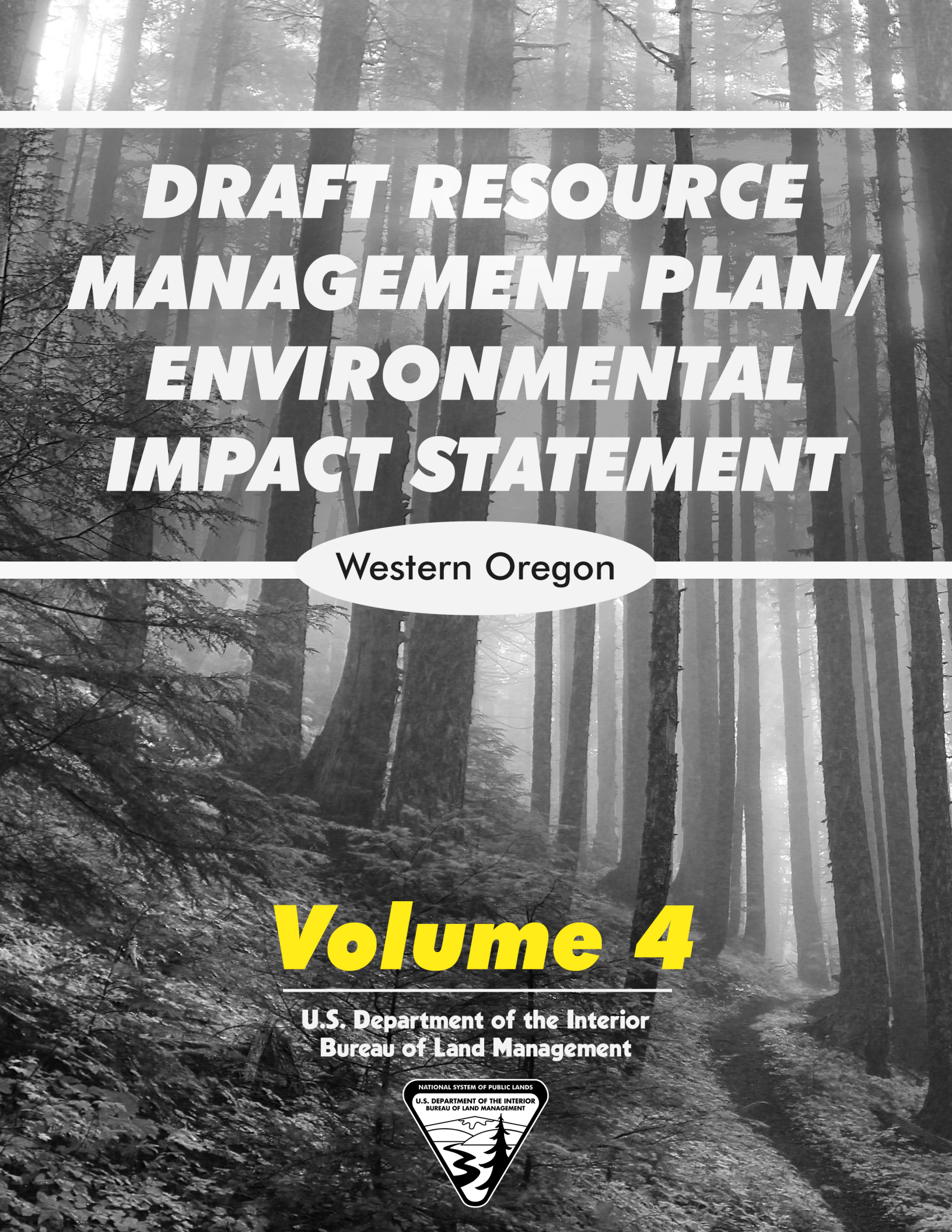

DRAFT RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT

Western Oregon

Volume 4

U.S. Department of the Interior
Bureau of Land Management

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

The BLM manages more than 245 million acres of public land, the most of any Federal agency. This land, known as the National System of Public Lands, is primarily located in 12 western states, including Alaska. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation.

The BLM's mission is to manage and conserve the public lands for the use and enjoyment of present and future generations under our mandate of multiple-use and sustained yield. In fiscal year 2013, the BLM generated $4.7 billion in receipts from public lands.

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Oregon State Office
P.O. Box 2965, Portland, Oregon 97208
http://www.blm.gov/or

Dear Reader:

The 2.5 million acres of lands administered by the Bