore extracted from the Succor Creek operations and zeolite ore from a mine located in Idaho, one diatomite

ore stockpile area located between Harper and Vale (from a mine operation in Drewsey [Burns Field Office]), one diatomite mine near Harper, and one placer gold mine located near Malheur Reservoir. The planning area currently has three pending Plans of Operation: one for development of a gold mine at the Grassy Mountain deposit, one for placer gold mining near Malheur Reservoir, and one for lithium exploration west of McDermitt. As of July 2, 2020, the planning area has 18 active notices and 14 expired notices for exploration activities of gold, diatomite, and rockhounding minerals such as picture jasper, blue opal, and plume agates.

Locatable Mineral Restrictions

Constraints to locatable mineral development is limited to three categories of allocations: withdrawn from locatable mineral entry under the Mining Law (most restrictive), open to mineral entry subject to WSA restrictions, and open to mineral entry (least restrictive). All withdrawals and restrictions are subject to valid existing rights. Appendix M, Map MIN 16 illustrates the locatable mineral restrictions in the planning area.

Withdrawn from mineral entry: Lands withdrawn from mineral entry are lands where locatable minerals currently cannot be prospected, explored for, or developed. Congressional action withdrew 49,486 acres of wild and scenic rivers to mineral location under the Mining Law, subject to valid existing rights (Public Law [PL] 98-494). Congressional actions also withdrew 100,398 acres associated with the Steens Mountain Cooperative Management and Protective Area (SMCMPA) from mineral location under the Mining Law, subject to valid existing rights (PL 106-399). These lands will remain closed unless congressional action removes the designation. In total, 149,884 acres (3%) of federal mineral estate have been withdrawn from mineral entry in the planning area.

Open to mineral entry subject to WSA restrictions: 1,051,109 acres (21%) of federal mineral estate in the planning area has been designated as WSA by congressional action. The President received the BLM's "Wilderness Study Report for Oregon" (WSRO), a report summarizing and concluding wilderness recommendations on October 7, 1991 (BLM 2002, 15). Although WSAs are available for location of mining claims, activities on these claims are limited in accordance with 43 CFR 3802 and BLM Manual 6330—Management of Wilderness Study Areas (BLM 2012f). Mining claims located in WSAs that are not designated as wilderness by Congress will be released from the BLM Manual 6330 criteria.

Open to mineral entry: 4,813,462 acres (97%) of federal mineral estate remain open to mineral entry. The 2002 SEORMP and ROD proposed mineral withdrawals in certain ACEC's, streams identified as administratively suitable for designation as wild under the WSR, and BLM administrative sites and developed recreation sites identified in the respective tables of the ROD. The 2015 GRSG ARMPA (BLM 2015d) recommended Sagebrush Focal Areas (SFA) for withdrawal from the Mining Law and BLM is evaluating the proposed withdrawal, as amended. In total, 668,090 acres (13%) of federal mineral estate were proposed for withdrawal from mineral entry in the planning area. In December 2016, BLM issued a draft EIS evaluating the proposed withdrawal. On October 11, 2017, prior to responding to comments and publishing the EIS, the BLM cancelled the application for withdrawal (82 FR 47248).

In February 2021, the U.S. District Court for the District of Idaho issued an order vacating the BLM's cancellation of the effort to withdraw minerals in SFAs (Case No. 1:16—cv—00083—BLW, EFC 264). The BLM has reinitiated the NEPA analysis (see Federal Register Notice 86 FR 44742, August 13, 2021) to consider whether a locatable mineral withdrawal is needed for sage-grouse conservation. The BLM intends to issue a new draft EIS and publish a Notice of Availability initiating a public comment period. Until these minerals have been formally withdrawn, they remain open to locatable mineral entry under the Mining Law.

Environmental Consequences

Analytical Methods

Impacts to locatable mineral development from travel management and visual resources actions were analyzed in detail. Actions from the remaining resources were not analyzed in detail because the management did not vary measurably between alternatives or impact the indicator for locatable minerals. The amount of constraint on locatable mineral development in each alternative was quantified through a Geographic Information System (GIS) analysis of the locatable mineral allocations, mineral potential, active claims, Notices and Plans of Operations (active, pending, and expired), and management actions for travel management and visual resources. Some management direction in the sections analyzed in detail that would affect locatable mineral development cannot be quantified. In these cases, where qualitative analysis is necessary, impacts are characterized as increasing or decreasing the amount of constraint on locatable mineral development.

Indicator

The following indicator was used for the analysis of impacts to locatable mineral development:

Amount of constraint on locatable mineral development (Issues 1 and 2). The primary factor within the alternatives that would affect the public's ability to prospect, explore, and develop locatable minerals is the amount of constraint the alternative would place on locatable mineral development in the planning area. This indicator reflects the availability of BLM-managed lands for this type of activity. The amount of constraint on locatable mineral development within an area can vary widely. Some areas may be withdrawn from locatable mineral entry under the Mining Law and be unavailable for locatable mineral development, while other areas may be available for locatable mineral entry with no additional design features required to prevent UUD. Other management prescribed by the alternatives may result in design features for operations or reclamation to prevent UUD. These would not affect where locatable mineral development would occur but would reduce the public's flexibility and increase their costs in developing a claim.

Assumptions

Assumptions were developed based on BLM knowledge of locatable mineral development and the planning area. These assumptions should not be construed to confine or redefine management contained within alternatives and were used to allow a comparison of impacts to locatable mineral development resulting from the alternatives. Assumptions used in this analysis of impacts to locatable mineral development include the following:

- Any areas that have been recommended for withdrawal from locatable mineral entry prior to this Amendment (Map MIN 4, Appendix M) would not be considered already withdrawn. Instead, these areas will be assumed to be available for locatable mineral development for the purposes of this analysis. Locatable minerals on these lands are considered to be accessible.
- Aside from the locatable mineral allocations, most management that would affect locatable mineral development provides direction for reclamation or mitigation activities. This management, rather than preclude locatable mineral development in an area, would likely increase the costs associated with the development.
- Locatable mineral development is expected to occur at levels similar to the past.
- Locatable minerals management applies to mineral entry on public lands.

- Management for areas within Visual Resource Management (VRM) Classes I and II would result in more constraints on locatable mineral development than areas within VRM Classes III and IV.
- Wilderness characteristics units with active mining claims do not necessarily have current and ongoing mining activity occurring. However, these areas will be assumed to have a higher potential for locatable mineral development than areas with no active mining claims for the purposes of this analysis. Either areas with Notices or Plans of Operations, or both, (active, pending, or expired) in addition to active mining claims will be assumed to have the highest potential for locatable mineral development.

Issue 1

How would locatable minerals management be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Impacts from Travel Management Actions

Under the PRMPA and Alternatives B, C, and D, new road construction would not be authorized in areas protected for wilderness characteristics, excluding setback areas. Under the No Action Alternative, new road construction that would reduce the size of a wilderness characteristics unit would not be authorized. Regardless of any of the alternatives, an operator is entitled to access their operations consistent with provisions of the Mining Law (43 CFR 3809.420[b][1]). Actions under these alternatives (the PRMPA, B, C, D, and No Action) would not directly affect Plan-level or Notice-level operations but may indirectly affect casual use and Notice-level operations over time as it could apply to any ancillary routes developed or used for locatable mineral development. Per 43 CFR 3809 regulations, new roads may be constructed under Notice-level and Plan-level operations to access mining activities, but for Notice-level operations any surface disturbance, including road construction, would count towards the five-acre disturbance cap required of a Notice and must be reclaimed upon completion of exploration activities described in the Notice. Actions proposed under these alternatives may constrain future casual-use and Notice-level operations by increasing project costs. Thus, future casual-use and Notice-level operations could potentially decline under certain alternatives if projects become impacted by these constraints. Locatable minerals are not impacted by this action under Alternative A. Table 3-46 summarizes the impacts to locatable mineral development from travel management actions.

Table 3-46. Areas in the planning area with road construction restrictions that may affect locatable mineral development by alternative (in acres).

Road Construction Restrictions	Alternative					
	No Action	A	B	C	D	PRMPA
Acres protected for wilderness characteristics	1,236,907	0	1,206,780	167,709	417,196	417,190

Issue 2

How would locatable minerals management be affected by BLM management actions that would change OHV area designations across the planning area?

In areas designated as closed to OHV use, a Plan of Operations (Plan) would be required for any surface disturbing activities greater than casual use in circumstances where a Notice would normally be required (43 CFR 3809.11[c][5]). Currently there are 15,829 acres closed to OHV use in the No Action Alternative. Alternative B closes an additional 2,498,013 acres to OHV use. The lands closed to OHV use under this alternative are all wilderness characteristics units (Map WC 3, Appendix M) and all WSAs.

Processing Plan-level operations involves a review under the *National Environmental Policy Act* (NEPA) where a Notice does not (43 CFR 3809.311, 43 CFR 3809.411). Where Notices can potentially be processed by the BLM in a few weeks, a Plan of Operations takes considerably more time to review and process the document due to additional Plan requirements and the NEPA review. Additional requirements for a Plan of Operations (as opposed to a Notice) include, but are not limited to, a Monitoring Plan, Interim Management Plan, operational and baseline environmental information, and additional elements in the operations description and Reclamation Plan. Although more is required of a Plan of Operations, both Notice-level and Plan-level operations must meet the requirements to prevent unnecessary or undue degradation (UUD) to public lands for a Notice to be determined complete or a Plan to be approved by the BLM (43 CFR 3809.301, 43 CFR 3809.401).

Because Alternative B is the only alternative to close additional public lands to OHV use, it is the only alternative to affect locatable minerals in Issue 2. Under this alternative, a Plan of Operations will be required for all surface disturbing activities greater than casual use on 2,513,842 acres of public land, which is approximately 55 percent of the planning area. If a road is necessary for access to a proposed Plan-level operation in an area designated as closed to OHV use, it will be incorporated as part of the Plan of Operations. ACECs are another Special Status area that require a Plan of Operations for any surface disturbing activities greater than casual use, and it should be noted that 41,314 acres of lands affected under Alternative B are ACECs. Thus, 41,314 acres of the 2,513,842 acres presently require a Plan of Operations for operations greater than casual use.

Actions proposed under Alternative B may constrain future casual-use and Notice-level operations by increasing project costs. Thus, future casual-use and Notice-level operations could potentially decline under certain alternatives if projects become impacted by these constraints.

Under all other alternatives, OHV closure designation is unchanged, and a Plan of Operations is required for all surface disturbing activities greater than casual use on 15,829 acres of public land. Table 3-47 summarizes the potential acres where impacts to locatable mineral development from OHV designation actions could occur.

Table 3-47. Areas in the planning area with OHV Closed designations that may affect locatable mineral development by alternative (in acres)[42].

OHV Designation	Alternative					
	No Action	A	B	C	D	PRMPA
Closed	15,829	15,829	2,513,842	15,829	15,829	15,829

Locatable Minerals Cumulative Effects

Past and present disturbances have been described above. The degree of impacts to locatable mineral development depends largely on the location and type of mineral occurrence, the severity of the restriction, especially with regard to the potential for occurrence and development of the resources, and the acreage affected. There are no reasonably foreseeable future actions identified in Table 3-1 that would impact locatable minerals development. Given there is no incremental effect to locatable mineral development with the future foreseeable actions, there is no cumulative effect.

[42] All primitive routes and cross-country motorized vehicle travel would be closed to OHV use.

Leasable Minerals

Affected Environment

Leasable minerals are managed under the *Mineral Leasing Act of 1920* (*Mineral Leasing Act*) as amended, other leasing acts, and regulations at 43 CFR 3100, 3200, 3400, and 3500. The *Mineral Leasing Acts* authorize and govern leasing of public lands for developing energy minerals such as coal, petroleum, natural gas, other hydrocarbons, geothermal steam, and associated geothermal resources. Leasable minerals also include some non-energy minerals such as phosphate, sodium, sulfur, and potassium (30 USC 181 et seq., 30 USC 1001 et seq.). Previous to these acts, these materials were subject to mining claims under the *General Mining Act of 1872*. Additionally, all minerals on acquired lands, except for saleable minerals, are leased in accordance with the *Mineral Leasing Act* (43 CFR 3503.13[a]). The BLM has discretionary authority to lease mineral resources for exploration and development. The regulations at 43 CFR 3100, 3200, 3400, and 3500 describe how to obtain leases, how the BLM manages leases, leasing fees, royalties on mineral production from leases, and outlines the responsibility of the lessee.

Leasable Mineral Occurrences

The leasable minerals found in the planning area include geothermal and oil and gas (Maps MIN 5 and 6 in Appendix M) resources. The planning area has a large geothermal resource base, as evidenced by the National Renewable Energy Laboratory's (NREL) 2011 geothermal favorability study (Map MIN 5, Appendix M; Augustine 2011), the presence of hot springs scattered throughout the area, high heat flow, and late Cenozoic volcanism. The Vale Known Geothermal Resource Area (KGRA) (Map MIN 5, Appendix M) is characterized by high heat flow, two to five times higher than the worldwide average, and by numerous hot springs (Doerr 1986, 1). The hot springs are aligned along faults at the western end of the Snake River Plain, a Miocene rift related to basin and range faulting. This phenomenon is typical of a Basin and Range type geothermal system where hot geothermal fluids migrate upward along fault planes (Smith 1994, H1–H2). Neal Hot Springs is an active power plant near Bully Creek Reservoir that produces 21 megawatts of geothermal energy. There are two injection wells that occur on public land (nonfederal minerals), but the operation largely occurs on nonpublic land and nonfederal minerals.

Portions of the planning area with potential hydrocarbon source rocks are located in Neogene-age lacustrine sediments in the western part of the Basin and Range physiographic province of southeastern Oregon and in the Snake River Plain basin around Vale, Oregon (Smith 1994, G1). During early Pliocene time, the Snake River Plain basin was covered by a large lake, Lake Idaho, which later formed the rocks that comprise the Idaho Group. A geologic environment suitable for the formation of hydrocarbons apparently existed in the western Snake River Basin during late Miocene and early Pliocene sedimentation where coarse, mainly fluviatile, sediments were being deposited into the basin (Newton and Corcoran 1963). Charles Barker (in Smith 1994, G2) speculates that during later Neogene burial, the source rocks reached temperatures sufficient for hydrocarbon generation and expulsion to associated traps that have appropriate reservoir and seal rocks.

Leasable Mineral Potential

No mineral potential report for geothermal resources has been completed for the planning area. However, geothermal favorability was determined by the NREL (Augustine 2011). The study was based on two technologies: conventional hydrothermal technologies, which utilize naturally occurring hydrothermal resources and have been commercially developed for decades, and enhanced geothermal systems (EGS), an emerging technology engineered to extract economic amounts of heat from reservoirs with either low permeability or lack in-situ fluids, or both. Deep EGS (greater than three kilometers depth) makes up approximately 99% of the estimated resource volume in the United States. Geothermal favorability was

based on the resource potential and the cost of developing the resource, where regions having the lowest cost are the most favorable and those having the highest cost as the least favorable (Augustine 2011). Map MIN 5 (Appendix M) depicts the favorability of Deep EGS geothermal resources in the planning area. The planning area shows a moderate-to-high favorability of Deep EGS, with 95% high-to-moderately high favorability and five percent moderate favorability.

No mineral potential report for oil and gas resources has been completed for the planning area. However, permissive areas for oil and gas were determined by Smith's (1994) study published in the 2002 SEORMP and ROD (Map MIN 6 Appendix M, BLM 2002). Permissive areas were based on the presence of known or suspected Neogene source rocks. Sufficient volumes for commercial production have not been demonstrated in the planning area. The areas outlined in Map MIN 6 (Appendix M) show a moderate potential in the planning area and are considered permissive for hydrocarbon discoveries but not favorable (Smith 1994, G1–G8). Forty-five percent (approximately 2,041,682 acres) of the planning area has a moderate oil and gas potential.

Leasable Mineral Development

Several dozen temperature gradient holes were drilled in the region, many in the Vale Known Geothermic Resource Area (KGRA) (Map MIN 5, Appendix M), in the 1970s and 1980s for geothermal exploration; nine of these holes were deeper than 1,000 feet. In most cases, high temperatures were encountered, but the volume of water proved to be insufficient for commercial electrical power generation. Exploration for geothermal resources in the vicinity of Bully Creek Reservoir was renewed in 2005 with magnetic and electrical surveys. The area was targeted because of surficial hot spring discharge and historic exploration drilling intercepts. Currently, four geothermal production wells and six injection wells have been completed on public land, but nonfederal mineral estate. There are no current geothermal federal leases on public lands in the planning area.

Minor amounts of natural gas and trace amounts of oil have been reported in the planning area, nearly all within the Snake River Plain, where approximately 20 wells were drilled in Malheur County between 1909 and 1982 (Newton and Corcoran 1963; King et al. 1982). Although no commercial discoveries have been made and there are no active leasable mineral operations in the planning area, there is still considerable interest in leasable mineral development, primarily in the vicinity of Vale. There are currently 105 oil and gas leases that encompass 170,548 acres of land in Malheur County. The only exploration associated with these leases are geophysical exploration and microbial soil sample collection.

In general, the potential for oil and gas activity is low. There has only been sporadic interest in hydrocarbons in the past, and no commercial quantities have been discovered. Oregon is considered a "pioneering" area for oil and gas resources. This means that development is not likely to occur in the planning area until the market for these resources' changes. The potential for geothermal exploration and development is moderate to high. The Vale KGRA has had recent exploratory drilling and development, but there are no leases for geothermal resources in the planning area. Geothermal resource exploration and development is expected to continue to rise, particularly with the introduction of enhanced geothermal systems technologies.

As the demand for energy increases, so will the demand for extracting energy resources in areas with potential. Technological advancements, such as directional drilling and enhanced geothermal systems, could lead to an increase of leasable mineral development throughout the planning area as additional resources become more easily accessible.

Leasable Mineral Restrictions

Constraint to leasable mineral development is limited to four categories: closed to leasing (most restrictive), no surface occupancy (NSO), controlled surface use (CSU), and open to leasing subject to

standard terms and conditions (least restrictive). Map MIN 7 (Appendix M) illustrates the leasable mineral restrictions in the planning area for the No Action Alternative.

Closed to leasing: Lands that are withheld from leasing are based on discretionary and nondiscretionary decisions. Discretionary closures are the result of management decisions arrived at through the planning process. They involve land where the resource values are considered so important that they outweigh any economic return that can be expected from mineral development. Nondiscretionary closures include areas that cannot be leased due to statute, such as the congressionally designated WSRs (49,007 acres), SMCMPA (100,352 acres), and WSAs (1,122,262 acres). In total, 1,288,440 acres (25%) of federal mineral estate have been closed to leasing in the planning area.

No Surface Occupancy: In areas where NSO stipulations are applied, federal minerals could be leased, but the leaseholder/operator would have to use off-site methods to access the mineral resource. This stipulation is applied to lands where the resource values are such that they cannot be adequately protected by standard stipulations or less restrictive special stipulations (CSU). In total, 1,767,976 acres (35%) of federal mineral estate have already been designated as NSO in the planning area.

Controlled Surface Use: CSU stipulations allow the BLM to require special operational constraints, shift the surface disturbing activity associated with fluid mineral leasing more than the standard 200 meters, require additional protective measures to protect a specified resource, or apply timing limitations that temporarily close an area to mineral exploration and development during identified time frames. Timing limitations are usually based on seasons or species breeding and nesting times. CSU stipulations are applied to lands where the resource values cannot be adequately protected by standard stipulations. In total, 1,800,450 acres (36%) of federal mineral estate have been designated as CSU in the planning area.

Open to leasing: Lands that are open to leasing can be leased subject to existing laws, regulations, and formal orders; the terms and conditions of the standard lease form; and stipulations for the *Endangered Species Act* (ESA) Section 7 Consultation and NHPA Section 106. In total, 145,411 acres (three percent) of federal mineral estate have been designated as open to leasing subject to standard terms and conditions in the planning area.

The Greater Sage-Grouse (GRSG) Approved Resource Management Plan Amendment (ARMPA, BLM 2015d) for Oregon addressed leasable mineral management direction as follows:

> **Greater Sage-Grouse ARMPA Objective Mineral Resources (MR1):** Where a proposed fluid mineral development project on a new lease is within a Priority Habitat Management Area for GRSG leasable minerals are designated as No Surface Occupancy (NSO). Within Priority or General GRSG Habitat leasable mineral development would be subject to Required Design Features listed in Appendix C of the 2015 ARMPA
>
> **Greater Sage-Grouse ARMPA Objective MR 2**: Where a proposed fluid mineral development project on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, minimize, and provide compensatory mitigation to reduce adverse impacts on GRSG to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an Application for Permit to Drill (APD) or Geothermal Drilling Permit (GDP) on the lease to avoid and minimize impacts on GRSG or its habitat and will ensure that the best information about the GRSG and its habitat informs and helps to guide development of such federal leases.

Environmental Consequences

Analytical Methods

Impacts to leasable mineral development from leasable minerals actions were analyzed in detail. Other actions proposed in the alternatives were not analyzed in detail because the management did not vary measurably between alternatives or impact the indicators for leasable minerals. The amount of constraint on leasable mineral development in each alternative was quantified through a GIS analysis of the leasable mineral allocations, mineral potential, and leases. Some management direction in the sections analyzed in detail that would affect leasable mineral development cannot be quantified. In these cases, where qualitative analysis is necessary, impacts are characterized as increasing or decreasing the amount of constraint on leasable mineral development.

Indicator

The following indicator was used for the analysis of impacts to leasable mineral development:

Amount of constraint on leasable mineral development (Issue 1). The primary factor within the alternatives that would affect the public's ability to lease, explore, and develop leasable minerals is the amount of constraint the alternative would place on this use. This indicator reflects the availability of the BLM-managed lands for this type of activity. The amount of constraint on leasable mineral development in a particular area can vary widely, depending on the need to mitigate impacts to other resources or uses in that area. An area may be closed to mineral leasing entirely if other resources or uses cannot be adequately protected from leasable mineral development with even the most restrictive lease stipulations. In contrast, an area with few resources or use conflicts may be open to mineral leasing subject to existing laws, regulations, formal orders, standard stipulations, stipulations for ESA, and Section 7 Consultation and NHPA Section 106. Between these lay various degrees of other constraints including NSO and CSU restrictions for areas where such restrictions may be required to mitigate impacts to other resource values. In general, management direction that restricts leasable mineral exploration and development would tend to add cost and delay while also increasing the complexity of permitting and the logistical operation of these activities.

Assumptions

Assumptions were developed based on BLM knowledge of leasable mineral development and the planning area. These assumptions should not be construed to confine or redefine management contained within alternatives. They are used to allow a comparison of impacts to leasable mineral development resulting from the alternatives. Assumptions used to analyze impacts to leasable mineral development include the following:

- Existing mineral leases would not be affected by the restrictions proposed under this RMP Amendment.
- New mineral leases could be affected by the restrictions proposed under this RMP Amendment.
- Fluid mineral operations on existing federal leases, regardless of surface ownership, would be subject to Conditions of Approval (COAs) by the BLM Authorized Officer. The BLM can deny surface occupancy on portions of leases with COAs to avoid or minimize resource conflicts if this action does not eliminate reasonable opportunities to develop the lease or does not affect lease rights.
- If an area is leased, it could be developed. However, not all leases would be developed within the life of this RMP Amendment.

- Stipulations apply to fluid mineral leasing on all surface lands with federal mineral estate. This includes federal mineral estate with BLM-administered surface lands and other surface lands not administered by the BLM.
- Design features incorporated to protect wilderness characteristics would increase costs and reduce the profitability of operations. In many cases, these would be considered typical costs of doing business on public lands. However, any increase in cost would potentially impact leasable mineral development. Higher costs may increase the sales prices that operators charge purchasers, may limit mineral development to only the more profitable portions of a mineral deposit, or may reduce the overall amount of exploration and development. In some cases, increased costs would cause a particular proposal to not be economically feasible and development actions may be dropped.

Issue 1

How would leasable minerals be affected by the BLM management actions that would emphasize protection of lands with wilderness characteristics?

Impacts from Leasable Minerals Actions (Unleased)

Under the PRMPA and Alternatives B, C, and D where leasable minerals are currently unleased, identified areas managed to protect wilderness characteristics, excluding the setback areas, would be designated NSO unless otherwise more restrictive (closed to leasing). No waivers, exceptions, or modifications to a fluid mineral lease NSO stipulation will be granted under these alternatives. In these areas, federal fluid minerals could be leased, but the lessee/operator would have to use off-site methods, such as directional drilling, to access the mineral resource. In larger wilderness characteristics units or in wilderness characteristics units contiguous with WSAs or other areas closed to mineral leasing, the area where directional drilling could be effectively used is limited and some mineral resources would be inaccessible. NSO stipulations would result in less-than-optimal utilization of the leasable mineral resource and, in effect, decrease the lease value. Table 3-48 and Maps MIN 7, MIN 10, and MIN 17 (Appendix M) illustrate and summarize the impacts to leasable mineral development from NSO stipulations in wilderness characteristics units identified to manage for protection of their wilderness characteristics. Figures 3-6 and 3-7 illustrate the geothermal favorability and oil and gas mineral potential in the wilderness characteristics units identified to manage for protection of their wilderness characteristics.

Table 3-48. Areas with leasable mineral restrictions that may affect leasable mineral development by alternative (acres).

Leasable Mineral Designation	Alternative					
	No Action	A	B	C	D	PRMPA
Closed to Leasing	1,288,440	1,288,440	1,288,440	1,288,440	1,288,440	1,288,440
Open, NSO	1,767,976	1,767,976	2,246,378	1,853,091	1,916,396	1,916,396
Open, CSU	1,800,450	1,800,450	1,339,355	1,715,378	1,662,995	1,662,995
Open to Leasing	145,411	145,411	128,104	145,368	134,446	134,446

Figure 3-6. Acres of moderate and moderately high to high geothermal favorability in wilderness characteristics units identified for protection of their wilderness characteristics.

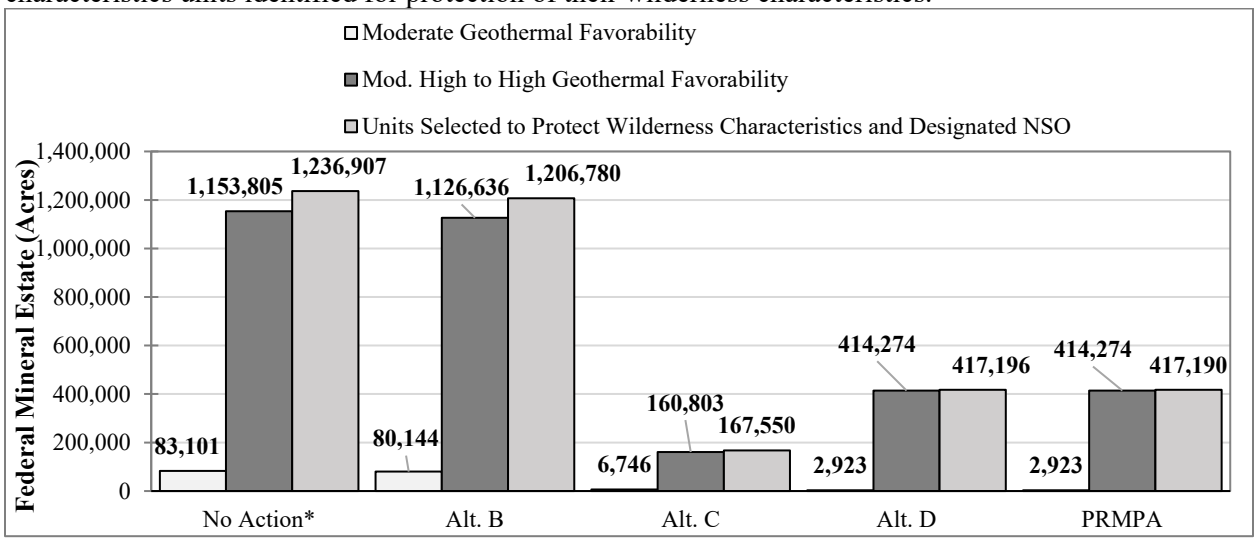
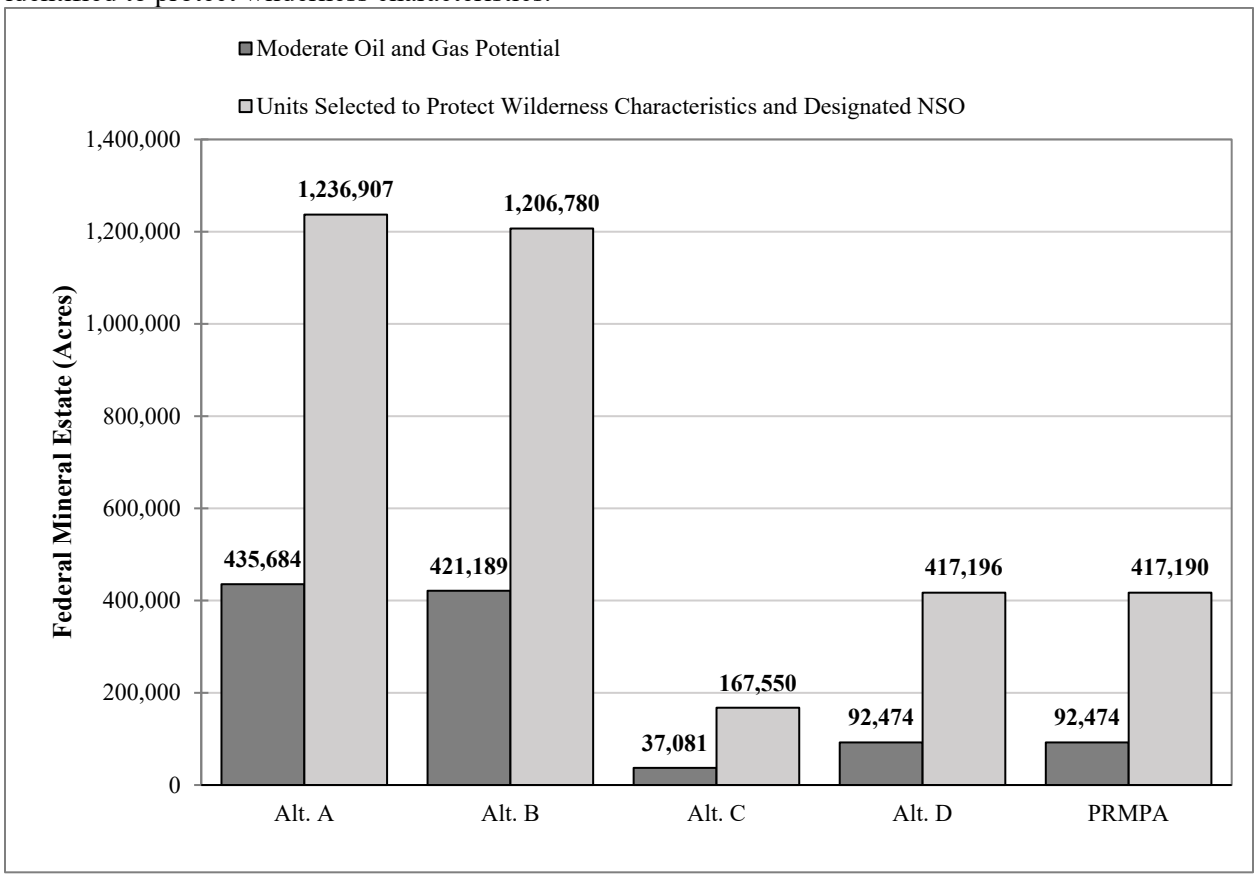


Figure 3-7. Acres of moderate mineral potential for oil and gas in wilderness characteristics units identified to protect wilderness characteristics.



Leasable minerals are not impacted by this action under Alternative A. Under the No Action Alternative, proposals for new leasable mineral development in all wilderness characteristics units (1,236,907 acres of

federal mineral estate) will not be implemented if the proposed action is deemed by the BLM through site-specific analysis to permanently diminish the size or cause an entire wilderness characteristics unit to no longer meet the criteria for wilderness characteristics. Seven percent of these acres have a moderate geothermal favorability, while 93% of these acres have a moderately high-to-high geothermal favorability (Figure 3-6). Thirty-five percent of these acres have a moderate potential for oil and gas (Figure 3-7). This is current management until the RMP Amendment is completed and an alternative is selected.

Under the PRMPA and Alternative D, the 417,190 acres of protected lands with wilderness characteristics would be designated as NSO. This represents an increase of 148,420 acres of NSO when compared to the No Action Alternative (Table 3-48). One percent of the additional NSO acres have a moderate geothermal favorability, while 99% of these acres have a moderately high-to-high geothermal favorability (Figure 3-6). Twenty-two percent of these acres have a moderate potential for oil and gas (Figure 3-7). Under both the PRMPA and Alternative D, protecting the 33 wilderness characteristics units and designating them as NSO for leasable minerals would increase the area of NSO by 148,420 acres across the planning area.

Under Alternative B, 1,206,780 acres of federal mineral estate would be identified to be managed for protection of wilderness characteristics and would be designated as NSO. Seven percent of these acres have a moderate geothermal favorability, while 93% of these acres have a moderately high-to-high geothermal favorability (Figure 3-6). Thirty-five percent of these acres have a moderate potential for oil and gas (Figure 3-7). Alternative B would designate 478,402 additional acres of federal mineral estate as NSO under Alternative B (Table 3-48), meaning 728,378 of the 1,206,780 acres are already managed as NSO under current management.

Under Alternative C, 167,709 acres of federal mineral estate would be identified to manage for protection of wilderness characteristics and would be designated as NSO. Four percent of these acres have a moderate geothermal favorability, and 96% of these acres have a moderately high-to-high geothermal favorability (Figure 3-6). Twenty-two percent of these acres have a moderate mineral potential for oil and gas (Figure 3-7). 85,115 additional acres of federal mineral estate would be designated as NSO under Alternative C (Table 3-48), meaning 82,435 of the 167,709 acres are already managed as NSO under current management.

As with the PRMPA, under Alternative D 417,190 acres of federal mineral estate would be identified to manage for protection of wilderness characteristics and would be designated as NSO. One percent of these acres have a moderate geothermal favorability, while 99% of these acres have a moderately high-to-high geothermal favorability (Figure 3-6). Twenty-two percent of these acres have a moderate potential for oil and gas (Figure 3-7). 148,420 additional acres of federal mineral estate would be designated as NSO under Alternative D (Table 3-48), meaning 268,776 of the 417,196 acres are already managed as NSO under current management.

Actions proposed under the action alternatives would constrain leasable mineral development by increasing project costs. Higher costs may increase the sales prices that operators charge purchasers, may limit mineral development to only the more profitable portions of a mineral deposit, or may reduce the overall amount of exploration and development. In some cases, increased costs would cause a particular proposal to not be economically feasible and development actions may be dropped. Additionally, NSO stipulations would tend to have the effect of adding to existing risk of finding and developing leasable minerals. This would tend to reduce interest in leasing minerals where a NSO stipulation is applied. Less leasing would tend to reduce leasable mineral exploration and development. Thus, future leasable mineral development could potentially decline under certain alternatives if projects become impacted by these constraints.

While restrictions under the No Action Alternative would constrain the largest acreage of leasable mineral development, Alternative B would be the most restrictive alternative for leasable mineral development due to the acreage of NSO designation and impacted lands with mineral potential. After the No Action Alternative and Alternative A, Alternative C would be the least restrictive alternative for leasable mineral

development. The PRMPA and Alternative D would apply restrictions for leasable mineral development to all 33 protected units; Alternative B would provide additional restrictions in all protected units.

Impacts from Leasable Minerals Actions (Leased)

There is no surface disturbing activity approved when a lease is issued, and proposed leasable mineral development still has to undergo site-specific NEPA review. However, actions applicable to unleased areas have a greater impact on leasable mineral development than actions applicable to leased areas because existing leases would not be subject to new stipulations or closures unless the leases expire and are reissued. Under the PRMPA and Alternatives B, C, and D in wilderness characteristics units identified to manage for protection of their wilderness characteristics, five management actions will be utilized when analyzing proposed leasable mineral projects in order to protect wilderness characteristics. These management actions apply to proposed projects where leases have been issued prior to this Amendment.

- Apply reasonable conservation measures consistent with management of wilderness characteristics. This could involve actions such as relocation of well sites or the modification of field development in order to avoid permanently diminishing size or causing an entire wilderness characteristics unit to no longer meet the criteria for wilderness characteristics. Such conservation measures would tend to increase project costs and may constrain leasable mineral development.
- Implement design features for management of wilderness characteristics to meet VRM Class II objectives. Design features would include special reclamation considerations to return the area to its pre-existing visual character. Design features to meet VRM Class II objectives would tend to increase project costs and may constrain leasable mineral development.
- Require Master Development Plans (MDPs) for fluid minerals processing within areas managed for wilderness characteristics. MDPs are a comprehensive approach to processing drilling permits. MDPs require the operator/lessee to plan for all well pads, production facilities, access roads, pipelines, etc. in a particular area of proposed development and, in effect, allows the BLM to take a broader look at impacts and mitigation. MDPs often prove more efficient and cost effective for operators as it avoids redundant efforts for multiple well pads, allows the BLM to prepare one NEPA document instead of multiple, and provides a basis for use of Categorical Exclusions to authorize follow-up activities. MDPs are also better for informing the public of proposed oil and gas or geothermal developments because a comprehensive plan allows public to comment on a single proposal instead of tracking numerous smaller proposals.
- Require unitization for fluid minerals when necessary for proper development. Unitization is a term used to describe the joint operation of all or some portion of a production reservoir and is used to decrease drilling, waste, and destruction of a reservoir (43 CFR 3105). Unitization minimizes surface disturbance with fewer wells, roads, and infrastructure. This would result in less degradation to the environment and impacts to wilderness characteristics would be reduced. Unitization also benefits the operator as it enables the exploration of a large area where common geological and reservoir characteristics exist, and it enables an operator to locate wells in the most desirable locations to maximize efficient reservoir recovery and minimize waste.
- Identify areas where land acquisitions, including nonfederal mineral rights, may benefit management of wilderness characteristics. If such acquisition is determined to provide a benefit, proceed with acquisition process where appropriate. This would reduce the acreage of land that would potentially see leasable mineral development and, in effect, protect the wilderness characteristics of the identified wilderness characteristics units.

Actions proposed under the PRMPA, and Alternatives B, C, and D would constrain leasable mineral development by increasing project costs. Higher costs may increase the sales prices that operators charge purchasers, may limit mineral development to only the more profitable portions of a mineral deposit, or may reduce the overall amount of exploration and development. In some cases, increased costs would cause a particular proposal to not be economically feasible and development actions may be dropped. Thus, future leasable mineral development could potentially decline under certain alternatives if projects become impacted by these constraints.

Under the PRMPA and Alternative D, surface disturbance for the purposes of leasable mineral development in 417,190 acres would be prohibited. Under the PRMPA and Alternative D, no active leases would be affected. Leasable mineral development is not impacted by the No Action Alternative and Alternative A. Under Alternative B, leasable mineral development in 1,206,780 acres would be constrained. Under Alternative B, 15 active leases are impacted. Under Alternative C, leasable mineral development would be constrained in 167,709 acres. Under Alternative C, no active leases would be affected.

Impacts from Leasable Minerals Actions (Geophysical Exploration)

Under the PRMPA and Alternatives B, C, and D, the BLM would allow geophysical exploration in the identified wilderness characteristics units managed to emphasize protection of their wilderness characteristics, with appropriate design features to meet VRM Class II objectives and protect wilderness characteristics. Proposed geophysical exploration projects, usually in the form of seismic surveys, will be reviewed under a site-specific NEPA analysis, so required design features may vary across projects. Required design features may include but are not limited to requiring the use of equipment with balloon-type tires rather than rubber-tract equipment to reduce the visual impact of rutting. The same result could be achieved by requiring exploration activities to occur during fall or winter months, prior to spring vegetation growth. Source lines and staging areas of a planned seismic survey may need to be routed along existing routes so as not to impair wilderness characteristics, and any surface disturbance will need to be reclaimed to its pre-existing character under VRM Class II objectives. Required design features to meet VRM Class II objectives and protect wilderness characteristics would tend to increase project costs and constrain leasable mineral development. Required design features for geophysical exploration would not be applied in setback areas.

Under the No Action Alternative, proposals for new leasable mineral development in all wilderness characteristics units will not be implemented if the proposed action is deemed by the BLM through site-specific analysis to permanently diminish the size or cause an entire wilderness characteristics unit to no longer meet the criteria for wilderness characteristics. These restrictions thereby constrain leasable mineral development. This is current management until the Amendment is completed and an alternative is selected.

Actions proposed under the PRMPA, No Action Alternative, and Alternatives B, C, and D would constrain leasable mineral development by increasing project costs. Higher costs may increase the sales prices that operators charge purchasers, may limit mineral development to only the more profitable portions of a mineral deposit, or may reduce the overall amount of exploration and development. In some cases, increased costs would cause a particular proposal to not be economically feasible and development actions may be dropped. Thus, future leasable mineral development could potentially decline under certain alternatives if projects become impacted by these constraints.

Under the PRMPA and Alternative D, leasable mineral development and geophysical exploration would be constrained on 417,190 acres. Under Alternative B, geophysical exploration and leasable mineral development would be constrained on 1,206,780 acres. Under the No Action Alternative, geophysical exploration and leasable mineral development would be constrained on 1,236,907 acres. In each of the No Action, Alternatives B, C and D, and the PRMPA, development of the subsurface leasable mineals and

geophysical exploration could occur if the development had no surface disturbance in the protected area (for example, directional drilling from outside the protected unit) or if geophysical exploration could be accomplished in a manner that meets the aforementioned requirements. Due to the protection of all wilderness characteristics units through a land use planning process, the No Action Alternative would thereby be less restrictive than Alternative B. Leasable mineral development and geophysical exploration for leasable minerals are not impacted by Alternative A and would continue to be unchanged in the planning area (see Table 3-48 for leaseable mineral management categories for all alternatives).

Leasable Minerals Cumulative Effects

Past and present disturbances have been described above. The degree of impacts to leasable mineral development depends largely on the location of mineral occurrence, the severity of the restriction, especially with regard to the potential for occurrence and development of the resources, and the acreage affected. Future leasable mineral exploration and development (for example, the lithium resource in the southern region of the planning area) that is in the proximity of existing locatable mineral claims, exploration or development would be required to coordinate with the claim owner(s); exploration or development opportunities would only be allowed dependent on the appropriate level of NEPA analysis and through coordination with the owner of any claims. There are no other reasonably foreseeable future actions identified in Table 3-1 that would impact leasable minerals development. Given there is no incremental effect to leasable mineral development with the future foreseeable actions, there is no cumulative effect.

Saleable Minerals

Affected Environment

Saleable minerals are managed under Materials Act of 1947 as amended (30 USC 601 et seq.) and under regulations at 43 CFR 3600. The law authorizes the BLM the discretionary authority to sell mineral materials at fair market value and to grant free-use permits for mineral materials to government agencies and nonprofit organizations. Saleable minerals, or mineral materials, are common varieties (low unit value) of minerals and building materials such as sand, stone, gravel, pumice, pumicite, cinders, clay, and petrified wood. Previous to these acts, these materials were subject to mining claims under the *General Mining Act* of 1872. The regulations at 43 CFR 3600 describe how to obtain sales contracts or free-use permits for mineral materials, how the BLM manages the contracts and permits, and outlines the responsibility of the operator. Limited quantities of petrified wood may be collected for noncommercial purposes. Free use of petrified wood is governed under 43 CFR 3620, which describes collection rules, areas available for free use removal, and quantifies and describes the removal limits. The purchase of petrified wood for commercial purposes is provided for in 43 CFR 3602.10.

Saleable Mineral Occurrences

Saleable minerals found in the planning area include sand, gravel, basalt, rhyolite, clay, limestone, obsidian, dolomite, pumice, pozzolan, flagstone, large decorative boulders, and petrified wood. Sand and gravel deposits are dispersed around the planning area, occurring in present-day fluvial environments or in rocks that are remnants of a paleo-fluvial or lacustrine environment. Because the area has been subjected to abundant and geologically recent volcanism, basalt, rhyolite, and other volcanic rocks are found at or near the surface throughout the planning area. Clays and pozzolan deposits in the area commonly occur in these volcanic environments, forming in and around ancient lakes and volcanoes that have erupted large volumes of ash. Significant deposits occur around the Rome and Succor Creek areas (Gray et al. 1989). There is a significant occurrence of petrified wood near the southern portion of the planning area within the McDermitt Caldera, where wood was subjected to varying geochemical conditions and silicious hydrothermal fluids in relation to the caldera volcanism (Mustoe 2015). Upon mineralization, the wood is preserved in the rock record as a pseudomorph and is readily found at or near the surface due to its high resistance to erosion owing to silicification.

Saleable Mineral Potential

No mineral potential report for saleable minerals has been completed for the planning area. Generally, saleable minerals are widespread, of low unit value, and often used for construction or landscaping materials. Their value depends largely on market factors, quality of the material, availability of transportation, and transportation costs. The planning area contains enormous mineral material reserves. There are local shortages of specific commodities, due largely to the variability of rock types and the suitability of the available material for the proposed use. Because of the area's isolation from major markets, limited transportation system, and small population base, large-scale development has not been common and has mainly been limited to road construction and maintenance projects. In general, the potential for saleable mineral development in the planning area is high because there is a continual demand for mineral material use in road maintenance and construction.

Saleable Mineral Development

There are 56 community pits/common use areas and 65 State of Oregon highway material Rights-of-way in the planning area. The Rights-of-way are authorized under Title 23 of the Federal Highway Act. There are 35 community pits for sand and gravel, 12 for rock aggregate, four for riprap, three for topsoil, and one pit for clay. Three common use areas are for flagstone decorative rock. Map MIN 11(Appendix M)

depicts the various community pits and common use areas and the type of material found at each site, as well as the locations of the State Rights-of-way sites.

Saleable Mineral Restrictions

Constraint to saleable mineral development is limited to three categories: closed to saleable mineral disposal (most restrictive), controlled surface use (CSU), and open to saleable mineral disposal (least restrictive). Map MIN 12 (Appendix M) illustrates the current management (No Action Alternative) of saleable mineral restrictions in the planning area.

Closed to saleable mineral disposal: Lands that are withheld from saleable mineral disposal are based on discretionary and nondiscretionary decisions. Discretionary closures are the result of management decisions arrived at through the planning process. They involve land where the resource values are considered so important that they outweigh any economic return that can be expected from mineral development. Discretionary closures include certain ACECs, streams administratively suitable for inclusion in the WSR system, Harper and other Special Status plant sites, significant cultural sites, the BLM administrative sites, the BLM developed and potential recreation sites, Riparian Habitat Conservation Areas (RHCAs), and Succor Creek SRMA. Some discretionary closures, such as the closures in PHMA designated areas, remain "open" to free use permits and sales in existing designated pits and common use areas if certain criteria are met (BLM 2015d). Nondiscretionary closures include areas that are closed due to statute, such as the congressionally designated WSRs, SMCMPA, and WSAs. In total, 3,033,405 acres (61%) of federal mineral estate have been closed to saleable mineral disposal in the planning area.

Controlled Surface Use: CSU stipulations allow the BLM to require special operational constraints and additional protective measures to protect Greater Sage-grouse and its habitat in GHMA designated areas. In total, 1,399,733 acres (28%) have been designated as CSU in the planning area.

Open to saleable mineral disposal: Lands that are open to saleable mineral disposal are subject to existing laws, regulations, formal orders, and site-specific analysis and stipulations. In total, 540,739 acres (11%) have been designated as open to saleable mineral disposal in the planning area.

Environmental Consequences

Analytical Methods

Impacts to saleable mineral development from saleable minerals actions were analyzed in detail. Impacts from the remaining resources were not analyzed in detail because the management did not vary measurably between alternatives or impact the indicators for saleable minerals. The amount of constraint on saleable mineral development in each alternative was quantified through a GIS analysis of the saleable mineral allocations, management actions, and authorized community pits and free-use permits. Some management direction in sections analyzed in detail that would affect saleable mineral development cannot be quantified. In these cases, impacts are characterized as increasing or decreasing the amount of constraint on saleable mineral development.

Indicator

The following indicator was used for the analysis of impacts to saleable mineral development:

Amount of constraint on saleable mineral development (Issue 1). The primary factor within the alternatives that would affect the public's ability to acquire saleable minerals through sale or permit is the amount of constraint the alternative would place on saleable mineral development in the planning area. This indicator reflects the availability of BLM-managed lands for this type of activity. The amount of constraint on saleable mineral development within a particular area can vary widely. Some areas may be

closed to saleable mineral development entirely, while other areas may be open to saleable mineral development, subject to existing laws, regulations, and site-specific environmental review and stipulations. According to regulation, the BLM will not dispose of mineral materials if it is determined that the aggregate damage to public lands and resources would exceed the public benefits. Generally, constraints on saleable mineral development would reduce flexibility in where saleable minerals can be acquired and increase costs in acquiring these materials.

Assumptions

Assumptions were developed based on the BLM knowledge of saleable mineral development and the planning area. These assumptions should not be construed to confine or redefine management contained within alternatives and were used to allow a comparison of impacts to saleable mineral development resulting from the alternatives. Assumptions used to analyze impacts to saleable mineral development include the following:

- Increased levels of constraints would generally result in reduced opportunity to acquire saleable minerals.
- Design features implemented to protect wilderness characteristics would increase costs and reduce the profitability of operations. In many cases, these would be considered typical costs of doing business on public lands. However, any increase in cost would potentially impact saleable mineral development.
- Even though material and use of the State of Oregon material Rights-of-way sites are similar to those of community pits and free-use permits, these Rights-of-way sites are not managed under the 43 CFR 3600 regulations for saleable mineral development and will be excluded from analysis under this Section.
- Management actions apply to mineral material development on all surface lands with federal mineral estate. This includes federal mineral estate with BLM-administered surface lands and other surface lands not administered by the BLM.

Issue 1

How would saleable minerals be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Impacts from Saleable Minerals Actions

Under the PRMPA and Alternatives B, C, and D, identified areas managed to protect wilderness characteristics, excluding setback areas, would be designated as closed to new mineral material sales. However, if visual impairment criteria are met under VRM Class II objectives, these areas would remain open to free-use permits as well as sales in existing authorized pits and common use areas. Existing contracts and permits will not be affected by this closure. Closing areas to mineral material sales would directly impact saleable mineral development by removing the possibility of saleable mineral resources in that area from being accessed or extracted. Where areas are closed, new pits would have to be located in the setback areas, nearby open areas if available, or be transported to construction sites from farther away if no mineral materials occur near closed areas. Closing an area to mineral material sales would increase project costs and closing existing mineral material pits would exacerbate these impacts by causing more immediate relocation and reduction in mineral materials production. Table 3-49 and Maps MIN 12–15 and MIN 18 (Appendix M) illustrate and summarize the impacts to saleable mineral development from closing areas to mineral material sales in wilderness characteristics units identified to manage for protection of wilderness characteristics.

Table 3-49. Areas with saleable mineral restrictions that may affect saleable mineral development by alternative (acres).

Saleable Mineral Designation	Alternative					
	No Action	A	B	C	D	PRMPA
Open to Sales	540,739	540,739	499,312	539,480	528,048	528,048
Open, CSU	1,399,733	1,399,733	962,901	1,314,045	1,262,725	1,262,725
Closed to New Sales	3,033,405	3,033,405	3,511,664	3,120,353	3,183,104	3,183,104

Saleable minerals are not impacted by this action under Alternative A. Under the No Action Alternative, proposals for new saleable mineral development will not be implemented if the proposed action is deemed by the BLM through site-specific analysis to permanently diminish the size or cause an entire wilderness characteristics unit to no longer meet the criteria for wilderness characteristics. These restrictions thereby constrain saleable mineral development. One active community pit occurs within the acres impacted by the No Action Alternative. This is current management until the Amendment is completed and an alternative is selected.

Under the PRMPA and Alternative D, 417,190 acres of federal mineral estate would be closed to new mineral material sales. This represents an increase of 149,699 acres of when compared to the No Action Alternative in which 267,497 are currently closed to new mineral material sales.

Under Alternative B, 1,206,780 acres would be closed to new mineral material sales. One active community pit occurs within the acres impacted by Alternative B. Alternative B represents an increase of 728,521 acres of closed when compared to the No Action Alternative.

Under Alternative C, 167,709 acres would be closed to new mineral material sales. Alternative C represents an increase of 86,948 acres of closed when compared to the No Action Alternative.

While restrictions under the No Action Alternative would constrain the largest acreage of saleable mineral development, Alternative B would be the most restrictive alternative for saleable mineral development due to the number of acres designated as closed to new mineral material sales. Saleable minerals are not impacted under Alternative A.

The PRMPA and Alternatives B, C, and D propose to closed protected wilderness characteristic units to new saleable mineral development. However, these units would remain open to free-use permits as well as the expansion of existing pits if visual impairment criteria are met. Thus, future saleable mineral development would decline under certain alternatives if projects become impacted by the “closed” designation and visual impairment constraints.

Impacts from Visual Resources Actions

Areas designated as closed to new mineral materials sales would remain open to free-use permits as well as sales in existing authorized pits and common use areas if visual impairment criteria are met. Under the PRMPA and Alternatives B, C, and D, wilderness characteristics units identified for protection of their wilderness characteristics, excluding setbacks, would be designated as VRM Class II. VRM Class II allocations may constrain saleable mineral development by requiring design features and special reclamation considerations to return the area to its pre-existing visual character, which would tend to increase project costs. Table 3-50 summarizes the impacts to saleable mineral development from visual resources actions.

Saleable minerals are not impacted by this action under Alternative A. Under the No Action Alternative, no new visual resource management designations are proposed. New saleable mineral development would be constrained by the provisions of the 2010 Settlement Agreement.

Visual impairment criteria would also constrain saleable mineral development by increasing project costs and thereby may reduce the overall amount of development. Thus, future saleable mineral development would decline under certain Alternatives if projects become impacted by the "closed" designation and visual impairment constraints.

Table 3-50. Acres of Visual Resource Management Class II by alternative for the planning area.

VRM Class	Alternative					
	No Action	A	B	C	D	PRMPA
Class II	219,040	219,040	1,291, 381	350,315	578,361	578,361

Saleable Minerals Cumulative Effects Summary

Past and present disturbances have been described above. The degree of impacts to saleable mineral development depends largely on the location of the mineral occurrence, the severity of the restriction, and the acreage affected. There are no reasonably foreseeable future actions identified in Table 3-1 that would impact saleable minerals development. Given there is no incremental effect to saleable mineral development with the future foreseeable actions, there is no cumulative effect.

3.7.21 Lands and Realty

There are two Lands and Realty programs described and analyzed in this Section: land tenure zones (LTZs) and Rights-of-way management.

Key Points

- Under all alternatives, land tenure zone management remains mostly unchanged except for 204 acres located within lands with wilderness characteristics units. If these units are identified for protection of wilderness characteristics, these additional 204 acres would be classified in LTZ 1 which prioritizes retention in federal ownership.
- Under all alternatives, BLM-administered lands would be generally available for minor Rights-of-way (ROW). Under all Alternatives, the edge of an occupied Rights-of-way corridor is considered the boundary to a wilderness characteristics unit, the corridor is outside of the unit. Alternatives B, C, D, and the PRMPA would allow for development of minor Rights-of-way within proposed 250-foot road boundary setbacks adjacent to the areas identified for protection for their wilderness characteristics.

Land Tenure Zones—Affected Environment

Land tenure was changed with the implementation of the ARMPA, and this Amendment is not adding any additional constraints except for the possibility of the protection of the 204 acres that are currently in a wilderness characteristics inventory unit with a land allocation of Zone 3. If those units are protected, then the entire unit would be managed as LTZ 1. Under Alternatives A, C, D, and the PRMPA, the 204 acres that fall outside of a wilderness inventory unit will continue to be managed as LTZ 3.

LTZ allow the BLM to identify opportunities to exchange, dispose, or acquire public lands to consolidate public ownership and facilitate management. See Maps Land 1–2 in Appendix M. See Appendix L of the 2002 SEORMP and ROD (BLM 2002) for a comprehensive definition of Land Tenure Zones.

Zone 1: Retention/Acquisition. Zone 1 land has been generally identified for retention in public ownership. These are also areas where emphasis will be placed on acquisition of land containing high resource values through such methods as exchange, purchase, donation or public agency jurisdictional transfers. For total land tenure acres, see Table 3-51 and Map Land 1 in Appendix M.

Zone 2: Land Exchange. Zone 2 land has been identified for limited retention and consolidation of ownership. Public land within this zone may be exchanged for Zone 1 or 2 nonfederal land with high resource values. Zone 2 public land generally has fragmented landownership patterns or relatively lower resource values than are present in Zone 1.

Zone 3: Disposal. Zone 3 land generally has low or unknown resource values. This land is potentially suitable for disposal by such methods as public agency jurisdictional transfers, state indemnity selection (state in lieu selection), "*Recreation and Public Purpose Act*" (R&PP) lease, or patents.

Land Tenure Zones—Environmental Consequences

Analytical Methods

Changes were evaluated across the alternatives in Land Tenure Zones (LTZs).

Table 3-51. Land Tenure Zone 3 within wilderness characteristics inventory units.

Wilderness Characteristics Unit ID	Name	Land Tenure	Acres
OR-034-018	Antelope Creek	Zone 3	45
OR-034-040	Double Mountain	Zone 3	160
Total			205

Indicator

Acres of public land in each land tenure zone.

Assumptions

The land tenure classification decisions in the RMP do not set in motion any implementation level exchange or disposal of land. Subsequent exchanges or disposal of lands are subject to site-specific *National Environmental Policy Act* (NEPA) analysis.

Issue 1

How would Land Tenure Zone classifications be affected by the BLM management actions that would emphasize protection of lands with wilderness characteristics?

Public lands identified for protection of wilderness characteristics would be designated as LTZ 1 and therefore would not be available for exchange or sale.

Under the No Action Alternative, the 2010 Settlement Agreement restricts disposal of any lands with wilderness characteristics, where such action would be deemed by the BLM to diminish the size or cause the entire BLM inventory unit to no longer meet the criteria for wilderness characteristics. Under the No Action Alternative, no change to land tenure designations would occur, but no disposal of public lands with wilderness characteristics may be authorized until the SEORMP Amendment Record of Decision is completed. Under Alternative B, where all units identified as having wilderness characteristics are protected, 204 acres (in two wilderness characteristics units as described above) would be re-classified from LTZ 3 to LTZ 1. Under Alternatives A, C, D, and the PRMPA, the two units with wilderness characteristics in LTZ 3 are not identified for protection and no change in land tenure allocations would occur. Land Tenure across the planning area would only affect 204 acres under Alternative B (see Table 3-52).

Table 3-52. Land tenure acreage by alternative.

Zone	No Action	Alternative A	Alternative B	Alternative C	Alternative D	PRMPA
Zone 1	4,578,352	4,578,352	4,578,556	4,578,352	4,578,352	4,578,352
Zone 2	52,302	52,302	52,302	52,302	52,302	52,302
Zone 3	10,785	10,785	10,581	10,785	10,785	10,785

Rights-of-way—Affected Environment

A Rights-of-way is an authorization to place a facility over, on, under, or through public lands for construction, operation, maintenance, or termination of a project. Energy development has emerged as an issue of public concern. Energy development, both renewable and nonrenewable, would be authorized through the issuance of a ROW and will be analyzed within the land use authorization process.

Rights-of-way Authorizations Established by the Greater Sage-Grouse ARMPA

The 2015 Greater Sage-Grouse ARMPA (BLM 2015d) applied Rights-of-way management designed to protect GRSG habitat by differentiating the general Rights-of-way authorizations identified in the 2002 SEORMP and ROD in several categories:

Major ROWs: Major ROWs are defined as projects with a large footprint (either linear or site), large diameter oil or gas pipelines (10 inches or larger), high voltage transmission lines (115 kV or above), ROW involving multiple federal jurisdictions, or controversial proposals.

Major roads are defined as federal and state highways that are not interstate highways.

Minor ROWs: Minor ROWs are those which take less time to process, have a small footprint, are not controversial and have few resource concerns.

Minor roads are all transportation routes with a maintenance level of 3, 4, or 5 on BLM-administered lands or its equivalent on lands not administered by the BLM.

Commercial Renewable Energy: large scale solar and wind projects with significant surface disturbance. (Biomass renewable energy development, not mentioned in the 2015 Greater Sage-grouse ARMPA, will be designated as a major ROW for all alternatives).

These Rights-of-way categories and their definitions are used in the allocations among the alternatives and the PRMPA are described in the following section.

Rights-of-way Designations

Areas unsuitable for surface disturbance or occupancy are generally identified as avoidance or exclusion areas for ROWs. Restrictions and mitigation measures are considered on a case-by-case basis for avoidance areas depending on impacts on resources, while exclusion areas are strictly prohibited from ROW development.

> *Exclusion areas:* A ROW exclusion area is one identified through resource management planning that is not available for ROW location under any condition.
>
> *Avoidance areas:* A ROW avoidance area is an area identified through resource management planning to be avoided but may be available for ROW location with special management stipulations.
>
> *Open areas:* No restrictions to Rights-of-way development. New Rights-of-way in these areas would be authorized with applicable stipulations to address resource issues.

Current Management in the Planning Area

Existing designated corridors are locations where the BLM encourages future locations of major new Rights-of-way projects in existing utility/transportation routes and other previously designated corridors.

The BLM will encourage applicants to consult the Western Regional Corridor Study in planning route locations.

The BLM will consider new locations for Rights-of-way projects on a case-by-case basis. Applications may be approved where the applicant can demonstrate that use of an existing route or corridor will not be technically or economically feasible, and the proposed project will otherwise be consistent with this plan and minimize damage to the environment.

Public lands in the planning area are available for ROWs unless within an avoidance or exclusion area to protect resources and prevent unnecessary or undue environmental damages. Currently, the MFO administers approximately 600 ROWs, issuing an average of four new actions each fiscal year. These authorizations include such uses as roads, water pipelines, natural gas pipelines, power lines, fiber optic cables, and communication sites.

The BLM does not currently have any ROWs for wind testing or monitoring in the planning area. There is currently one geothermal plant located in the planning area, which was authorized in November of 2011. There are also no ROWs for solar testing or monitoring within the planning area.

The planning area has a number of authorized permits for a variety of different land uses. The majority of the permits are for agricultural commodity production. Other permits are for either apiary sites or building structures, etc. The majority of the permits are for authorization of former agricultural and occupancy trespass situations until either the lands are sold or exchanged.

Many types of ROWs, such as power lines and fiber optic buried telephone cables, parallel highway routes. Several large transmission lines that traverse the planning area serve agricultural users and cities in the valley and provide electrical power service to areas outside the planning area. A large, 500-kV transmission line crosses the northern portion of the planning area from east to west and ties into the Pacific Northwest power grid. A major utility corridor that parallels Interstate 84 contains a major transcontinental natural gas pipeline, an oil pipeline, and three major transcontinental fiber optic lines. (See Table L-1 in Appendix L of the 2002 SEORMP and ROD for utility and transportation corridors.).

Several large ROW corridors were designated in previous land use plans (see Map LAND 3), and new facilities have been placed in these corridors since designation. One corridor was designated for a future east-to-west 500-kV electric transmission line, and the company involved still wants the route available for future use. It is listed in the 1992 “Western Regional Corridor Study” (Michael Clayton & Associates 1992) as a future potential corridor route.

In the planning area, hundreds of miles of roads and primitive routes have been constructed (or created by repeated motorized vehicle use) across public land. The BLM recognizes valid and existing rights and State laws pertaining thereto. An MOU with Malheur County and its individual road districts has enabled the BLM and the county to group roads to more economically maintain the road system.

All action alternatives were developed in consideration of the National Wind Energy Programmatic Environmental Impact Statement (EIS) and Record of Decision (BLM 2005b). This document addressed wind energy development, including adoption of the programmatic policies and BMPs. The BLM followed programmatic decisions to provide for wind energy development and to identify minimum requirements for mitigation measures. The Record of Decision for the National Wind Energy Programmatic EIS also states that Rights-of-way authorizations will not be issued for wind energy development on lands where wind energy development is incompatible with specific resource values. The Amendment stated that all lands that compose the BLM’s National Conservation Lands [previously

known as the National Landscape Conservation System, NLCS)] would be excluded from consideration for authorization for wind energy development.

The 2015 Oregon GRSG ARMPA (BLM 2015d) designated all portions in the Sagebrush Focal Areas as exclusion areas for new utility/commercial scale wind or solar ROW development. Priority Habitat Management Areas outside of Sagebrush Focal Areas, in the planning area, are designated as an avoidance area for new utility/commercial scale wind or solar ROWs.

Of the wilderness characteristics inventory units within the planning area, 1,066,469 acres are classified to have poor to marginal wind energy potential and 170,438 acres are classified to have fair to superb wind energy potential. Following implementation of the 2015 OR GRSG ARMPA (Ibid.), there are 50,534 acres of fair to superb wind energy potential that are not excluded within the wilderness characteristics units.

The existing designated ROW corridors within the planning area include the Western Utility Group updates to the Western Regional Corridor Study, the *Section 368 Energy Policy Act* of 2005, and the West-wide Energy Corridor Programmatic EIS. All of these are adopted and carried out under WO BLM IM-2013-118, dated April 12, 2013 (BLM 2013a). Designated transportation and utility corridors include linear ROWs, but are not limited to electric transmission facilities, pipelines, communication lines, and transportation systems.

Rights-of-way—Environmental Consequences

Analytical Methods

Changes were compared across the alternatives for new Rights-of-way designations.

Indicator

The indicator is acres by Rights-of-way designation across the planning area.

Assumptions

- Authorized ROWs and communication sites would be managed to protect valid existing rights, as long as those ROWs are in compliance with their terms and conditions.
- On renewal, assignment, or amendment of existing ROWs, permits, and leases, additional stipulations could be included in the land use authorization.
- Private landowners currently using isolated parcels will apply for Rights-of-way if the roads on those parcels are closed to public access.
- Activities on dispersed private parcels within the planning area would continue to require new or upgraded services for small distribution facilities, including communication sites, roads, and utilities.
- The demand for both energy and non-energy types of ROWs (including communication sites) is anticipated to remain steady or to gradually increase over time.
- Few to no solar energy ROWs are anticipated due to low solar energy potential.
- The number of ROW authorizations related to geothermal energy is anticipated to be less than those for wind.

- Maintaining and upgrading utilities, communication sites, and other ROWs is preferred before the construction of new facilities, but only if the upgrading can be accommodated within or directly adjacent to the existing ROW.
- Demand for small distribution facilities to extend and upgrade services, such as communication sites and utilities, is anticipated to increase as rural development occurs on dispersed private parcels within the planning area.
- The number of ROW applications for new communication and computer technology, such as fiber optic cable, is anticipated to continue to increase.
- Demand for both regional and interstate transmission lines is anticipated to increase as population and urban areas grow and as new energy facilities, such as wind, are developed throughout Oregon.

Collocation of new infrastructure in existing ROWs is preferred over creating a new ROW. The BLM recognizes that collocation does not eliminate the likelihood for new temporary or permanent surface disturbance.

The BLM would continue to manage all previously withdrawn lands as withdrawn from entry, appropriation, or disposal under the public land laws. Withdrawals would be reviewed as needed and recommended for extensions, modifications, revocations, or terminations. All existing withdrawals initiated by other agencies, such as the Bureau of Reclamation or the Department of Energy, would be continued consistent with existing terms.

Issue 1

How would Rights-of-way allocations be affected by BLM management actions that would emphasize protection of lands with wilderness characteristics?

Continuing management under the No Action Alternative would limit new development of ROWs if the development would diminish or eliminate wilderness characteristics. Alternative A would continue existing management and Rights-of-way designations under the 2002 SEORMP and ROD as amended, and would provide no additional Rights-of-way restrictions to lands with wilderness characteristics. In Alternatives B, C, D, and the PRMPA, lands that are managed to protect wilderness characteristics as Rights-of-way exclusion areas would help to protect their wilderness characteristics by preventing new development. Alternative B would provide this protection on the greatest number of acres (see Table 3-53). Setbacks of 250’ from boundary roads would continue under existing Rights-of-way management and designations.

Table 3-53. Rights-of-way acreage allocations by alternative.

	No Action	A	B (Includes setbacks)	C (Includes setbacks)	D (Includes setbacks)	PRMPA (Includes setbacks)
Major Rights-of-way						
Open	436,569	436,569	391,287	435,284	422,115	422,115
Avoid	4,065,070	4,065,070	2,875,699	3,894,186	3,633,357	3,633,357
Exclude	44,839	44,839	1,279,492	217,007	491,005	491,005
Corridors	94,967	94,967	94,967	94,967	94,967	94,967
Minor Rights-of-way						
Open	1,584,022	1,584,022	1,101,635	1,499,019	1,428,928	1,428,928
Avoid	2,917,617	2,917,617	2,195,159	3,002,619	2,656,352	2,656,352
Exclude	44,839	44,839	1,249,684	44,839	461,198	461,198
Corridors	94,967	94,967	94,967	94,967	94,967	94,967
Commercial or Industrial Solar Rights-of-way						
Open	436,569	436,569	391,287	435,284	422,115	422,115
Avoid	3,073,267	3,073,267	2,238,506	2,939,961	2,835,959	2,835,959
Exclude	1,036,642	1,036,642	1,916,685	1,171,233	1,288,403	1,288,403
Corridors	94,967	94,967	94,967	94,967	94,967	94,967
Commercial or Industrial Wind Rights-of-way						
Open	436,565	436,565	391,283	435,281	423,272	423,272
Avoid	2,240,892	2,240,892	1,406,133	2,107,587	2,020,059	2,020,059
Exclude	1,869,021	1,869,021	2,749,062	2,003,610	2,120,148	2,120,148
Corridors	94,967	94,967	94,967	94,967	94,967	94,967

Note: Management of minor Rights-of-way is unchanged in the setback from the No Action Alternative.

Lands and Realty Cumulative Effects Summary

The cumulative impact analysis area used to analyze cumulative impacts on lands and realty includes lands within the planning area boundary.

Land tenure was changed with the implementation of the ARMPA, and this Amendment is not adding any additional constraints.

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect lands and realty are land use authorizations. Past authorizations include those for linear features, such as roads, power lines, and site ROW features such as communication towers and wind energy projects. There is expected to be a steady increase in demand for ROWs to accommodate new power, water, telecommunication lines, renewable energy, and communication sites.

The Boardman to Hemingway line is a high-priority project and considers limited exemptions to the proposed ROW restrictions for the project. The project has been authorized; the line could provide an opportunity for the collocation of future infrastructure to accommodate long-term demand.

National policies to expand renewable energy production could also contribute to direct and indirect long-term cumulative impacts on the lands and realty program and be affected to various degrees by the proposed alternatives. As part of his 2013 Climate Action Plan, President Obama set a new energy goal of 10 new gigawatts of new renewable energy permitted on DOI lands by 2020 (US Congress 2013). This is

expected to increase the demand for renewable energy ROWs in the planning area. Wind energy potential in the planning area is moderate to high (BLM 2009d), so alternatives that would restrict renewable energy development would have the greatest effect on the number of wind energy ROWs authorized under the lands and realty program.

The mining RFFA that has the potential to impact lands and realty is the Grassy Mountain Gold Mine. 43 CFR 3809 provides guidance on what actions are covered under the 1872 Mining Law. 43 CFR 3809.2 applies to all operations authorized by the mining laws on public lands where mineral interest is reserved to the United States. In addition, 43 CFR 3809.401(2)(viii) describes the need to include plans for access roads, water supply pipelines, and power or utility services within the Plan of Operations. The proposed Grassy Mountain Gold Mine project area includes improvements to a 25-mile access route and construction of a powerline to the mine; this route crosses over privately held mineral rights and BLM managed surface ownership. The 3809 regulations would not apply to the infrastructure that crosses over private minerals because the non-Federal minerals are not subject to the 1872 Mining Law (43 CFR 3809.2). The mining owner or operator must obtain a special use lease, permit, or easement under 43 CFR 2920 for these sections prior to commencing surface disturbing activities because the BLM still has an obligation under 43 U.S.C. 1732(b) to prevent UUD.

Cumulative impacts from Notice-level or Plan-level lithium mineral exploration projects would not impact land use authorizations; these projects are of a limited surface impact and would not impact existing land use authorizations and do not propose new authorizations.

A reasonably foreseeable action that may have the potential to impact Land Tenure Zones LTZs) is the Residential Trespass Resolution (See Table 3-1 Reasonably foreseeable future actions). The effects from this RFFA would be common across all alternatives and would reclassify approximately six acres from LTZ 1 to LTZ 2 or 3. There are no other reasonably foreseeable future actions identified in Table 3-1 that have a potential effect on Land Tenure Zones and Rights-of-way development. Given there is no additional incremental effects to Lands and Realty, the cumulative effect from the RFFAs will be minimal.

No Action Alternative

The No Action Alternative imposes the greatest restriction on disposal on lands from public ownership. Under this alternative, the 2010 Settlement Agreement (see Appendix R) restricts disposal of any lands with wilderness characteristics. Continued management under the No Action Alternative would limit new development of ROWs if the development would diminish or eliminate wilderness characteristics.

Of the 76 protected lands with wilderness characteristics units in this alternative, there are 38 units, covering 50,534 acres with fair to superb wind potential where wind energy development would be excluded.

Alternative A

In Alternative A, the two units with wilderness characteristics in LTZ 3 are not identified for protection and no change in land tenure allocations would occur. Alternative A would continue existing management of Rights-of-way designation under the 2002 SEORMP and ROD (BLM 2002), as amended by the 2015 OR GRSG ARMPA (BLM 2015d), and would provide no additional Rights-of-way restrictions to lands with wilderness characteristics. This alternative would not exclude additional wind energy development with fair to superb potential.

Alternative B

Under Alternative B, where all units identified as having wilderness characteristics are protected, 204 acres (in two wilderness characteristics units as described above) would be re-classified from LTZ 3 to

LTZ 1. This alternative would place the highest level of restrictions on Rights-of-way development among all alternatives. Major ROWs and Commercial Renewable energy projects would be excluded in all 76 wilderness characteristics units.

Of the 76 protected lands with wilderness characteristics units in this alternative, there are 38 units with fair to superb wind potential covering 50,534 acres where wind energy development would be excluded.

Alternative C

In Alternative C, restrictions to Rights-of-way development would be applied to 27 wilderness characteristics units. Major ROWs and Commercial Renewable energy projects would be excluded. Less exclusion designations than Alternatives B, D, and the PRMPA, but greater than other alternatives.

Of the 27 protected lands with wilderness characteristics units in this alternative, there are five units with fair to superb wind energy potential covering 1,982 acres where wind energy development would be excluded.

Alternative D

Alternative D would apply Rights-of-way restrictions on 33 wilderness characteristics units. Major ROWs and Commercial Renewable energy projects would be excluded in the 33 units. Higher level of restrictions than all alternatives except for Alternative B, and the same protection as the PRMPA.

Of the 33 protected lands with wilderness characteristics units in this alternative, there are 10 units with fair to superb wind energy potential covering 11,239 acres where wind energy development would be excluded.

PRMPA

The PRMPA would apply Rights-of-way restrictions on 33 wilderness characteristic units. Major ROWs and Commercial Renewable energy projects would be excluded in the 33 units. The PRMPA has higher restrictions than the No Action Alternative, and Alternatives A and C. This alternative has less ROW restrictions than Alternative B, and the same restrictions as Alternative D.

Of the 33 protected wilderness characteristic units in this alternative, there are 10 units with fair to superb wind energy potential covering 11,239 acres where wind energy development would be excluded.

3.7.22 Climate Change

Key Points

- Management actions considered under the alternatives and PRMPA each have differing levels of effects on climate.
- Management actions to restore degraded ecologic function or rehabilitate areas following disturbance like wildfire are tailored to the specific conditions and are designed to achieve objectives, regardless of management constraints. Modifications to these management actions may be necessary achieve multiple objectives.
- The No Action Alternative and Alternative B propose the most area that would prioritize protection of wilderness characteristics. The restrictions on future development are expected to benefit carbon storage over the long term.
- Alternative B would result in a potential reduction in greenhouse gases (GHGs) produced by off highway vehicles (OHV) due to having the most area designated as closed to OHV use. The degree to which this reduction could be offset by OHV use in other areas is unknown. The PRMPA would limit OHV use to existing routes in 98% of the planning area, retaining approximately 40,000 acres as OHV Open. Because most OHV use is on existing roads and primitive routes already, the proposed change would represent only a limited decrease in GHGs.
- Alternative B could result in the greatest reductions in authorized grazing, due to the management actions taken if existing livestock grazing is a significant causal factor for non-attainment of OR/WA Standards for Rangeland Health or upon receipt of voluntary permit relinquishment in specified areas. This would be the most beneficial alternative for reducing GHG emissions (methane [CH4]) produced by cattle, followed by Alternative D.

Introduction

Executive and Secretarial Orders issued in 2021 address the importance of considering climate change when analyzing impacts from federal actions. The January 2021 Executive Order 13990*, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* directs all executive departments and agencies to "… immediately commence work to confront the climate crisis." The Executive Order also directs the Council on Environmental Quality (CEQ) to review its final guidance entitled, "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," 81 Fed. Reg. 51866 (August 5, 2016). While CEQ is reviewing the GHG guidance they recommend that agencies should consider all available tools and resources in assessing GHG emissions and climate change effects of proposed actions, including, as appropriate and relevant, CEQ's 2016 GHG Guidance. The CEQ's 2016 guidance addresses the consideration of greenhouse gas (GHG) emissions and carbon sequestration from the actions being proposed and the effects of climate change on a proposed action and its environmental impacts (CEQ, 2016).

Department of Interior Secretarial Order 3399 (April 2021) calls for a department-wide approach to the climate crisis and establishes a Departmental Climate Task Force. Secretarial Order 3399 also calls for the consideration of greenhouse gas emissions in NEPA analyses and, as appropriate, the assessment of the social cost of carbon.

In response to the direction in the Executive Orders and the 2016 CEQ guidance, this EIS analyzes the greenhouse gas emission and carbon sequestration effects of the alternatives as a proxy for assessing

effects on climate change. Where applicable, the Affected Environment sections for each individual resource section in Ch. 3 address how climate change is affecting the resource. The social cost of greenhouse gas emissions is addressed in the Social and Economic Values section of the EIS (Section 3.7.14).

Executive and Secretarial Orders issued in 2021 address the importance of considering climate change when analyzing impacts from federal actions. The January 2021 Executive Order 13990*, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* directs all executive departments and agencies to "… immediately commence work to confront the climate crisis." The Executive Order also directs the Council on Environmental Quality (CEQ) to review its final guidance entitled, "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," 81 Fed. Reg. 51866 (August 5, 2016). The Council on Environmental Quality's 2016 guidance addresses the consideration of greenhouse gas (GHG) emissions and carbon sequestration from the actions being proposed and the effects of climate change on a proposed action and its environmental impacts (CEQ, 2016).

Affected Environment

There is a scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the atmosphere. In its sixth report, the International Panel on Climate Change (IPCC), found that "it is unequivocal that human influence has warmed the global climate system" and that "the scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years" (IPCC Sixth Assessment Report, 2021). The IPCC Sixth Assessment Report states that "human induced climate changes is already affecting many weather and climate extremes in every region across the globe" and that the frequency of these extremes will increase.

The Earth's climate is changing, in significant part because human activities are altering the chemical composition of the atmosphere through the buildup of GHGs. GHG emissions and changes in biological carbon sequestration due to land management activities have been cited as potential factors influencing global temperatures. GHG emissions and net losses of biological carbon sinks may be contributing to a net warming effect of the atmosphere, primarily by decreasing the amount of heat radiated from the earth back into space (Forster et al. 2007; EPA 2009).

Scientists predict that nationally and globally the frequency of extreme precipitation events, heat waves and droughts will increase, while snowpack will decrease (Christensen et al. 2007, Polley et al. 2013). Increasing minimum temperatures may have adverse implications for any plant species that requires cold temperatures before initiating growth in spring, such as juniper and sagebrush, which are dependent on the water stored in deeper soil layers during fall and winter. The potential effects of these predicted climate changes on other resources in the planning area are discussed in other appropriate portions of this analysis (see sections Soils, Water Resources and Riparian/Wetland Areas, General Vegetation, Invasive Species, Fire and Fuels Management, Forest and Woodland Management and Wildlife sections, among others).

The climate within the planning area is considered continental, with most precipitation in winter-spring. However, high interannual variability in the amount of precipitation is a key characteristic of the planning area, ranging from less than 10 inches to over 20 inches. Winter precipitation is typically rain- or snow-dominated, depending on the year. Snow-dominant winter precipitation is restricted to the higher elevations around the Pueblo Mountains. Summers are typically very dry. Frost can occur nearly any month of the year on most of the Vale District. These conditions are becoming warmer and effectively drier and may be shifting towards a spring-summer dominant precipitation regime.

Taking broad-scale climate projections and making them relevant for land management decisions at a planning area or project scale can be difficult and requires land managers to make assumptions about what the broader projections could mean at these smaller scales (Daniels *et al*. 2012). Newer methods of down-scaling are starting to approach the level of resolution that land managers could find useful.

The following are excerpts from *Future Climate Projections Malheur County* (Oregon State University: Dalton, Rupp and Hawkins, August 2018), which describe climate projections in Malheur County:

> "Oregon's Department of Land Conservation and Development (DLCD) contracted with the Oregon Climate Change Research Institute (OCCRI) to perform and provide analysis of the influence of climate change on natural hazards" (Dalton et al. 2018). "The county-specific future climate projections prepared by OCCRI for the DLCD are derived from 10–20 global climate models (GCM) and two scenarios of future global greenhouse gas emissions."
>
> "In Malheur County, the frequency of hot days with temperatures at or above 90°F is projected to increase on average by 38 days (with a range of 21 to 50 days) by the 2050s under the higher emissions scenario compared to the historical baseline. The temperature of the hottest day of the year is projected to increase by 8°F (with a range of 3 to 11°F) by the 2050s under the higher emissions scenario compared to the historical baseline."
>
> "In Malheur County, the frequency of days at or below freezing is projected to decline on average by 13 days (with a range of 6 to 18 days) by the 2050s under the higher emissions scenario compared to the historical baseline. In Malheur County, the temperature of the coldest night of the year is projected to increase by 10°F (with a range of 2 to 16°F) by the 2050s under the higher emissions scenario compared to the historical baseline."
>
> "There is greater uncertainty in future projections of precipitation-related metrics than temperature-related metrics. This is because of the large natural variability in precipitation patterns and the fact that the atmospheric patterns that influence precipitation are manifested differently across Global Climate Models (GCM)."
>
> "The intensity of extreme precipitation events is expected to increase slightly in the future as the atmosphere warms and is able to hold more water vapor. In Malheur County, the magnitude of precipitation on the wettest day and wettest consecutive five days per year is projected to increase on average by about 19% (with a range of 2% to 35%) and 13% (with a range of -7% to 28%), respectively, by the 2050s under the higher emissions scenario compared to the historical baseline."
>
> "Under future climate change, the risk of wildfire smoke exposure is projected to increase in Malheur County. The number days with high concentrations of wildfire-specific particulate matter is projected to increase by 122% by 2046–2051 under a medium emissions scenario compared with 2004–2009."

The U.S. Geological Survey (USGS 2008) reviewed the applicable science on greenhouse gas (GHG) emissions and concluded that it is beyond the scope of existing science to identify any specific source of GHG emissions or carbon sequestration and designate it as the cause of specific climate impacts at any specific location. The Council on Environmental Quality (CEQ 2016) has also acknowledged that it is not possible to attribute specific climate impacts to individual projects and recommends using GHG emissions and changes in carbon sequestration/storage as proxies for assessing potential impacts to climate (CEQ 2016). Therefore, the remainder of this Affected Environment section discusses the known sources of GHG emissions and carbon sequestration in the planning area. The effects analysis that follows, identifies the effects of the alternatives on GHG emissions and carbon sequestration. The social cost of greenhouse gas emissions is addressed in the Social and Economic Values section of the EIS (Section 3.7.14).

Greenhouse Gas Emissions

At a national level, transportation accounts for the largest source of greenhouse gas emissions (29%), followed by electricity generation (25%), industry (23%), commercial and industrial (e.g., fossil fuels burned for heating and cooling) (13%), and agriculture (10%) (EPA 2019, Sources of Greenhouse Gas Emissions). Oregon's transportation sector reflects the national trend, accounting for the predominant man-made source (24.2%) of GHG emissions, an estimated 56-70 million metric tons of $C0_2e$ between 1990 and 2015. This compares to industry (12.1%), commercial and residential (19.9%), and agriculture, accounting for approximately 9%, or 5.7 million metric tons $C0^2e$ (ODEQ 2018, 19-20; Appendix A, pages 4-5). Contributions from the Agricultural sector include GHGs (primarily methane) from livestock (e.g., cows), agricultural soils, and rice production. Total U.S. gross GHG emissions estimates from these sectors equaled 6,558 million metric tons of carbon dioxide equivalent (CO_2e) in 2019 (EPA 2019, Sources of Greenhouse Gas Emissions).

Total GHG emissions in Oregon have generally declined since their peak in 1999 (ODEQ 2018, page 2; Appendix A, pages 1 and 5). In 2015, estimated emissions were about 63 million metric tons of carbon dioxide equivalents. About 81.7% of those emissions came from carbon dioxide emissions directly. The remainder came from methane (10.2%), nitrous oxide (4.3%), and other pollutants (3.9%) (Oregon DEQ 2018, Appendix A, page 5).

The following sections provide additional information on more regional and local known trends and effects of GHGs on climate change.

Trends and Historic Impacts to GHG Emissions from Wildfire

Wildfires in the planning area contribute more GHG emissions (CO_2e) than all other inputs combined by an overwhelming margin and, at the same time, have a compounding effect of reducing the carbon sequestration potential of the planning area through the loss of vegetation. Rau et al. (2011) estimated that combustion of trees during fire may release up to 70% of the organic carbon stored in the above-ground biomass to the atmosphere. One study of a dry Ponderosa pine forest estimated above-ground carbon emissions from a 41,000-hectare wildfire in central Oregon averaged 2.55 kilograms per square meter. To put these emissions in perspective, this estimate represented about 2.5% of Oregon's total emissions from fossil fuels and industrial processes for that year (Meigs *et al*. 2009). Most of the carbon (75–90%) is stored in soils and organic matter below ground; removal of vegetation through wildfire can accelerate rates of carbon loss from soils (D'Amore and Kane 2016; Schuman et al. 2001). This cycle can be exacerbated by subsequent soil loss through erosion (D'Amore and Kane [USDA and Forest Service] 2016).

In some cases, carbon emission estimates from the subsequent decomposition of trees killed in wildfires exceeded the amount emitted from the fire itself (Diaz *et al.* 2009, Irvine *et al*. 2007). Several studies have also concluded that carbon release from forests under wildfire conditions is much greater than carbon release under prescribed fire conditions (Meigs *et. al*. 2009; Hurteau and North 2009; Wiedinmyer and Hurteau 2010).

Many studies have indicated that climate change will intensify wildfire risk, particularly in the summer, extending the fire season from Spring to Winter (An, et al., 2015). The frequency, intensity, and scale of wildfires has increased in such environments due in large part to the effects of climate change; this trend will continue and intensify in the future if projections of warmer and drier conditions prevail.

Since 1980, the planning area has experienced approximately 1,460 wildfires, burning 3,334,924 acres (an average of 81,340 acres per year and 2,224 acres average per fire); see the Fire and Fuels Management section 3.7.9 for additional details. Between 1980-2000, there were 991,928 acres burned in 853 wildfires (47,235 acres/fire). Between 2001–2020, the acres burned in the 20-year period increased to 2,342,996 in 607 wildfires (117,150 acres/fire on average). This indicates that over the last twenty years, the average

fire season has exhibited fewer but larger fires. As described in section 3.7.9, the planning area has experienced more intense, severe, and larger fires over the last 41years. Since 2012, the planning area experienced the top three largest fires on record.

Data and research to develop and provide accurate information on biomass and resulting GHG emissions caused by wildfire is limited. The BLM models general information for specific areas—and to a limited extent for specific fire incidents—on vegetation associated with discrete events. These numbers wholly depend on atmospheric conditions, existing vegetation, burn periods, fuel moisture, etc. of a prescribed fire or wildfire event. To provide context and perspective of potential GHG emissions and particulate generation from various vegetation types in the planning area during a typical fire season, the BLM utilized available modeling (USDA Forest Service First Order Fire Effects Model [FOFEM] 2018 and Ottmar, et al., 2007) to estimate potential emissions.

Table 3-15, section 3.7.6 General Vegetation lists nine dominant vegetation communities in the planning area. To utilize the USFS FOFEM v. 6.5 (USDA USFS 2018), shrub/brush communities were grouped into a single FOFEM "shrub" category while retaining grass, timber, and juniper communities in their own category; the model was then applied to these four general vegetation types. The model provides a broad set of estimated GHG outputs including CO_2, CO, CH_4, NO_x, SO_2 and particulates that would be produced during fire events. Table 3-54 summarizes the metric tons per acre of CO_2e and CH_4 generated using typical environmental inputs (meteorology, burning conditions, summer events, etc.) that exist in a normal fire season in the planning area. The modeled 298,817 metric tons of CO_2e produced from these vegetation communities represents the greatest source of GHGs is from wildfire actions or events in the planning area.

Evidence suggests that healthy ecosystems are more resilient and resistant to the effects of climate change, thereby acting as a barrier against the propagation and encroachment of invasive species (West et al. 2009). While the extent of the four vegetation groupings in Table 3-54 give a modeled estimate of emissions during a wildfire, this would vary by the current conditions locally.

Table 3-54. Modeled Estimates of GHG Emissions from Typical Wildfire Year, by Vegetation Community in the Planning Area.

Vegetation Community	Percent of Planning Area in Vegetation Community	Acres by Vegetation Comm-unity in the Planning Area[a]	Acres by Vegetation Community Assigned to an Annual Average Fire Year (80,000 ac burned)[b]	CO_2 Equivalent		CH_4[c]	
				Per acre modeled CO_2e (metric tons) Generated by Wildfire by Vegetation Community	Total modeled CO_2e (metric tons) generated in Average Fire Year (80,000 ac burned)	Per acre modeled CH_4 (metric tons) Generated by Wildfire by Vegetation Comm-unity	Total modeled CH_4 (metric tons) generated in an Average Fire Year (80,000 ac burned)
Brush	71%	3,256,720	56,800	4.8	280,090	<.01	157.8
Grass	27%	1,231,335	21,600	0.2	4,623	<.01	26.3
Forest	0.2%	10,739	160	40.2	7,691	0.28	1,709.3
Juniper	2%	70,428	1,600	5.1	6,411	0.02	394.5
Total			80,000	50.39	298,817		242.1

[a] These summary acres are from Table 3-15 which displays the approximate acres of the dominant vegetation communities in the planning area. Not all vegetation communities are described in the 3.7.6 General Vegetation section and therefore, not all acres of the planning area are included in this analysis.

[b] To calculate an estimate for total GHGs produced during a typical wildfire season, the percentage of the planning area by vegetation community was applied to the average annual acres burned, 80,000 acres. The metric tons per acre estimate from FOFEM from each of the four vegetation communities were used to estimate the contribution of each for CO_2e and CH_4. Estimates of vegetation community acres and percentages for the planning area were derived from Table 3-15; all shrub, sagebrush and scrub communities were merged for this summary set of estimates.

[c] As described in the Affected Environment section, the UPII estimate is that CH_4 is 25 times more impacting on the climate than CO_2e.

Trends and Historic Impacts to GHG Emissions from Population

Greenhouse gas (GHG) emission trends from a population perspective in Oregon are generally static or declining. Oregon's population has increased 43 between 1990 and 2016, while in-state emissions per capita have decreased in the same time period (Oregon DEQ, 2018). Since 2011, Oregon's in-state production emissions per capita have stayed relatively flat, around 13 metric tons of CO2e MTCO2e per person. The EPA estimates that U.S. national per capita emissions are higher and closer to 20 metric tons per person.

The planning area and neighboring areas in Oregon, southwest Idaho and northern Nevada are predominantly rural and agricultural communities with several small towns; these areas are growing at a rate of less than one percent or declining in size. This is in contrast with the rapidly growing Treasure Valley in Idaho, with a small percentage in the northeast corner of the planning area (the area is generally the downstream valley areas of the Boise, Payette and Weiser Rivers in Idaho and the Owyhee and Malheur Rivers in Oregon and their confluence with the Snake River). Population in the largest urban area near the planning area—the Boise-Nampa Metropolitan Area, and west to include Caldwell, Idaho—is experiencing rapid growth, estimated as 1.7% per year, with an increase of approximately 17.3% between 2010 and 2019 (World Population Review, 2023; calculated from US Bureau of the Census population data; Headwaters Economics, 2016); given the proximity, this increase is expected to have impacts on GHG emissions in and near the planning area.

A 2017 Boise State University study estimates that the Idaho portion of the Treasure Valley may convert between 110,000 and 240,000 acres of farmland to residential and industrial developments by 2100 and lost more than 60,000 acres (5%) of farmland to development between 2001 and 2011 (Narducci 2017).

Population increases are also expected to increase use of motor vehicles in the rapidly growing area. These changes are expected to have commensurate losses of carbon sequestration and increases in GHG emissions. Transportation is Idaho's largest contributor to GHG emissions (Idaho Conservation League, 2021).

Finally, and as discussed in sections 3.7.2 Travel Management and 3.7.14 Recreation, a significant percentage of OHV users and recreationists come from the greater Treasure Valley and, with participants from other areas including from within Oregon, are impacting GHG production.

Trends and Historic Impacts to GHG Emissions from OHV Use in the Planning Area

There are approximately 8,633 miles of routes on public lands in the planning area that are available for use by OHV enthusiasts. Most OHV use occurs on these maintained roads and primitive routes (see Section 3.7.2 Travel Management Tables 3-8 and 3-9). Growth in OHV-based activities in the western U.S. is expected to continue at 1–2% annually. The primary visitors utilizing OHVs in Eastern Oregon are local residents. OHV use by local users is approximately three times greater than visitors from other regions (Lindberg 2009). Although estimating CO_2e production from this OHV use is imprecise due to the differing t types of activities, terrain, and vehicle types; the estimate of GHG emissions from OHV use in this analysis is based on the Oregon Department of Parks and Recreation (OPRD, 2021) fuel consumption estimates. The ORPD estimates that emissions from OHVs would range from 61.6-384.4 metric tons of CO_2e based on days of use, with an additional 25.9–77.9 metric tons of CO_2e generated from transport of OHVs to and from Malheur County. The ORPD also estimates that additional OHV use that is ancillary (hunting, fishing, photography, etc.) to general OHV recreational activities produces between 61.6 and 885.1 metric tons of CO_2e per year with transport to and from Malheur County generating an additional 139.4–962.9 metric tons of CO_2e or between 165.3 and 1,066.7 metric tons.

Trends and Historic Impacts to GHG Emissions from Public Land Livestock Grazing

After wildfire, livestock grazing constitutes the second largest contributor to GHG emissions in the planning area via methane production (CH_4). Livestock grazing can also reduce carbon sequestration through soil degradation and the removal of vegetation (see those sections above, 3.7.4 and 3.7.6, respectively) In 2019, U.S. emissions of methane from livestock totaled approximately 178.6 million metric tons of carbon dioxide equivalents per year (EPA 2021, Figure ES-9, p. ES-16), and 2019 U.S. emissions of all greenhouse gases totaled approximately 6,58.3 billion metric tons of carbon dioxide equivalents (EPA 2021, p. ES-4). In 2019, Oregon carbon dioxide emissions from enteric fermentation was 2.7 million metric tons (USEPA 2023). The average annual GHG emissions from livestock from the 423,672 animal unit months (AUM) of public land grazing in the planning area is estimated to be approximately 2,194 metric tons of CO_2e[43]. This represents .081% of the total enteric fermentation occurring in Oregon.

[43] Adapted from IPCC 2006; the calculation used for CO_2e is ((.00822 * 30 days/month) * AUMs)/1000 *21.

Carbon Sequestration

Rangelands are predominantly native grasses, forbs and shrubs and cover 31% of the United States and half the lands in the western US. Because of their extent, rangeland ecosystems can have a large impact on GHGs through carbon sequestration. Rangeland plants capture CO_2 in the process of photosynthesis, losing some through respiration (biogenic carbon emissions) and the rest is stored, or sequestered, in biomass (both living and dead).

Current research regarding carbon sequestration at the national level is consistent with trends and effects seen in Oregon. Nationally, undeveloped land uses (for example rangelands) and forestry (i.e., "managed forests") contribute to GHG emissions, however; undeveloped lands are not included in EPA's breakdown because it is a net sink (absorbing more carbon from the atmosphere than it emits) and removes approximately 12% of these greenhouse gas emissions (EPA 2019, Sources of Greenhouse Gas Emissions).

Both vegetation and soils serve as major carbon sinks and interact as part of the carbon/nitrogen cycle. While between 75–90% of carbon is stored in soils and below ground vegetation, research assessing carbon sequestration by above ground vegetation (biomass) is more prevalent and is used in this analysis to develop associations between management actions impacting carbon sequestration. Estimates of vegetation biomass/fuel loading varies widely. For example, estimates of median biomass fuel loading in sagebrush/grass communities in the west varied from 0.75 to 40.9 tons per acre (Sikkink et al. 2009). Other research estimates that shrub and grass-covered rangelands sequester an estimated 198 metric tons of carbon dioxide equivalents (Fynn et al. 2009); however, long-term above-ground carbon sequestration may not be possible in arid, fire-prone systems (Hurteau and North 2009; Rau et. al. 2010).

Rangeland ecosystems are complex in the planning area. Elevation differences (varying from a low of approximately 2,000 feet above sea level to over 8,000), precipitation (between 8" annually to over 12"), aspect, soil function, existing and historic vegetation communities, disturbance, and past restoration activities all affect the ecology of an area. Variation in vegetation communities, which can be modified by management actions, can lead to changes in soil carbon sequestration and possibly GHG emissions, particularly prior to and during wildfires (Fynn et al. 2009). A growing concern in forest and rangeland ecosystems are the effects of altered vegetation composition and fire regimes on both carbon and nitrogen balances.

Healthy ecosystems are more effective in sequestering carbon and are more resistant to invasive species and disease, and therefore are more able to withstand the effects of climate change. There are long-term carbon sequestration benefits of maintaining high levels of ecosystem function, resistance, and resilience. The variability of ecosystem conditions and function is directly related to how the alternatives impact—and are impacted by—climate. Changes in vegetative composition (through natural processes or restoration/rehabilitation actions) impact both the ability of the community to sequester carbon and the release of GHGs during wildfire. Nonnative species may alter carbon storage and dynamics by invading open niches in plant communities or by displacing native species by virtue of greater competitive or reproductive ability, particularly after disturbance (see Invasive Species section 3.7.6). Invasive species can also alter ecosystem processes (e.g., hydrology and geomorphology, nutrient cycling, and primary production and decomposition). "These latter two processes represent the most direct determinants of carbon storage and cycling in ecosystems" (USGS, 2017).

> "As noted above in Table 3-54, the vegetation communities within the planning area have been grouped to estimate wildfire emissions into brush, grasses, forests, and juniper. Approximately 71% of planning is comprised of brush, 27% grass, .2% forest, and 2% Juniper. Although there is limited information on how to convert the contribution of the current vegetative biomass in the planning area to carbon sequestration; the U.S. Forest

Service's Science Framework (Crist et al. 2019) describes the contribution of sagebrush ecosystems to carbon sequestration:

> Actions taken to maintain or enhance the resilience of sagebrush ecosystems to disturbance have implications for greenhouse gas emissions and carbon storage. Semiarid ecosystems strongly influence the trend and interannual variability in the global carbon balance, in part due to widespread woody species expansion and high interannual variability in temperature and precipitation (Ahlström et al. 2015). In wetter years, semiarid systems are typically carbon sinks, while in drier years they tend to be carbon sources because respiration exceeds photosynthesis. In more-or-less average years, semiarid systems tend to be more carbon neutral with uptake by photosynthesis roughly equal to release by respiration" (Ahlström et al. 2015; Svejcar et al. 2008).

> "Actions intended to avoid or halt the spread of invasive annual grasses by increasing resilience to disturbance and resistance to invasion and by restoring invaded sites to sagebrush communities would enhance carbon storage and reduce potential greenhouse gas emissions at all scales. In sagebrush ecosystems most carbon is stored belowground in the roots (Rau et al. 2011a). Conversion of native sagebrush ecosystems to annual grassland converts a greenhouse gas sink into a greenhouse gas source with reductions in aboveground and especially belowground carbon storage" (Bradley et al. 2006; Germino et al. 2016; Rau et al. 2011a).

Juniper and piñon expansion and infill in sagebrush ecosystems increase aboveground carbon storage many-fold due to the large increase in biomass, but the impacts belowground are not well understood (Rau et al. 2011b, 2012). Once aboveground tree cover equals 50%, resilience to disturbance and resistance to invasive annual grasses drop, and the site may become susceptible to invasive annual grasses after fire (Rau et al. 2012) or other stand-replacing disturbances. The tree cover at which this reduction occurs may be lower on less productive sites. Further, juniper and piñon expansion and infill reduce total soil nitrogen, which has long-term adverse implications for carbon storage in deep soil, where the carbon pool is very stable (Rau et al. 2012). Juniper and piñon expansion and infill can lengthen fire return intervals but greatly increase the biomass consumed during fire in comparison to sagebrush dominated ecosystems.

Consequently, the science is unclear as to the long-term tradeoffs in potential greenhouse gas emissions. Even though the increase in biomass from tree cover would seem more consistent with increasing carbon storage, over the longer term it may be less sustainable than maintaining or restoring sites to sagebrush ecosystems. Short-term greenhouse gas emissions and reductions in carbon storage from projects intended or designed to reduce juniper and piñon expansion and restore sage-grouse habitat are acceptable tradeoffs (CEQ 2016, 18). Management objectives to increase carbon storage that are consistent with maintaining habitat and key ecosystem functions will be most beneficial in the long term.

The amount of carbon in rangeland biomass varies from between 35 to 65% of the dry weight; 50% is often taken as a default value. Carbon sequestration is roughly equivalent to the dry mass of the vegetation type, or 50% of the biomass (Fynn et al. 2009) and is used for analysis in this EIS in the estimates of both emissions from an average wildfire event and in carbon-sequestering biomass that would be lost during wildfire. The vegetative communities and the conditions that affect them vary across the planning area (e.g., age, topography and aspect, geomorphology, climate, etc.); each community would also vary by its associated biomass and carbon storage potential.

The condition, function, and composition of vegetation in an area influences its ability to sequester carbon. Vegetation communities dominated by, or converted to, monocultures of invasive annual grasses are estimated to sequester carbon at 50% of the rate of properly functioning vegetation communities (Austreng 2012). Generally, species that are components of naturally functioning ecosystems, are more effective at sequestering carbon. As noted in Section 3.7.7 Invasive Species, there are areas in the

planning area that are at risk to conversion to invasive annual grasses due to the presence of invasive annual grasses (referred to as Category 5 areas, BLM, 2016a, 37-39) and areas where plant communities are dominated by invasive annual grasses (Category 6 areas). Within the planning area, approximately 3.5 million acres fall within the Category 5 classification, and 400,000 acres fall within the Category 6 classification (BLM, 2016e).

Another factor in evaluating carbon sequestration and how the alternatives may impact the climate is the resistance and resilience of an area. Section 3.7.6 General Vegetation (see also Tables 3-15 and 3-17) notes that plant species found at higher elevations in the planning area are far more resilient than those found at lower elevations; more resilient plant communities at all elevations across the planning area are capable of sequestering higher levels of carbon than less resilient (or degraded) communities (Chambers, Bradley, Brown et al. 2014 and BLM 2015d, Appendix H). More resilient vegetation communities are also typically less susceptible to the effects of climate change. Conversely, vegetation communities found at mid- and lower elevations—often possessing lower levels of resistance and resilience—are more vulnerable to the effects of climate change and are expected to sequester lower levels of carbon. Across the planning area on public lands, the BLM estimates there are: 3.44 million acres in the low resistance/resilience class, 604,473 acres in the moderate class, and 564,431 acres in the high resistance/resilience class. Table 3-55 (see Environmental Consequences, below) provides the distribution of acres of resistance and resilience categories in lands with wilderness characteristics by alternative.

The extent to which the BLM is effective in impacting climate change through management actions that maintain or increase carbon sequestration is, in part, affected by the acres treated and the effectiveness of the treatments. Through Standards for Rangeland Health assessments, Emergency Stabilization and Rehabilitation planning, and resource monitoring, the need for restoration, rehabilitation and fuels reduction treatments are identified and designed to address specific resource conditions present in a project area. Project objectives are developed to tailor appropriate management actions to circumstances in the project area. Depending on project objectives, treatment method options are considered based on site potential, geography, available resources (including staffing, funding, and equipment), resource designations (e.g., sage-grouse or other critical habitat or special designations or management areas), and policy/legal stipulations. Where necessary, treatments are modified or designed to address these considerations. Since entering into the 2010 Settlement Agreement, where restoration and rehabilitation needs are identified in lands with wilderness characteristics, certain treatments (largely ground-disturbing actions) have been modified or designed to meet both ecologic objectives and to ensure that the wilderness characteristics are protected. See Sections 3.7.6 General Vegetation, 3.7.7 Invasive Species and 3.7.9 Fire and Fuels Management for more discussion on restoration, rehabilitation, and fuels reduction projects in lands with wilderness characteristics and their effect on meeting resource objectives.

Social Cost of Greenhouse Gases

The "social cost of carbon", "social cost of nitrous oxide", and "social cost of methane"—together, the "social cost of greenhouse gases" (SC-GHG)—are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year.

On January 20, 2021, President Biden issued E.O. 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*.[44] Section 1 of E.O. 13990 establishes an Administration policy to, among other things, listen to the science; improve public health and protect our environment; ensure access to clean air and water; reduce greenhouse gas emissions; and bolster resilience to the impacts of climate change.[45] Section 2 of the E.O. calls for Federal agencies to review

[44] 86 FR 7037 (Jan. 25, 2021).
[45] *Id*., sec. 1.

existing regulations and policies issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the E.O. and to take appropriate action.

Consistent with E.O. 13990, the Council on Environmental Quality (CEQ) rescinded its 2019 "Draft National Environmental Policy Act Guidance on Considering Greenhouse Gas Emissions" and has begun to review for update its "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in *National Environmental Policy Act* Reviews" issued on August 5, 2016 (2016 GHG Guidance).[46] While CEQ works on updated guidance, it has instructed agencies to consider and use all tools and resources available to them in assessing GHG emissions and climate change effects including the 2016 GHG Guidance.[47]

Regarding the use of Social Cost of Carbon or other monetized costs and benefits of GHGs, the 2016 GHG Guidance noted that NEPA does not require monetizing costs and benefits (CEQ 2016). It also noted that "the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations (Ibid)."

Section 5 of E.O. 13990 emphasized how important it is for federal agencies to "capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account" and established an Interagency Working Group on the Social Cost of Greenhouse Gases (the "IWG"; Executive Office of the President 2021a). In February of 2021, the IWG published *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990*(IWG, 2021b). This is an interim report that updated previous guidance from 2016.

In accordance with this direction, this subsection provides estimates of the monetary value of changes in GHG emissions that could result from selecting each alternative. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.

Environmental Consequences

This section focuses on comparing differences in GHG emissions and carbon sequestration across the range of alternatives. As noted in the Introduction section, in response to the direction in Executive Orders and the 2016 CEQ guidance, this EIS analyzes the greenhouse gas emission and carbon sequestration effects of the alternatives as a proxy for assessing effects on climate change.

Analytical Methods and Assumptions

The following analytical methods are used in the impact analysis below and vary by Issue.

Protection of Lands with Wilderness Characteristics (Issue 1)

The environmental consequences of protecting wilderness characteristics on production of GHGs and carbon sequestration are analyzed through a qualitative analysis of the restrictions on future development and by recognizing the acres in which future mechanized equipment and treatment methods would be modified to meet protection objectives.

[46] 86 FR 10252 (February 19, 2021).
[47] Ibid.

Off-highway Vehicle Area Designations (Issue 2)

BLM has estimated GHG emissions generated from current OHV activity in the planning area for both OHV use and for the support vehicles transporting OHVs and their users to the planning area.

Information on trends was also generated to consider future OHV use and associated GHG emissions among the alternatives. While BLM can provide quantitative estimates regarding current OHV use, the discussion of the differences in GHG emissions among the alternatives is also presented from a qualitative standpoint because estimating changes in OHV use in response to variations in OHV area designations among the alternatives depends on individual OHV user preferences and responses to OHV area designations which are beyond BLM's ability to quantitatively predict.

The dominant OHV use in the planning area is trail riding on existing roads and primitive routes. While there are isolated areas where both concentrated off-route OHV activity and dispersed cross-country resource impacts, most OHV use is trail riding due to desired challenges, terrain and vegetation constraints, distance from services and targeted access to recreational attractions (e.g., sightseeing, hiking, and hunting). The BLM utilized multiple sets of information to compare results and identify potential GHG estimates of OHV activity used in the analysis.

The first estimates of GHG emissions from OHV use in the planning area are based on OHV permits from the Oregon Parks and Recreation Department (OPRD 2021) which indicate there are 6,114 currently active ATV permits in the four southeastern Oregon counties (Malheur, Baker, Grant, and Harney counties), with a third of the permits (2,038) held by residents of Malheur County. Assuming that not all 6,114 ATV permit holders would visit Malheur County in a given year; assuming that users make one to three trips per year, the BLM counted all permit holders for Malheur County (2,038) and added an additional 25% (1,029) of users in the neighboring counties as feasibly coming from Baker, Grant, or Harney County to visit the planning area. If these 3,057 users visited an average of 3–4 visits, for one day each time, these users would account for between 9,171–12,228 OHV visits per year. However, if these users visited an average of 3-4 visits per year and stayed an average of three visitor days, about 23,513–36,684 OHV visits could occur (see Recreation section 3.7.15 for additional detail). This range of OHV user days estimate is solely based on OPRD estimates and the BLM considers these figures as the low level of OHV use in the planning area, for the following reasons.

While some OHV users are focused on sightseeing and long-distance travel, the average OHV use is estimated to be between 5–20 miles a day, based on fuel consumption (OPRD, 2020; also, see section 3.7.14 Recreation) and common activities like scouting for game, OHV use from remote camping sites, and local users out for day trips. The estimated pounds of CO_2e generated by the consumption of one gallon of gasoline is 19.64 pounds; in general, estimates of CO_2e are reported in metric tons. Using average industry standard estimates of fuel consumption by Class I-IV of 17 miles per gallon (mpg), the average gallons per year of fuel consumed by OHVs in the planning area would generate between 61.59–384.4 Metric tons of CO_2e.

A related impact on GHG emissions is the fuel consumption to transport OHVs (generally not street legal) to where the OHV activities begin. The BLM estimates that the average OHV user travels from their "base" location (whether camping by non-residents, or from the "drop-off" point for residents traveling from home to begin OHV activities) between 20 and 60 miles. Precise travel days to engage in OHV activities are not available; the following estimates are used to calculate fuel consumption and CO_2e emissions for traveling from home to OHV uses. On average, local OHV users are estimated to travel an average of 20 miles round trip to OHV activities, while non-local visitors are willing to drive approximately 60 miles (120 miles round-trip) from home for a day trip and more than 60 miles for multiday trips (Lindberg, 2015). The average multi-day trip length is three days. Fuel consumption in this analysis assumes that transport vehicle fuel efficiency is 14 mpg.

Based on all-terrain vehicle (ATV) permit sales, fuel consumption estimates, ODFW hunting tag sales (commonly associated with OHV use), and available public land vehicle/camping records, there are an estimated 71,721 visitor user days, per year by OHV participants to Malheur and Harney Counties (Lindberg, 2015). OPRD's numbers estimate that there are 2,038 local users and approximately 1,029 non-local users; local users traveling an average of 20 miles/day with OHV transport vehicles would generate approximately 25.9 metric tons of CO_2e. Non-resident OHV users would generate an estimated 77.8 metric tons of CO_2e. The total estimated metric tons of CO_2e generated solely by transporting OHVs to reach a destination to begin OHV activities would be 103.7.

The BLM also estimated GHG emissions from OHV use in the planning area that incorporates different, know types of OHV-related activities. The following reports provide information from which annual OHV user estimates can be calculated: Oregon Parks and Recreation Department OHV permit sales (2009–2020); the 2015 Lindberg Oregon Off-highway Vehicle (OHV) Participation and Priorities Study; and the 2019 Oregon Department of Fish and Wildlife hunting reports. Because OPRD's estimates are solely based on fuel consumption averages of users in the four Oregon county area including and adjacent to the planning area, the BLM considered modifications to the above calculations to incorporate: more distant travels from outside the area and the State of Oregon; hunting users and parties that often include multiple ATVs in the OHV use; and to reflect use that may not be otherwise represented by OPRD's permit estimates. Also, because annual fluctuations in use vary by weather, organized trips with larger numbers of participants, and desirable OHV experiences, the BLM estimates that the average annual user days within the Southeastern Oregon planning area per year to be between 23,513–84,470 OHV user days per year. This range of OHV activity is estimated to contribute between 61.6 and 885.1 metric tons of CO_2e per year. Using the same estimates of CO_2e generated by transport (103.7 metric tons CO_2e) vehicles hauling ATVs as noted above, this range of OHV-related activities is estimated to generate between 139.4 and 962.9 metric tons of CO_2e. The normal season of OHV use in the planning area is from Spring through Fall (6–8 months).

BLM assumes that there would be a reduction in OHV use in locations where area designations are changed to OHV Closed (Alternative B); however, OHV users may: shift use to other available areas in the planning area or elsewhere; adapt to OHV use being wholly on the remaining road and primitive route network; or discontinue OHV activities. In areas where OHV Open area designations are changed to Limited (to existing roads and primitive routes), there would be a shift of use from cross-country motorized activities, but users may likewise change their OHV use patterns or relocate to other areas, resulting in little to no overall reduction in production of GHG emissions. For these reasons, the BLM compares the impact of changing OHV area designations from a qualitative standpoint.

BLM does not estimate the relative impact on GHG emissions among the alternative below but recognizes that benefits may accrue in localized areas within the planning area. Nor does BLM speculate on the number of users that may discontinue their OHV activities in the planning area.

It is expected that there would be more carbon sequestration over time from a reduction of OHV activity where OHV area designations shift from either open to closed and open to limited. This improvement would occur as vegetation recovers from cross country disturbance and as existing routes rehabilitate. BLM acknowledges this potential benefit to climate but does not quantitatively estimate where this happens or over what length of time.

Unauthorized cross-country motorized activities may occur where OHV areas are designated as closed or limited to existing routes in the planning area. The BLM recognizes this problem and continues to monitor and enforce appropriate use; however, for the purposes of this analysis the BLM does not speculate about the level of unauthorized use or resulting GHG production.

Livestock Grazing (Issue 3)

Impacts on carbon sequestration could occur from changes in grazing levels when vegetation is negatively impacted, such as areas of concentrated use by livestock. This would largely occur along trailing routes, loafing areas, and at water sources (principally near developed sites). The BLM acknowledges a potential benefit as a result of reductions in grazing on carbon sequestration but does not attempt to quantify the discrete areas or where vegetation disturbance has occurred as a result of livestock grazing.

Nor does the BLM speculate on the percentage of livestock that could be relocated to other non-BLM administered areas, which is a potential outcome. The BLM recognizes that, if a permitted area on public land were made unavailable to grazing, a permittee may reduce the size of his/her herd, find forage on/near their base property (see Section 3.7.3), or shift to other available locations within or outside of the planning area.

The impacts from changes in AUMs among the alternatives on GHG emissions (methane) from livestock grazing is analyzed using the IPCC's 2006 estimates to derive metric tons of CO_2e. Estimates of annual production of methane from cattle per animal vary from between 154 and 264 pounds of methane (CH_4). Using this estimated range, the 423,672 authorized AUMs would generate a total estimated range of between 2,466 and 4,228 metric tons (5,437,124 and 9,320,784 lbs.) of CH_4. The EPA (EPA 2019) estimates that the CO_2e equivalent of methane is 25 times the level of CO_2e, or between 61,650 and 105,700 metric tons of CO_2 equivalent produced by the 423,672 AUMs.

As a further validation of these ranges, the University of California at Davis (https://www.ucdavis.edu/food/news/making-cattle-more-sustainable; Quinton 2019) estimated that each year a single cow will produce 220 pounds of CH_4 or approximately 18.3 pounds per month. Using this figure, it is estimated that the 423,672 AUMs would produce an estimated 3,523 metric tons of CH_4. Using the referenced EPA conversion factor that CH_4 has an equivalent CO_2 impact of 25 times CH_4, this results in 88,075 metric tons of CO_2e (falling within the estimated range reported above).

The analysis of environmental consequences below uses the U.C. Davis figure for CO_2e for comparison of impacts among the alternatives. The calculations apply both in instances where AUMs change as a result of Standards for Rangeland Health not being met due to existing livestock grazing and as a result of a voluntarily relinquished grazing permit.

Social Costs of Greenhouse Gases

For Federal agencies, the best currently available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide (SC-CO_2), methane (SC-CH_4), and nitrous oxide (SC-N_2O) developed by the Interagency Working Group (IWG) on the SC-GHG. Select estimates are published in the Technical Support Document (IWG 2021b) and the complete set of annual estimates are available on the Office of Management and Budget's "Legal Matters" website (IWG 2021a).

The IWG's SC-GHG estimates are based on complex models describing how GHG emissions affect global temperatures, sea level rise, and other biophysical processes; how these changes affect society through, for example, agricultural, health, or other effects; and monetary estimates of the market and nonmarket values of these effects. One key parameter in the models is the discount rate, which is used to estimate the present value of the stream of future damages associated with emissions in a particular year. A higher discount rate assumes that future benefits or costs are more heavily discounted than benefits or costs occurring in the present (i.e., future benefits or costs are a less significant factor in present-day decisions). The current set of interim estimates of SC-GHG have been developed using three different annual discount rates: 2.5%, 3%, and 5% (IWG 2021b).

As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human

behavior, future population growth and economic changes, and potential adaptation (IWG 2021b). To better understand and communicate the quantifiable uncertainty, the IWG method generates several thousand estimates of the social cost for a specific gas, emitted in a specific year, with a specific discount rate. These estimates create a frequency distribution based on different values for key uncertain climate model parameters. The shape and characteristics of that frequency distribution demonstrate the magnitude of uncertainty relative to the average or expected outcome.

To further address uncertainty, the IWG recommends reporting four SC-GHG estimates in any analysis. Three of the SC-GHG estimates reflect the average damages from the multiple simulations at each of the three discount rates. The fourth value represents higher-than-expected economic impacts from climate change. Specifically, it represents the 95th percentile of damages estimated, applying a 3% annual discount rate for future economic effects. This is a low probability, but high damage scenario, and represents an upper bound of damages within the 3% discount rate model. The SC-GHG estimates for livestock grazing under Issue 3 below (see Table 3-56) follow the IWG recommendations.

Indicators

The following indicators are used to provide analytical comparison among the alternatives:

Indicators for Carbon Sequestration

Lands with wilderness characteristics (Issue 1)

Acres prioritized for protection of wilderness characteristics

Off-highway Vehicles (Issue 2)

Acres Open, Limited, or Closed to OHV use

Livestock Grazing (Issue 3)

- Acres of livestock grazing that would become unavailable to grazing (Issue 3b)
- Range of AUMs by alternative (Issue 3)

Indicators for Greenhouse Gas Emissions

Off-Highway Vehicles (Issue 2)

- Change in estimated number of OHV participants in the planning area
- Change in miles of routes that would be available for OHV use
- Change in OHV use patterns that may occur under the alternatives

Livestock Grazing (Issue 3)

Levels of authorized livestock grazing (AUMs)

Issue 1

How would greenhouse gas emissions and carbon sequestration be affected by BLM management actions that would prioritize protection of lands with wilderness characteristics?

The primary benefits to the climate from protection of wilderness characteristics would be as a result of restricting future mechanized (i.e., GHG-emitting) ground disturbing activities. Carbon sequestration

would be highest where undisturbed, properly functioning vegetative communities and soils maximize their site potential of an area. The level of long-term carbon sequestration benefits would depend on the ecologic condition of the area at the point after which management to protect the wilderness characteristics resource began. Prioritized protection of lands with wilderness characteristics can also increase carbon sequestration and reduce greenhouse gas emissions by limiting future development activity and use of motorized equipment within these areas.

Carbon Sequestration

Protecting an area for its wilderness characteristics has the potential to increase carbon sequestration over the long term. As in unprotected areas, the level of carbon sequestration would depend on the current condition of the vegetation community and the vegetative site potential and associated soils. Intact and healthy vegetative communities have greater capacity to sequester carbon (Austreng, A.C. 2012; Appendix H, BLM 2015d). Vegetative community types also uniquely differ in their ability to sequester carbon. For example, forest and juniper-dominated communities are associated with a greater carbon sequestration capacity than grasslands (due largely to the woody biomass potential to sequester carbon). Within species, there is additional variability of carbon sequestration capacity; as noted in the Affected Environment section above, annual grasses store carbon at roughly 50% of perennial grasslands. For instance, of the 76 wilderness characteristics units, 6.4% have systems that have largely been converted to invasive annual grass-dominance (Category 6). Most wilderness characteristics units totaling 76.2%, are at risk of conversion (Category 5).

Due to the variability of site potential and vegetation communities among the 76 lands with wilderness characteristics units and those prioritized for protection among the alternatives, the analysis that follows provides only a qualitative comparison of the alternatives.

In both properly functioning systems and in degraded communities with high resistance/resilience within protected wilderness characteristics units, vegetation treatments and actions with surface-disturbing footprints would be designed to protect or enhance wilderness characteristics and meet VRM Class II objectives. While modified designs of certain treatments - like juniper reduction and drill seedings -would be implemented to protect wilderness characteristics, there are tradeoffs. As discussed in section 3.7.9 Fire and Fuels Management, among others, constraints on restoration and rehabilitation treatment methods in can result in less ideal treatment effectiveness for some treatment types. Modified juniper reduction treatments can add more than $200/acre to treatment costs. Broadcast seeding treatment require double the seed volume than drill seeding and are improved with supplemental treatments. These modified treatment methods would still be expected to achieve resource objectives, but can reduce acres treated and effectiveness, or disrupt treatment scheduling and/or delay meeting objectives, and thus reduce or delay potential benefits to carbon sequestration.

Adapting treatments to resource conditions and management direction can also lead to prioritizing treatments on areas where the highest level of restoration or rehabilitation benefit can be achieved. Similar treatment conditions in areas within and outside of protected units can lead to decisions to conduct certain treatments on lands where additional design features are not required, and thus implement treatments on more acres overall.

Table 3-55 provides the distribution of acres of resistance and resilience categories in protected lands with wilderness characteristics by alternative. As discussed in section 3.7.6 General Vegetation, areas in low and moderate resistance and resilience categories are typically targeted by BLM for restoration or rehabilitation treatments; depending on resource threats or disturbance level, high resistance and resilience categories are more likely to recover without certain treatments, like seedings.

Table 3-55. Acres of Resistance and Resilience (R&R) categories by alternative in protected lands with wilderness characteristics units.

Alternative	Area (Acres) of High R&R in Protected Units	Percent of Protected Wilderness Characteristics Units in High R&R	Area (Acres) of Moderate R&R in Protected Units	Percent of Protected Wilderness Characteristics Units in Moderate R&R	Area (Acres) of Low R&R in Protected Units	Percent of Protected Wilderness Characteristics Units in Low R&R
PRMPA	23,719	25%	21,871	23%	50,532	53%
No Action	194,439	16%	175,632	14%	867194	70%
Alternative A	0		0		0	
Alternative B	190,163	16%	172,326	14%	845,019	70%
Alternative C	46,114	28%	35,728	21%	85,588	51%
Alternative D	54,772	13%	69,870	17%	292,675	70%

As Table 3-55 suggests, restoration and rehabilitation needs can be identified in many, if not all, wilderness characteristics units. The distribution of high/moderate/low resistance and resilience categories is similar across the planning area as a whole. The type of restoration/rehabilitation treatment depends on the area; priority treatments would be tailored to the site conditions but would focus on areas where opportunities for the highest level of treatment success is anticipated. Treatments in protected wilderness characteristics units may require additional designs to meet both restoration and rehabilitation objectives and protect those characteristics.

The distribution of resistance and resilience in each wilderness characteristics unit was integral in the development of Alternatives C and D, and was incorporated into the process to identify units for protection in those alternatives. Alternative C (see Appendix C, Methodologies) incorporated resistance and resilience categories, as well as and known potential restoration needs, into the identification of units for prioritized protection of their wilderness characteristics. Alternative D specifically considered vegetative condition and hydrologic function more broadly, assigning a rating to each criterion for each wilderness characteristics unit. Under both alternatives, BLM would implement restoration or rehabilitation actions that would meet resource objectives; in protected units, these management actions would be designed to prioritize wilderness characteristics and to meet VRM Class II objectives.

The BLM cannot predict where rehabilitation needs may be necessary following disturbance such as wildfire and has not projected future opportunities for restoration actions (beyond those identified in Table 3-1 Reasonably foreseeable future actions); nonetheless, as resources become available, priorities across the planning area will be identified for potential treatments, including in protected wilderness characteristics units. Table 3-55 indicates that under all alternatives, there are restoration needs both in and outside of (protected and unprotected) wilderness characteristics units.

There can also be a cost as a result of both the additional time in developing modified treatment designs to protect wilderness characteristics and limitations on the area that would be treated with limited funding and staffing. For example, following both the 2018 Bowden Hills fire and 2013 Owyhee fire, the BLM considered a range of treatments to rehabilitate areas impacted by wildfire. BLM concluded that, to meet

the terms of the 2010 Settlement Agreement to protect the affected wilderness characteristics units (as well as to avoid impacts to WSAs and cultural resources) that broadcast seeding treatments were preferred to expedite vegetative recovery, notwithstanding that recommended seeding rates (pounds per acre) for broadcast seeding is twice that of (on the ground) drill seeding. The associated cost of seed likewise doubled, with a lower potential for seeding success due to seed not being incorporated into the soil.

As more fully described in Section 3.7.9, following the 2012 Long Draw fire, where over 60,000 acres were identified for seeding, modified (depth bands retrofitted on) rangeland drills and unmodified (full depth) drills were used within wilderness characteristics units and outside of these units, respectively. Unmodified drill seeding treatments met objectives (of two or more deep rooted perennial grass plants per square meter) at nearly double the rate outside of protected units as in protected units. Modified drill seedings in protected units produced a 39% seeding success rate, while unmodified seeding treatment areas resulted in 76% success rate. Although modified treatments in protected units may provide a somewhat lower level of, or delayed benefit to the climate, it is expected that treatments in all areas would benefit climate in the long term.

Overall, the No Action Alternative (all 76 units and 1,236,907 acres) and Alternative B (76 units and 1,206,780 acres) would provide the greatest benefit to carbon sequestration as a result of protecting wilderness characteristics, due to appropriate design features to avoid or minimize impacts to protected wilderness characteristics from ground disturbing activities that could disturb vegetation or result in visual contrasts on the landscape. Alternative D (33 units, 417,196 acres), followed by Alternatives C (27 units and 167,709 acres) and the PRMPA (33 units, 417,196 acres) would provide the same contribution to in their respective protected units as Alternative B. Alternative A would provide no additional land use planning level protections and would not provide additional benefits to carbon sequestration.

Protection of wilderness characteristics is expected to have a benefit to climate due to restrictions on development that would otherwise degrade the wilderness characteristic resource. Development activities, such as new road construction, certain types of surface disturbing activities (e.g., leasable mineral development or major rights way), and other substantially noticeable extractive uses would not be allowed.

Greenhouse Gases

Reductions in GHG emissions in areas prioritized for protection of wilderness characteristics would occur as a result of limitations on mechanized activities and restrictions on future development within these protected areas. Management actions on lands prioritized for other multiple uses are expected to continue as under the No Action Alternative; restoration and rehabilitation actions would be designed to emphasize improving ecologic conditions under current best management practices.

No Action Alternative

The No Action Alternative would continue to protect all units and acres found to possess wilderness characteristics. Restrictions of actions in protected units would be carried forward from the 2010 Settlement Agreement to maintain wilderness characteristics in all 76 units (1,236,907 acres). This management is expected to benefit GHG reductions as a result of restrictions on future development and certain mechanized/motorized restoration and rehabilitation actions. The No Action Alternative would protect all wilderness characteristics units and thus would have the greatest potential for reductions in new GHG contributions resulting from management actions designed to retain wilderness characteristics.

Alternative A

Alternative A would not implement new land use planning level protections for lands with wilderness characteristics. The current level of GHG production could increase as a result of future development and

lack of specific land use planning protections of wilderness characteristics. GHG production in the planning area would depend on the type and level of mechanized restoration and rehabilitation actions that are proposed, and that may be utilized. Restoration actions under Alternative A to reestablish vegetative function in degraded areas would be implemented with no additional restrictions to maintain wilderness characteristics and, in the long term could provide added climate benefits in those areas where more flexible restoration treatments occur.

Alternative B

Alternative B would protect slightly fewer acres (1,206,780 acres in all 76 units, excluding 30,127 acres in the setbacks) than the No Action Alternative due to the establishment of boundary road setbacks. All future proposed restoration and rehabilitation actions would be required to meet the new objective for protection, which could result in reduced treatment effectiveness and/or number of acres treated (as described in section 3.7.7 Invasive Species and 3.7.9 Fires and Fuels Management, among others). Over the life of the plan, fewer acres are likely to receive surface-disturbing restoration treatments (approximately 70% of wilderness characteristics units are categorized as low resistance and resilience, as noted in Table 3-55); resulting in potentially lower levels of GHG production relative to Alternative A. Protection of these units would also result in restrictions from future development, further reducing potential GHG emissions. Alternative B would designate boundary road setbacks where they exist, which would provide flexible management responses to both staging and implementation of restoration activities and design measures along unit boundaries, while protecting the adjacent wilderness characteristics.

While the No Action Alternative provides the broadest level of protection of wilderness characteristics (under the 2010 Settlement Agreement), Alternative B would provide the highest level of land use planning-level, long term protections that may benefit GHG reductions among the alternatives.

Alternative C

Alternative C would protect 167,709 acres, excluding 5,714 acres in the setbacks in 27 units with wilderness characteristics. These protections, as described above under Alternative B, would provide an overall benefit to the climate by reducing potential future development and limiting the types and methods of mechanized restoration and rehabilitation treatments, and would, in the long term, protect existing vegetative communities. As with the other alternatives that provide protections for wilderness characteristics, there are tradeoffs that may result in reduced treatment efficacy and acres treated. GHG production related to restrictions on future development or mechanized treatment actions is expected to be reduced, relative to Alternative A. The benefits to climate from these protections would be the same as described for protected wilderness characteristics units under Alternative B, but on fewer acres.

Alternative D

Alternative D would protect 33 units (417,196 acres, excluding 9,244 acres in the setbacks) for wilderness characteristics; a lower level than the No Action Alternative and Alternative B, but more than the other alternatives and the PRMPA. These protections, as described above, would provide an overall benefit to the climate by reducing potential future development and limiting the types and methods of mechanized restoration and rehabilitation treatments, and would, in the long term, protect existing vegetative communities. As with the other alternatives that provide protections for wilderness characteristics, there are tradeoffs that may result in reduced treatment efficacy and acres treated. GHG production related to mechanized treatment actions is expected to be reduced, relative to Alternative A. The benefits to reduction in GHG emissions under Alternative D from these protections would be the same as described for protected wilderness characteristics units under Alternative B and the No Action Alternative, but on fewer acres. The benefits would be greater than under Alternatives A and the PRMPA.

PRMPA

The PRMPA would protect 33 wilderness characteristics units (417,190 acres, excluding 9,247 acres in the setbacks). These protections would provide benefits from reductions in GHGs as described above under the No Action Alternatives and Alternatives B, C and D in the 33 protected units where exclusion of future industrial development, and limitations on certain mechanized/motorized restoration and rehabilitation treatments would be implemented, but on fewer acres. The PRMPA would benefit reductions in GHG emissions to a greater extent than Alternative A and C, and to the same extent as Alternative D as a result of management actions prioritizing protection of wilderness characteristics.

Issue 2

How would GHG emissions and carbon sequestration be affected by changes in OHV area designations across the planning area?

A reduction in OHV open areas, could result in a reduction in OHV use in the planning area, and potentially an overall reduction in overall use. Some OHV users may travel to other locations beyond the planning area to recreate and others may simply use their OHVs less. An estimate of users that would discontinue OHV due to OHV area allocations was not made; the comparison of alternatives is qualitative. An estimate of discontinued use across 4.6 million acres of public land, particularly given the relatively low level of OHV use, could not be developed without being largely speculative.

The BLM estimated the average number of users over the year based on OHV permits, hunting permits and common hunting party size, and population trends. Many OHV users identified hunting and fishing as a primary reason for their OHV use; closing areas and routes may have the effect of limiting such uses, thereby contributing to some reduction in use. Under such a scenario, OHV-related GHG emissions produced by OHV activities in the planning area may be redirected elsewhere.

Historically, the planning area has not been a preferred destination for off-highway, cross-country vehicle use. Incidental observations have noted limited but concentrated OHV use and impacts at various locations in the planning area, including at the Oregon/Idaho front range of the Owyhee mountains, and in the vicinity of Lake Owyhee. Overall, as the popularity of OHV use continues to grow, coupled with regional population growth trends, the planning area is expected to see an increase in OHV use over the long-term.

It is difficult to predict whether there would be a continuation of current levels, or a reduction of OHV use (and associated GHG production) in the planning area as a result of changes to OHV area designations; however, there would be a discernable difference in certain areas with more limiting OHV area designations among the alternatives. In particular, Alternative B would eliminate the areas open to cross-country motorized travel, and thereby, have the effect of reducing GHG emissions produced. This alternative could counterbalance the effect from the increased growth in population and OHV use by imposing constraints to OHV use. Under the No Action Alternative and Alternative A, the current levels of OHV use—in the context of overall annual growth of 1%—would maintain the existing levels of GHG emission from motorized recreational use.

OHV use also affects carbon sequestration through the removal and disturbance of vegetation and the removal and compaction of soils. Reducing the number of areas Open to OHV use will promote carbon sequestration. Areas that remain Open to OHV use exhibit more concentrated use. Where OHV use is restricted to existing roads and primitive routes, reductions in impacts to soils and vegetation are expected to improve carbon sequestration over the long term as vegetation recovers from previous OHV use and as existing routes revegetate.

No Action Alternative and Alternative A

Under the No Action and Alternative A, 92% of the planning area is designated as OHV Limited to existing roads and primitive routes, which prohibits cross-country OHV motorized activities. All motorized activities are restricted to the existing roads and primitive routes. GHG emissions from OHV use continues to be relatively low, as compared to destination OHV play areas in the region (e.g., Virtue Flat in Baker County, Oregon; Millican Play Area east of Bend, Oregon; Radar Hill outside of Burns, Oregon), and is largely limited to dispersed use (again, based largely near the existing route network).

GHG generation from OHV use in the remaining OHV Open areas (359,869 acres) would continue at current levels. Currently, these areas do not experience high levels of concentrated OHV use.

Generation of GHGs from OHV use under the No Action Alternative and Alternative A typically represents single users or small groups dispersed across the planning area. There are few organized OHV events in the planning area. As discussed in the Affected Environment section above, most OHV use in the planning area occurs on the existing road and primitive route network and this trend is expected to continue.

Alternative B

Alternative B would result in the greatest potential reduction in areas that are available to OHV use. Alternative B would designate approximately 2,498,003 acres as to Closed OHV use (this would be in addition to the acres that are already identified as closed by the 2002 SEORMP). GHG emissions and negative impacts to carbon sequestration of soils and vegetation from OHV use would be the lowest in these closed areas. All 76 wilderness characteristics units (1,206,780 acres, excluding boundary road setbacks) and WSAs (1,274,101 acres) would be closed to OHV use. Boundary roads and roads that have been constructed and are otherwise receiving regular and continuous use would continue to be available to OHV use. The total OHV area closures under this alternative would account for approximately half the planning area (2,513,842 acres). This would result in no production of GHG emissions from OHV motorized use in these areas. With the OHV area closures, it is expected that OHV use would cease or be relocated to other areas. This would result in a reduction in OHV activity in the closed areas and a corresponding net reduction in GHGs (CO_2 emissions) for those areas, relative to the No Action Alternative.

Under Alternative B, the remainder of the planning area (2,127,604 acres) would be designated as OHV Limited (including 325,686 acres that are currently OHV Open but are outside of lands with wilderness characteristics units), in which OHV use would be limited to existing roads and primitive routes. As described in section 3.7.15, OHV use in the planning area predominantly occurs on the existing road and primitive route network; the OHV area closures would likely result in increases in OHV activity along this existing network. The BLM anticipates that a limited reduction in overall OHV use may occur for users that are interested in short, cross country departures from the existing route network for specific purposes like game retrieval, scouting, or for exploring nearby elevated vistas or canyon rims. The BLM has not identified extensive levels of this type of short duration or short-distance travel activity; this type of use is not considered in the analysis. Overall, there would be either a continuation of existing GHG emission levels from OHV use or a limited decrease across the planning area as user levels continue, or shift to on-route use; move to other neighboring areas, or discontinue or decrease their current levels and types of use. A potential reduction in overall OHV use within the planning area would be greatest under Alternative B, but the level at which this may occur would be speculative.

Alternative B could result in a negative effect to the climate because, as primitive routes revegetate naturally, they would become less passable, reducing the BLM's ability to conduct Early Detection and Rapid Response surveys and treatment of invasive species (see section 3.7.7). This could have a negative impact to climate where invasive species are not identified proactively and expand their range, resulting in a reduction of carbon sequestration benefits compared to desirable plant communities. Conversely,

transport of invasive species via OHVs would result in the greatest reduction among the alternatives as a result of OHV area designations, where wilderness characteristics units are closed to OHV and all other lands not currently closed to OHV would become limited to existing roads and primitive routes. However, as discussed in section 3.7.7, this benefit may be limited because invasive species seed transport primarily occurs along developed routes, based on BLM EDRR experience.

Overall, the OHV area closures under Alternative B would have the greatest benefit to carbon sequestration and reductions in GHGs due to the greatest potential reduction in OHV use, albeit limited, and as roads receive less maintenance and primitive routes receive lower levels of use, the routes are expected to revegetate and provide greater carbon sequestration benefits.

Alternative C

Alternative C would designate 252,794 acres of currently OHV Open areas under the No Action Alternative as OHV Limited. As a result, a total of 4,518,539 acres (97.4%) of the planning area would be managed as OHV use limited to existing roads and primitive routes. 107,075 acres (2.3%) would remain open to OHV use, while the current 15,829 acres would remain closed to OHV activities.

Alternative C would have a beneficial effect on carbon sequestration by reducing the amount of open OHV areas; thereby reducing direct impacts to vegetation and soils. As with Alternative B in the OHV limited areas, there is a benefit to carbon sequestration by continuing to enable EDRR monitoring and treatments of invasive species. There may be a reduction of GHG emissions relative to the No Action Alternative and Alternatives A and D, but the level of reduction is not estimable. Alternative C would benefit climate from changes in OHV use more than the No Action Alternative and Alternatives A and D, but less than the PRMPA and Alternative B.

Alternative D

Alternative D would designate 34,183 acres of currently OHV Open areas under the No Action Alternative as OHV Limited; a total of 4,299,928 acres (92.6%) of the planning area would be managed as OHV use limited to existing roads and primitive routes. 325,686 acres (7%) would remain open to OHV use, while the current 15,829 acres would remain closed to OHV activities. Alternative D would have a beneficial effect on carbon sequestration by reducing the potential for negative impacts on soils and vegetation from motorized OHV use in areas that would be designated as Limited and were previously designated as Open to cross-country OHV use. The remaining OHV Open areas would continue to produce the same levels of climate impacts as under Alternative A and the No Action Alternative. Alternative D would provide more benefits to the climate from changes in OHV use than the No Action Alternative and Alternative A, but the benefits would be lower than under the PRMPA and Alternatives B and C.

PRMPA

The PRMPA would designate 319,501 acres of currently OHV Open areas under the No Action Alternative as OHV Limited; a total of 4,585,249 acres (98.8%) of the planning area would be managed as OHV use limited to existing roads and primitive routes. Two areas near Vale, Oregon (40,368 acres, 0.9%) would remain open to OHV use, while the current 15,829 acres that are closed to OHV use would remain closed. The PRMPA OHV area designations would have a beneficial effect on carbon sequestration by reducing the potential for negative impacts from motorized OHV use in areas that would be designated as Limited and were previously designated as Open to cross-country OHV use on soils and vegetation. The PRMPA would provide more benefits to the climate from changes in OHV use than all alternatives except Alternative B.

Issue 3

How would GHG emissions (methane) and carbon sequestration be affected by BLM management actions that would change livestock grazing (AUMs) in the planning area?

Changes in levels of livestock grazing (animal unit months (AUM)) in the planning area can impact the climate both by modifying soil function and vegetation and by the amount of methane produced. Direct negative impacts to carbon sequestration from livestock grazing can result from trampling, reducing, or removing vegetation, and by compacting soils and exposing soil surfaces. Indirect negative impacts can lead to increases in erosion and water temperature. No quantitative analysis in this section is made to estimate the area that is impacted by livestock grazing in terms of changes in carbon sequestration as a result of changes in the numbers of AUMs among the alternatives; however, a qualitative discussion on the effects on reductions in grazing on carbon sequestration is provided. The isolated impacts of livestock trailing and concentration of livestock at specific locations (e.g. loafing areas and water sources, principally those that are developed) represent a limited, focused impact that locally impact carbon sequestration, but is a negligible impact across the planning area in terms of climate impacts. Nonetheless, under well designed livestock grazing prescriptions, grazing can benefit carbon sequestration by reducing fine fuels that can lead to negative effects of wildfire; promote healthy rangelands by stimulating vegetative regrowth; and as pre-treatments for invasive plant treatments.

The greatest impact on climate from livestock grazing is as a result of the production of methane. GHG emissions are largely a result of methane produced and depend on the number of livestock. Additional GHG emissions resulting from motorized activities associated with livestock management (transport, pasture moves, etc.) would be reduced with corresponding decrease in AUMs but the degree to which those effects could be offset in other areas not administered by BLM is unknown.

The analysis of impacts resulting from changes in the levels of livestock grazing considers how climate is affected by differences in authorized AUMs. A complete understanding of the effects to climate associated with livestock grazing is limited without site-specific analysis of conditions on the ground and how those interact with and affect outcomes from changes in grazing. The BLM has a wide range of management options associated with livestock grazing that may have an impact on GHG emissions and carbon sequestration, including timing; seasons of use and forage utilization related to grazing management; restoration and rehabilitation treatments; and wildfire pre-planning and pre-positioning. Historic and recent wildfire in the planning area continues to pose the greatest threat to resources, including climate. Reductions in livestock grazing could have beneficial and negative impacts to rangeland health and functioning ecosystems and therefore on the climate.

The effect on carbon sequestration and the generation of CH4/CO_2e as a result of reducing livestock numbers (AUMs) in all, or parts of, a permitted area would be the same, regardless of whether the reductions were implemented due to Standards for Rangeland Health not being met due to existing livestock grazing (Issue 3a), or as a result of a voluntary permit relinquishment (Issue 3b) where that permitted grazing would occur in one of the specifically identified special areas (See Appendix A, Table A-2 for Settlement Agreement-identified special areas under Alternative B or Table A-4 for Alternative D).

Greenhouse Gases

The PRMPA, No Action Alternative and Alternatives A and C

There are a total of 423,672 AUMs allocated across 206 allotments in the planning area, generating approximately 88,075 metric carbon dioxide equivalents (CO2e) annually.

Under the PRMPA, No Action Alternative and Alternatives A and C, under current processes associated with Standards for Rangeland Health and processing a voluntarily relinquished permit, the contribution of

CO_2e is estimated to continue at current levels. Changes in CO_2e production would vary depending on future grazing management prescriptions, which could include reductions in grazing use.

Under the No Action Alternative, Alternatives A and C and the PRMPA, if Standards for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take action to make progress toward achieving Standards. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved — regardless of causal factor — BLM would consider taking action to make progress toward meeting Standards. Management actions that are designed and implemented to improve ecological function and condition. The PRMPA also proposes not increasing AUMs in areas where there is no Standards for Rangeland Health Assessment and Evaluation, or when an Assessment and Evaluation is no longer representative of current conditions. The additional management direction in the PRMPA is not expected to result in changes to estimated CO2 production levels when compared to the No Action Alternative and Alternatives A and C.

Alternative B

Alternative B would provide the highest level of potential CH_4/CO_2e reduction generated from livestock grazing in the planning area, due to the greatest potential reduction of AUMs. As analyzed in Section 3.7.3 Livestock Grazing and Rangeland Management, if at least one Standard were determined as not being met due to existing livestock grazing, the permit would be suspended for the life of the plan, resulting in a long-term reduction in permitted grazing. The reduction in AUMs under a given grazing permit would be between 4 and 14,160 AUMs in an individual allotment, or up to 20,960 AUMs when considering common allotments. The range of reductions of GHGs would be between 0.83 and 2,944 metric tons (up to 3.3% of total CO_2e produced by livestock in the planning area) metric tons $C0_2e$ annually for an individual allotment and between 0.83 to 4,357 (up to 4% of the CO_2e production overall) metric tons $C0_2e$ on an annual basis in a common allotment.

If a grazing permit is voluntarily relinquished under Alternative B and the permitted area overlaps a specially designated area (See Appendix A, Table A-2 for list of these areas), livestock forage would be allocated to the purpose of protecting the overlapping resource priorities. The area(s) would be designated as unavailable to livestock grazing for the duration of the amended RMP. The reduction in CH_4 would reflect the final area that is designated as unavailable to grazing. The range of reduction of AUMs under Alternative B would be between zero and 152,034 AUMs (0-94 permits overlaying the special areas), resulting in a potential reduction of CO_2e of between zero and 25,542 metric tons. This would represent up to a 36% reduction, relative to the No Action Alternative, in CH_4 from public land grazing in the planning area.

Alternative D

Depending on the mechanism that results in a change to grazing levels, Alternative D would result in similar levels of reduction in CO_2e production from livestock as Alternative B. If Standards for Rangeland Health are determined to not be achieved due to existing livestock grazing, the impact to CH_4 from livestock would be the same as under Alternative B, but that reduction would be of a shorter duration because the suspension of grazing would be for the term of the grazing permit (normally 10 years) or until the BLM determined that progress was being made toward achieving Standards. If a permit overlapping one of the Settlement Agreement-identified special areas (Appendix A, Table A-4) is voluntarily relinquished under Alternative D, the overlapping area would be designated as unavailable to grazing for the life of the amended area. After Alternative B, Alternative D would have the next highest potential to reduce CH_4 production from livestock, both in regard to the duration of the reduction, and for the geographic extent of the reduction.

Alternative D would result in a potential reduction of CO_2e with up to 65 allotments that overlap special areas which could become unavailable to grazing (see Table A-4, Appendix A) and a range of potential

reductions in AUMs of between zero and 69,929 AUMs. The range of reductions of GHGs would be between zero and 14,537 metric tons (up to 16.5% of total CO_2e produced by livestock in the planning area) metric tons $C0_2e$ for an individual allotment. No calculation of CO2e is made as a result of reductions in grazing due to permit relinquishment in common allotments. Common allotments could have a reduction in the allocation of AUMs as a result of an individual relinquishing a grazing permit, but livestock grazing would not be eliminated as an allocated use unless all parties in a common allotment or pasture also relinquished their permit(s). In common allotments, grazing would have the potential to be eliminated at the pasture scale only if an allotment management plan or its equivalent specified an individual area for each operator to use.

Carbon Sequestration

Livestock grazing has implications for carbon sequestration, both negative and positive (depending upon the livestock stocking rate and the condition, site potential and composition of vegetative communities). Carbon is stored in both vegetation (biomass) and soils, the latter accounting for between 75–90% of the total carbon sequestration potential. Therefore, both vegetation and soils constitute major carbon sinks for the storage (see "Affected Environment," discussion of *Carbon Sequestration*"). Livestock grazing can directly affect soils, vegetative health, species composition, and nutrient availability over the short-term and long term-term by consuming or disturbing vegetation, redistributing nutrients and seeds, trampling and compacting soils and vegetation, and disrupting microbial systems. Indirectly, this disturbance can lead to reduced soil-water infiltration rates, increases in erosion, and changes to vegetative composition (including conversion to less desirable species), which can have an impact on carbon sequestration.

No Action Alternative and Alternatives A and C

The PRMPA, No Action and Alternatives A and C would make no change to the current management options available for implementing management responses when Standards for Rangeland Health are not met due to existing livestock grazing, or the processes used when a grazing permit is voluntarily relinquished. Changes in livestock grazing management under current management can be implemented to offset negative impacts to carbon sequestration, where grazing is causing negative impacts to soil, vegetative and/or riparian functions. Under these alternatives, benefits to climate from increases in carbon sequestration would also depend on the ecologic condition of the permitted area. Areas that are in a degraded condition or with poor site potential (low resistance/resilience, including higher percentages of invasive species) may further deteriorate in the absence of livestock (see analysis of impacts for Issue 3 on resources in the Fish and Wildlife, General Vegetation, Forest and Woodland Management and Invasive Species sections, among others in this section 3.7).

Alternatives B and D

In areas where reductions in livestock grazing occur under Alternative B and D, there is the potential for reduced soil erosion, improved riparian health and vegetative condition and, therefore, enhanced carbon sequestration. Reductions in livestock grazing in an individual permitted area under Alternatives B and D would remove one stressor from the environment that may be contributing negatively to ecological functions of soils and vegetation. Regardless of management actions identified to address resource conditions in a permitted area, additional restoration actions may be necessary. Alternative B would reduce the stressors for a longer period than Alternative D due to the length of time that grazing would be suspended when Standards are not met. Reductions in grazing as a result of permit relinquishment under Alternatives B and D would have the same impact to carbon sequestration, but in a smaller area under Alternative D than in Alternative B (see Appendix A, Table A-2 for Alternative B and Table A-4 for Alternative D).

When landscapes have been impacted by invasive grasses, grazing prescriptions (seasons of use, duration, number of AUMs, etc.) can help control the spread of invasive vegetative species. This can be enhanced

by the addition of effective restoration efforts. In particular, grazing has been shown to benefit annual grasslands by reducing the intensity and size of wildfire (see Sections 3.7.7 and 3.7.9). Therefore, under Alternative B and D, there could be an increased potential for wildfire, resulting in a potential increase in CO_2 emissions.

Overall, the reduction of livestock grazing under Alternatives B and D may provide the greatest long-term benefits to increases in carbon sequestration through the natural recovery of some areas that no longer would have the additional stress caused by grazing. The effective benefit, however, is entirely dependent on current conditions including the site potential of the area and the duration of the removal of livestock.

PRMPA

Under the No Action Alternative, Alternatives A and C and the PRMPA, if Standards for Rangeland Health are not being met due to existing livestock grazing, the BLM is required to take action that would make progress toward achieving Standards. In addition, under the PRMPA, if Standard(s) for Rangeland Health are not being achieved—regardless of causal factor—BLM would consider taking action to make progress toward meeting Standards. Management actions that are designed and implemented to improve ecological function and condition could benefit carbon sequestration.

Like the No Action Alternative and Alternatives A and C, the PRMPA requires that NEPA analysis and a subsequent decision be issued to change a permitted area's forage allocation from livestock grazing to another resource or resource use when a voluntary permit relinquishment is received and grazing is found to be incompatible with other resources or resource uses. Unlike these alternatives, under the PRMPA, additional land use planning-level analysis and amendment would not be required. This difference could increase the speed with which potential benefits to carbon sequestration from the changed management could occur under the PRMPA when compared to the No Action Alternative and Alternatives A and C. The potential added beneficial impact would be less than those identified in both Alternatives B and D.

Social Costs of Greenhouse Gases from Livestock Grazing

The SC-GHGs associated with estimated emissions from grazing are shown below. These estimates represent the present value of future market and nonmarket costs associated with CH_4 emissions. The following table estimates methane production from grazing only because these were the only estimates for GHG where emissions were quantified. Carbon sequestration and the amounts and sources of methane and CO_2 described in the GHG section by alternative should also be considered in the decision, even though the Social Cost was not estimated. Some of these estimates (such as CO_2 emissions associated with wildland fires), are greater than methane emissions associated with grazing.

Estimates are calculated based on IWG estimates of social cost per metric ton of emissions for a given emissions year and BLM's estimates of emissions in each year. They are rounded to the nearest $1,000. They are presented by alternative, separately for the reductions anticipated for 1) Failure to meet one or more rangeland standard where grazing is a reason for the nonattainment; and 2) grazing permits that are voluntarily relinquished. Emission estimates from these two sources cannot be added together because they overlap and could result in double-counting. The numbers are estimates when considering common (not individual) allotments except where noted.

Table 3-56. Social cost of CH_4 emissions due to grazing.

Alternative and Proposed Grazing Action	CH4 metric tons produced annually	Present Value (in Base Year) of Estimated SC-CH4 for all CH_4 emissions, 2020 $)	Present Value (in Base Year) of Estimated SC-CH_4 for all CH_4 emissions, 2020 $)	Present Value (in Base Year) of Estimated SC-CH_4 for all CH_4 emissions, 2020 $)	Present Value (in Base Year) of Estimated SC-CH_4 for all CH_4 emissions, 2020 $)
		Average, 5%	Average, 3%	Average, 2.5%	95th Percentile, 3%
No-Action, PRMPA, Alt. A and Alt. C[a]	3,523	$42,791,516	$109,410,228	$147,696,425	$291,384,658
Alt. B (grazing standards only)[b]	3,349	$40,678,055	$104,006,487	$140,401,739	$276,993,250
Alt. B (permit relinquishment only)[c]	2,501	$30,377,968	$77,671,013	$104,850,627	$206,855,813
Alt. D (grazing standards only)[d]	2,942	$35,734,499	$91,366,702	$123,338,882	$243,330,589

[a] This is the estimated current level and is assumed to remain constant for the 20-year life of the plan. The GHG section notes that this level could change based on changes to grazing under existing management.
[b] This level of emissions is calculated based on the maximum amount of reduction under this alternative; in other words, it assumes that all permits overlaying the special areas will be subject to suspension for the life of the plan due to failure to meet standards due to grazing.
[c] This is the maximum number of permits that could be relinquished that overlap special areas.
[d] These estimates reported for maximum number of individual (not common) allotments that overlap special areas which could become unavailable to grazing.

Summary of Direct and Indirect Impacts on Carbon Sequestration and GHGs from Reductions in Grazing

Reductions in grazing in the planning area can reduce climate impacts by reducing CH_4 and improving levels of carbon sequestration; the latter particularly over time as properly functioning systems are restored. While the potential reductions in grazing levels would be greatest under Alternative B, followed by Alternative D, the overall benefits are directly tied to the condition of the soils and vegetation (and potential vegetation management/restoration methods) in a permitted area.

Cumulative Effects to Climate

Climate change is both impacting, and impacted by, ongoing actions in the planning area. As discussed in other resource sections in this chapter, the dominant effect of climate change on natural resources and uses in the planning area is overwhelmingly driven by trends of increasing intensity and scale of wildfire and by drought.

The impact of the alternatives and PRMPA on climate change, coupled with the wide variability of resource conditions and site potential influences the options available for potential management actions to benefit the climate, and varies the outcomes and overall success of those management actions. The analysis in this section considers the effects of the PRMPA and Alternatives in combination with past, present, and reasonably foreseeable future actions (RFA) that can affect climate. In combination, these actions may continue to affect greenhouse gas (GHG) emission and carbon sequestration levels in the planning area, which in turn may affect global climate.

The cumulative effects analysis area for climate change resulting from actions analyzed in this amendment encompasses the Southeastern Oregon Planning Area, southwest Idaho, northern Nevada. There are influences from actions or activities beyond the planning area were considered as they relate to population growth in the Oregon/Idaho Treasure Valley, livestock grazing in Nevada managed by the Vale District and OHV-related visitors originating from other areas of Oregon, and nearby Idaho and Nevada.

Effects of Ongoing and Reasonably Foreseeable Future Actions (RFFAs) in the Planning Area

Past and Present (Ongoing) Actions Impacting the Climate

Several ongoing (i.e., past, and present) actions and activities in the planning area continue to affect climate change (see list in Section 3.4). These ongoing actions and conditions in the planning area include effects from: mining activities; road construction and maintenance; livestock grazing and rangeland management; wildfire and wildfire suppression and post-fire rehabilitation activities; treatments to address invasive plants; vegetation restoration and protection activities; energy and communications development; rights-of-way maintenance and construction; urban growth and agricultural activities; fuels reduction on adjacent lands; geothermal and solar development in the planning area.

Livestock grazing and rangeland management continues to be authorized in most areas in the planning area. Livestock grazing continues to have some level of impact on plant communities and soils, thereby having the potential to reduce the capacity to store carbon (i.e., carbon sequestration). Livestock grazing prescriptions are tailored to resource conditions and can benefit carbon sequestration in cases where: grazing can reduce decadent vegetation and stimulate species growth and vigor; invasive weeds have encroached on native vegetation; and/or reduction of fine fuels that can contribute to fire frequency and intensity.

Vegetation and soils, together, serve as a carbon sink; however, carbon sequestration benefits are reduced following wildfires. Ground disturbing vegetation management (including juniper reduction) treatments may reduce vegetation, and thus carbon sequestration in the short-term, but generally convey longer-term carbon sequestration benefits if restoration objectives are met. Post-wildfire rehabilitation efforts can benefit the stability of soils by seeding of native and/or non-native vegetation, which more effectively sequesters carbon than invasive annual species that have the potential to outcompete desirable vegetation post-fire in low resistance and resilient ecological sites, or areas that may have otherwise been previously degraded. In all cases, restoration and rehabilitation treatment strategies are designed to the site potential; treatment effectiveness results vary across the planning area.

Fire and fuels management (i.e., proactive fuels reduction, wildfire suppression actions and post-fire rehabilitation) directly impact vegetation in the short-term by removing vegetation, including fuel reduction to ensure safety and reduce fire impacts. In the process, carbon sequestration potential is reduced. However, in the long term, these activities may prevent further loss of vegetation from wildfires. Ongoing emergency stabilization and rehabilitation projects are also intended to benefit vegetation health and function through minimizing soil erosion, reducing invasive plants, and increasing desirable perennial plant cover. This can have a net positive effect of increasing carbon sequestration. Fuels reduction treatments may decrease carbon sequestration in the short term, but with restoration objectives being met, and improved levels of carbon sequestration over the long term.

Minerals management, including mining and extraction continues to generate GHG emissions, primarily from operation of earthmoving mechanized equipment. Mining disturbs and, in many cases, denudes vegetation and topsoil, which reduces the affected area's capacity for carbon sequestration. Stipulations, best management practices and project designs typically are included as requirements for minimizing dust during, and site/vegetation rehabilitation following, operations.

Energy development and transmission line maintenance and construction typically involves some degree of landform alteration, which would adversely affect carbon sequestration capacity. All phases of energy development (construction, and operations and maintenance) would generate GHG emissions over the life of the project, to a greater or lesser degree.

BLM road maintenance is another ongoing activity in the planning area with the potential to impact climate, in regard to heavy equipment GHG emissions.

Reasonably Foreseeable Future Actions Affecting Climate Change

The reasonably foreseeable future actions (RFFA, identified in Table 3-1) that were analyzed for potential cumulative impacts on climate in the planning area include: Tri-State Fuels Management Project (Tri-State), Northwest Malheur County Greater Sage-Grouse Habitat Restoration (NW Malheur), Louse Canyon Geographic Management Area (LCGMA) Permit Renewal and Restoration, Boardman to Hemingway 500 kV Transmission Line, Grassy Mountain Mine, Octagon and Malheur Queen mines, and lithium exploration. Quantitative GHG emission calculations for these reasonably foreseeable actions have not yet been identified and, therefore, the analysis that follows is qualitative.

The Tri-State and NW Malheur projects would reduce carbon sequestration where fuel break vegetation biomass is reduced, and as a result of travel route maintenance to ensure fire responders can safely and efficiently respond to incidents. Fuel breaks are intended to limit the spread of wildfire. It is unknown, however, to what extent this added protection (compartmentalizing the areas to control fire size) would reduce the number of acres burned, there is a potential carbon sequestration benefit if the project is effective in meeting objectives. The acres potentially affected by the Tri-State project are approximately 26,000 acres of fuel breaks and maintenance of approximately 550 miles of existing travel routes. The NW Malheur fuel break project totals approximately 3200 acres (150 miles with up to a 150' fuel break on either side of existing routes.

The NW Malheur and LCGMA restoration projects would have short-term negative GHG and carbon sequestration effects on climate during implementation and until desirable vegetation becomes established. The restoration of vegetative communities is, however, expected to have long-term benefits associated with carbon sequestration. Combined, these projects have the potential to provide long-term carbon sequestration benefits on approximately 500,000 acres with the cumulative effects analysis area.

The Boardman to Hemingway Transmission Line would generate GHGs from the short-term increase in CO2 emissions resulting from construction of the access roads, tower pads, and staging areas, in addition to a reduction in carbon sequestration due to a loss of vegetation along the project's right-of-way. While these construction-related effects would be limited, continued maintenance of the access road would be

required and this activity would result in long-term GHG impacts, as well as impacts to carbon sequestration along the access corridor. The Boardman to Hemingway Transmission line accounts for approximately 3,000 acres of new right of way within the cumulative effects analysis area.

Grassy Mountain Mine would result in emissions of GHGs during both construction and operations for an expected period of ten years from project initiation, as well as direct and indirect impacts from soil and vegetation loses, and the temporary reduction in carbon sequestration capacity. The operational emissions would be long-term and thus contribute to climate impacts in the planning area. Construction-related vegetation losses would likely be temporary but the development of the 500-acre site, together with the access road would contribute to a loss in carbon sequestration capacity. Overall, this accounts for approximately 250 acres of the planning area.

The 10 acres of impacts to soils from the Notice-level lithium exploration and the 76.3 acres of disturbance estimated for the proposed lithium exploration across 9,160 acres from access routes, bore holes, and water storage would contribute to loss in the soil's carbon sequestration capacity. Exploration operations (such as the driving that would occur and the boring of holes) would contribute GHG production.

The Octagon and Malheur Queen mining operations are small in scale of disturbance and are reworking previously (historically) mined areas, but would contribute to GHG production through mechanical operations and loss of soil and surface vegetation services to sequester carbon until reclamation occurs.

The Northwest Malheur Mineral Material site project would implement up to six new and expansion of one existing rock source for use on travel routes. Materials would be placed on short term staging areas and placed on the existing travel routes. The material sites would total up to 280 acres of disturbed area. Heavy equipment would be used to access and crush material for gravel and transported and placed on the existing routes and staging areas.

In concert, these reasonably foreseeable actions will have both beneficial and negative impacts to climate. Restoration actions would have a beneficial effect on vegetation and soils to sequester carbon and thus benefit climate over the long term as desirable vegetative communities are established. These restoration actions also have indirect benefits by retaining soil moisture and enhancing soil surfaces and soil function which likewise benefit carbon sequestration. The short-term negative impacts of mechanized restoration activities during implementation would be offset by these long-term benefits. Development of fuel breaks in the NW Malheur Restoration and Tri-State projects will have a long-term negative impact due to the reduction of above ground vegetation available for carbon sequestration, but the BLM expects this impact to be limited, particularly as fuel break objectives to limit the negative impacts of catastrophic wildfire are achieved. The Boardman to Hemingway powerline project will have negative impacts to soils and vegetation during construction and through use and development of access routes for construction equipment. Heavy equipment will produce increased GHG emissions during this construction phase, and long term for maintenance purposes. There would also be long-term impacts at tower locations where soils and vegetation would be permanently disturbed. The Grassy Mountain mine proposes realignment of sections of the existing Twin Springs Road and would be widened to handle heavy equipment and increased vehicle traffic volumes, producing additional GHG emissions and reducing/impact carbon sequestration. The estimated 500 acre proposed mine and processing site would have long term negative impacts to carbon sequestration and would produce additional GHGs for the life of the project (estimated at ten years). The NW Malheur Material Site project will have short term negative impacts to climate during implementation from heavy mechanized equipment, blasting and crushing material, and at staging areas; there will be long term negative impacts to carbon sequestration at the developed material sites.

No Action Alternative

The effects of the RFFAs, when combined with the effects of ongoing actions, and the effects from the No Action Alternative, could result in both negative and beneficial effects to climate. The RFFAs that

include restoration and rehabilitation actions could have short term negative impacts to climate during implementation as a result of GHG emissions from mechanized equipment; these would be offset by long term benefits as desirable vegetation establish and soils recover and reestablish proper function.

Under the No Action Alternative, protection of all 76 lands with wilderness characteristics is expected to provide long-term positive benefits to carbon sequestration. In those units that have properly functioning ecosystems and high levels of resistance and resilience, restoration, and rehabilitation RFFAs would have a lower priority, as the BLM assumes that these areas are likely to recover naturally and would benefit carbon sequestration. In areas where there are low levels of resistance and resilience, including higher concentrations of invasive grasses, if coupled with successful restoration actions, a long-term benefit to carbon sequestration is expected to be achieved if objectives are met. In poorly functioning systems, protection of wilderness characteristics benefits to climate would still be realized, but at a lower level, and potentially on fewer acres given the need to maintain wilderness characteristics.

The fuel breaks projects are also expected to have negative impacts to carbon sequestration following mowing vegetation to reduce fuels and compartmentalize untreated areas. However, if fuel break objectives are met, the negative impacts of GHG production from catastrophic wildfire is anticipated to be reduced over the long term, and natural processes are expected to dominate in the untreated areas. For both restoration/rehabilitation and fuel break projects, there would be a short-term increase in GHG production during implementation from heavy equipment. Design features of any ground disturbing restoration or rehabilitation project located in lands with wilderness characteristics would be selected to maintain the wilderness characteristics; to do so, treatment methods may be modified and could result in a reduction in treatment effectiveness or in acres treated. While these management actions are expected to still be effective, the benefit to the climate could be reduced or delayed.

The NW Malheur Material Site, the Grassy Mountain, Octagon and Malheur Queen gold mines, lithium exploration, and Boardman to Hemingway powerline projects will all have short and long term impacts to the carbon sequestration by removal of surface material. The Grassy Mountain Gold, Octagon and Malheur Queen mines and the Boardman to Hemingway powerline projects would also have long term-effects on carbon sequestration and GHG emissions from the long-term site/facility development, and from operations and during construction. The material sites and mining and exploration projects like Grassy Mountain will have requirements to rehabilitate disturbed sites, but there will be long term impacts to carbon sequestration until reclamation is completed.

The OHV allocations under this Alternative have the overall effect of continuing the current level of OHV impacts to soils and vegetation where OHV use occurs off existing roads and primitive routes, negatively impacting the ability of soils and vegetation to sequester carbon. OHV area designations would not impact or be impacted by these reasonably foreseeable future projects because administrative actions in all OHV designation categories may be implemented; impacts from these actions has been or will be analyzed in step down environmental analyses.

The livestock grazing management direction of this alternative has this effect of continuing the current level of both localized impacts to soils and vegetation (and impacts to carbon sequestration) as livestock move and congregate, and the production of GHG emissions from livestock. Combined with the RFFAs, this alternative would continue these existing impacts to the climate.

Overall, the No Action Alternative, in combination with the effects from the RFFAs would have the greatest cumulative benefit to the climate as a result of maintenance of existing vegetation, modified restoration treatments and limitations on future development by continued protection of all wilderness characteristics units. However, the No Action Alternative would provide no additional benefits to the climate as a result of changes in OHV use or livestock grazing, in combination with the RFFAs.

Alternative A

Alternative A would not prioritize protection of any of the lands with wilderness characteristics and continue the current level of management flexibility among the alternatives in lands with wilderness characteristics but would maintain the current production of GHGs from OHVs and livestock grazing. In combination with the RFA restoration and rehabilitation projects, Alternative A would provide the broadest level of options to implement treatment methods that have been identified to be most effective on the greatest number of acres. These restoration and rehabilitation projects are expected to provide benefits to carbon sequestration in the long term by trending the areas toward properly functioning vegetation communities and improved soil function. In these projects, there would be a higher, short duration increase in GHG emissions among the alternatives by allowing unmodified equipment during implementation.

Impacts from Grassy Mountain, Octagon and Malheur Queen mines, lithium exploration projects, Northwest Malheur Material Site development, and the Boardman to Hemingway project to climate change would be the same as those identified under the No Action Alternative.

Alternative A would also maintain the current levels of impacts to climate from OHV activities and livestock grazing as those identified above in the No Action Alternative.

Alternative B

Alternative B would prioritize protection of all 76 wilderness characteristics units (excluding setbacks) in the planning area and would have similar effects from this action as the No Action Alternative. In combination with the RFFAs, and to meet the new objective to prioritize protection of wilderness characteristics in all units, there could be both beneficial and negative impacts, depending on the RFA. Restoration and rehabilitation RFA actions in the LCGMA and NW Malheur projects would provide long term benefits to carbon sequestration by restoring desirable vegetation and soil processes. The restoration actions would have short term negative impacts on the climate due to mechanical operations in the wilderness characteristics units where they occur but would have long term benefits to climate as restoration objectives are met. These actions may provide a lower level of, or delayed benefit to the climate than under Alternative A because modifications to certain treatments (like seedings and juniper reduction) to ensure protection of wilderness characteristics; however, it is expected that treatments in all areas would benefit climate in the long term.

The Grassy Mountain, Octagon and Malheur Queen gold mines, lithium exploration, NW Malheur Material Site and Boardman to Hemingway projects would avoid wilderness characteristics units but would have the same impacts to climate as described under the No Action Alternative.

The closure of OHV areas to motorized use (and the closure of primitive routes in those areas) under Alternative B may, over time as routes naturally rehabilitate, lead to a reduction in routes available to monitor and treat invasive species. As described in section 3.7.7 Invasive Species, this could lead to a reduction in proactive Early Detection and Rapid Response (EDRR) monitoring and treatments which could have a negative effect on carbon sequestration. However, administrative access to conduct invasive species monitoring and detection activities is authorized to achieve resource objectives. The OHV area closures, and limited area designations could impact access by mechanized equipment used in restoration and rehabilitation actions, which could result in a reduction in GHG emissions, but this would be very limited and effectively immeasurable. Nonetheless, the closed and limited OHV area designations, in conjunction with the restoration actions are expected to have the greatest long-term potential benefits to climate as these actions achieve objectives.

Alternative B has the highest potential reduction of livestock grazing among the alternatives as a result of either Standards for Rangeland Health not being achieved due to existing livestock grazing or where a grazing permit that is voluntarily relinquished overlaps one of the areas identified under the 2010

Settlement Agreement (see Table A-2, Appendix A). Restoration and rehabilitation actions are commonly associated with rest from grazing to allow early establishment of desirable vegetation; where reductions in grazing due to Standards not being achieved due to existing grazing or a permit is voluntarily relinquished, there would be an additional temporary reduction in grazing. The benefit to climate would depend on the condition of the rangelands in that area and the effectiveness of the treatments. The RFFAs, in combination with reductions in grazing are likely to provide added benefits to carbon sequestration over the long term where restoration and rehabilitation treatments overlap those grazing reductions. The mining and powerline RFFAs have already or will analyze impacts to climate as they relate to livestock grazing in future environmental analyses.

Alternative C

Alternative C would protect wilderness characteristics in 27 units (167,709 acres). As described above for all units protected under Alternative B, in the 27 units protected under Alternative C, restrictions on future development would have long term benefits to reductions in GHG emissions. Carbon sequestration would be similarly benefited as described under the No Action Alternative and Alternative B in units protected under Alternative C. Protection of wilderness characteristics in the 27 units, in conjunction with proposed fuel break and restoration actions would have short term negative impacts to carbon sequestration and GHG emissions during implementation and where ground disturbing actions occur, but are likely to improve the long term carbon sequestration as desirable vegetation establishes. Protection of wilderness characteristics will benefit carbon sequestration by reducing future development in protected units; the impacts from the RFFAs in conjunction with wilderness characteristics protection under Alternative C to carbon sequestration would be similar as those described under Alternative B. Benefits from the restoration and rehabilitation RFFAs to carbon sequestration in unprotected units may be greater where more flexible restoration actions may be more effective and facilitate implementation of these actions on more acres. In conjunction with the restoration RFFAs, benefits to carbon sequestration from protecting wilderness characteristics under Alternative C would be higher than Alternative A and the PRMPA, but lower than the other alternatives.

The Grassy Mountain, Octagon and Malheur Queen gold mines, lithium exploration, NW Malheur Material Site and Boardman to Hemingway projects are not proposed in wilderness characteristics units but would have the same impacts to climate as described under the No Action Alternative..

Alternative C would designate 252,794 acres of OHV Open under the No Action Alternative as OHV Limited, retaining 107,075 in eight areas as OHV Open. Roads and primitive routes would continue to be available for OHV use, as would cross-country travel in the remaining open areas. Public and administrative access to existing routes in limited and open areas would continue to be available. New areas designated as OHV Limited are likely to improve carbon sequestration over time as soils and vegetation recover from any existing disturbance.

Impacts from livestock grazing would be the same as the No Action Alternative described above; there would be no additional impacts to climate in consideration of the RFFAs than those described under the No Action alternative.

Alternative D

Alternative D would protect 33 wilderness characteristics (417,196 Acres). In those 33 units, restrictions on future development would have long term benefits to reductions in GHG emissions. Carbon sequestration would have similar benefits as described under the No Action Alternative and Alternative B in the 33 protected units. As with Alternative C, cumulative impacts as a result of reasonably foreseeable future actions would not cause additional negative long-term impacts to climate change where restoration and rehabilitation actions are proposed, if objectives are achieved. Also as described under Alternatives B and C, in the 33 protected units under Alternative D, where RFA restoration and rehabilitation actions

overlap the protected units, it is expected that there would be short term increases in GHG emissions during implementation as a result of the increase in use of heavy equipment. In the long term, it is likely that the restoration/rehabilitation actions would benefit carbon sequestration, although potentially reduced and/or delayed relative to those actions outside of protected units, where additional design features would be required to meet the new objective to protect or enhance wilderness characteristics and to meet VRM Class II standards.

Alternative D would designate all wilderness characteristics units and Wilderness Study Areas as OHV Limited, an increase of 34,183 acres over the No Action Alternative. Alternative D would retain 325,686 acres as open to OHV use. Combined with the restoration and rehabilitation RFFAs, Alternative D would benefit climate change by reducing the area that may be impacted by OHV use, but not as much as Alternatives B or C and the PRMPA. Administrative access would continue to be authorized and use of the existing route network would benefit climate by maintaining the ability to proactively identify and treat invasive species and to access areas with proposed treatments.

The Grassy Mountain Gold Mine, Octagon and Malheur Queen gold mines, lithium exploration, NW Malheur Material Site and Boardman to Hemingway projects would avoid wilderness characteristics units but would have the same impacts to climate as described under the No Action Alternative.

After Alternative B, Alternative D has the next highest potential for a reduction of livestock grazing among the alternative as a result of either Standards for Rangeland Health not being achieved due to existing livestock grazing or where a grazing permit that is voluntarily relinquished overlaps one of the areas identified under the 2010 Settlement Agreement (see Table A-4, Appendix A). Alternative D would suspend grazing if Standards for Rangeland Health were not met due to existing grazing, but for a shorter duration than under Alternative B, and would make livestock grazing unavailable if a permit was relinquished, but for a smaller area than Alternative B. As with Alternative B, benefits to climate from restoration or rehabilitation RFFAs would depend on current conditions and site potential, and whether additional designs would be required in the 33 protected units under this alternative. Benefits to carbon sequestration are expected to be achieved as desirable vegetation establishes and soils in degraded areas recover.

PRMPA

The PRMPA would protect 33 wilderness characteristics units (417,190 Acres). In those 33 units, restrictions on future development would have long term benefits to reductions in GHG emissions. Carbon sequestration would have similar benefits as described under the No Action Alternative and Alternative B in the 33 protected units. As with Alternatives B, C, and D cumulative impacts to climate from the RFFAs would benefit carbon sequestration where restoration and rehabilitation projects are implemented, but in protected wilderness characteristics units there would be a potential reduction of benefits as additional design features are necessary to maintain or enhance wilderness characteristics and to meet VRM Class II objectives. These restoration and rehabilitation RFFAs may meet objectives relatively faster in areas outside of protected units where additional designs to protect wilderness characteristics are not necessary. However, it is expected that treatments in all areas would benefit climate in the long term.

The fuels reduction and restoration projects would have short-term negative impacts to both GHG emissions and carbon sequestration during implementation but are expected to produce long-term GHG reductions and carbon sequestration benefits to the climate.

The Grassy Mountain Gold Mine, Octagon and Malheur Queen gold mines, lithium exploration, NW Malheur Material Site and Boardman to Hemingway projects would avoid wilderness characteristics units but would have the same impacts to climate as described under the No Action Alternative.

The PRMPA would designate an additional 319,501 acres of OHV Open area under the No Action Alternative as OHV Limited and would retain 40,368 acres designated as OHV Open. Carbon sequestration capacity is expected to improve in areas that are currently open to OHV under the No Action Alternative, but that are designated as OHV Limited under the PRMPA; this would occur as soils and vegetation that is has been disturbed by past OHV use rehabilitates. Primitive routes in the previously open areas would continue to be available for OHV use and administrative access to conduct management activities to achieve resource objectives. EDRR monitoring and treatments of invasive species along existing routes would continue and not be impacted.

Impacts from livestock grazing would be the same as the No Action Alternative described above; there would be no additional impacts to climate in consideration of the RFFAs than those described under the No Action alternative.

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Southeastern Oregon
Proposed Resource Management Plan Amendment
and Final Environmental Impact Statement

Chapter 4
Consultation and Coordination

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Chapter 4

4.1 Introduction

This chapter provides a brief summary of the public outreach and participation opportunities made available through the development of the Southeastern Oregon Resource Management Plan (SEORMP) Amendment/Environmental Impact Statement (EIS) and consultation and coordination efforts with tribes, government agencies, and other stakeholders. See Appendix H for additional details not presented in this chapter.

The SEORMP Amendment/EIS was prepared by the Interdisciplinary Team (IDT) from the Vale District and Oregon State Offices. The SEORMP Amendment/Draft EIS (DEIS) began in 2012 but was then delayed until after the completion of the Oregon Greater Sage-Grouse Record of Decision (ROD) in September 2015 (BLM 2015d).

From 2014–2018, the Southeast Oregon Resource Advisory Council (SEORAC, also referred to as RAC), at the BLM's request, undertook a process to make recommendations to the BLM on options for prioritizing management for lands with wilderness characteristics. The RAC recommended a process for assigning management priorities among the 76 wilderness characteristics units. The RAC further made recommendations on management allocations at the land use planning level for units selected to be managed to protect wilderness characteristics. Both products were considered by the IDT and BLM management in the development of the alternatives.

4.2 Public Participation

Public participation in the planning process began with publication of a "Notice of Intent" in the Federal Register (vol. 75, no. 67) on April 8, 2010, and distribution of a scoping notice to potential interested parties on May 12, 2010. The scoping notice—sent to approximately 350 individuals, organizations, and user groups—identified preliminary issues and topics to be addressed in the SEORMP Amendment/EIS and asked for public comment. The BLM received 36 letters or emails from 27 individuals, one federal agency, 11 organizations (three organizations sent one combined letter), and one user group.

The scoping process was the opportunity to identify concerns, needs, and management opportunities for the Bureau of Land Management (BLM) to consider during preparation of the SEORMP/EIS. For a summary of key public involvement, see Table H-1 in Appendix H. A summary of the scoping process and the feedback received was described in a Scoping Report that was published on October 1, 2012 (BLM 2012i). A copy of the Scoping Report can be found in the BLM's National NEPA Register under Documents and Reports: https://eplanning.blm.gov/eplanning-ui/project/87435/510.

4.3 Tribal Governments

A part of southeastern Oregon was ceded to the United States on October 1, 1863, by Western Shoshone bands. An Executive Order on March 14, 1871, temporarily withdrew much of the remainder of southeastern Oregon from non-Indian settlement. An executive order on September 12, 1872, established the 1.8-million-acre Malheur Reservation north and east of Burns, Oregon, opening the remainder of the region and portions of the planning area to non-Indian settlement. The reservation covered roughly the drainage basin of the South, Middle and North forks of the Malheur River (which included some of the northwest portion of the planning area in Malheur County, and portions of Grant and Harney Counties). The Malheur Reservation went through numerous geographic changes and was largely abandoned by the Northern Paiute in 1878 during hostilities. As a result, the reservation was terminated by executive orders in 1882–1883 and opened to settlement.

The Confederated Tribes of the Umatilla Indian Reservation have ceded land near the northernmost portions of the planning area. Similarly, the ceded land of the Confederated Tribes of Warm Springs lies to the northwest of the planning area. Treaty reserved rights, held by both governments, provide for tribal access to usual and accustomed areas for hunting and gathering on public land that lies outside of the ceded land.

Federally recognized tribes that lack ratified treaties but have current or potential interests in the planning area for traditional use values include the Burns Paiute Tribe (Oregon), the Fort McDermitt Paiute and Shoshone Tribes (Nevada), and the Duck Valley Shoshone-Paiute Tribe (Idaho and Nevada).

Local Tribes listed in this section, in general, desire to protect Indian burial grounds and archaeological sites, and seek to perpetuate traditional practices.

In 2010, consultation concerning the planning process was initiated with six federally recognized Tribes: Burns Paiute Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, and the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation. The Tribes were invited to identify any resources or properties of traditional religious and cultural importance to members of the Tribes that might be affected by the proposed management changes to the SEORMP.

The Tribes were also provided the opportunity to request government-to-government consultation and to discuss this project in greater detail. No tribes requested government to government consultation on this project during the 2010 scoping process.

In February 2018, consultation was reinitiated with five Tribes: Burns Paiute Tribe, Confederated Tribes of the Umatilla Indian Reservation, Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, and the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation.

In March 2018, the Burns Paiute Tribe requested and entered into government-to-government consultation for Section 106 compliance under the *National Historic Preservation Act* (NHPA) regarding the potential effects to the lands and resources within their aboriginal territory The Burns Paiute Tribe has developed an Aboriginal Territorial Protection Policy "to help preserve, and protect the past, present, and future elements of the Tribe's culture, and to satisfy the Tribe's goals for uniform standards and procedures applicable to all units of the Tribal government in responding to state and federal investigations involving cultural and archaeological site disturbance, disinterment, and other destructive activities within the Tribe's aboriginal territory" (Burns Paiute Indian Tribe, Aboriginal Territorial Protection Policy, Resolution No. 2006-12: Burns Paiute Tribe 2006).

The BLM will continue to coordinate, formally and informally, with interested tribes to allow for their continued involvement throughout the SEORMP amendment/EIS planning process. This includes sending copies of both the draft and proposed RMP amendment and the associated environmental analysis for their review and comment. Additionally, the Tribes will be allowed to comment during the 60-day governor's consistency review and 30-day appeal period.

4.4 Cooperating Agencies

A cooperating agency is any federal, state, or local government agency or Native American tribe that enters into a formal agreement with the lead federal agency to help develop an environmental analysis. The BLM entered into a formal memorandum of understanding (MOU; BLM 2018b) for the SEORMP Amendment/EIS with the US Fish and Wildlife Service (FWS) and the Oregon Department of Fish and Wildlife (ODFW).

4.5 FWS Section 7 Consultation

The USFWS administers the *Endangered Species Act* (ESA) of 1973 as amended. The BLM consults with the USFWS whenever a federal project or action could affect a listed species or its critical habitat. If a project may affect a listed species, the BLM initiates informal consultation. If a project is likely to adversely affect a listed species, formal consultation is initiated. The BLM prepared a biological evaluation regarding four species and conducted informal consultation with the USFWS. The USFWS concurred with the BLM determination on December 2, 2022, thereby completing Section 7 Consultation. See Appendix H.3 for details on the Informal consultation that the BLM and the USFWS conducted for the PRMPA.

4.6 State Historic Preservation Office Consultation

The BLM consults with the Oregon State Historic Preservation Office (SHPO) on proposed undertakings that may affect historic properties. The BLM also invites SHPO to participate in broader BLM management processes such as planning efforts per the BLM-SHPO State Protocol (BLM 2015d). Consultation for the RMP Amendment effort should follow Section III.A of the State Protocol. To date, the BLM has provided the SHPO a copy of the Draft EIS for their review and comment and will provide the SHPO with the PRMPA/Final EIS.

4.7 Coordination with Individuals and Groups

To facilitate communication between the BLM and interested individuals and groups, the BLM Vale District maintains an SEORMP Amendment mailing list and has periodically distributed newsletters providing information and soliciting public comment and will continue to do so. The BLM Vale District also occasionally holds public meetings or open houses to discuss issues with concerned citizens. A newsletter updating our progress on the SEORMP Amendment was sent to the mailing list in the summer of 2018 and in May of 2019 announcing the release of the SEORMP Amendment/DEIS.

During RMP development, BLM Management and RMP Project Leads have met with representatives of the following groups to discuss their particular interest in the issues of the SEORMP Amendment: the Southeast Oregon Resource Advisory Committee, Theodore Roosevelt Conservation Partnership, Oregon Natural Desert Association, Backcountry Hunters and Angler's, Eastern Oregon Miner's Association, multiple civic groups, the Treasure Valley Community College (TVCC) Agriculture and Natural Resources Department, Oregon State University—Malheur County Agriculture Extension Office, Idaho Aviation Association, and the Trout Creek Working Group.

For a list of agencies and organizations contacted or consulted during the planning process, see Section H.6 in Appendix H. Appendix R provides comment letters received from other state and federal agencies. The RMP Amendment mailing list includes interested persons, organizations, Indian tribes, livestock permittees, and local, state, and federal agencies. The mailing list is on file at the Vale District Office. See Tables H-2 and H3 in Appendix H for a representative list of entities on the mailing list.

4.8 Additional Information on Consultation and Coordination can be found in Appendix H

- H.1 Public Participation
- H.2 Cooperating Agencies
- H.3 FWS Section 7 Consultation

- H.4 State Historic Preservation Office Consultation
- H.5 Coordination with Individuals and Groups
- H.6 Agencies and Organizations Contacted or Consulted
- H.7 Elected Officials, Agencies, Organizations, and Individuals on Mailing List
- H.8 List of Preparers

Although individual specialists have a primary responsibility for preparing sections of an EIS and RMP, the document is an Interdisciplinary Team effort.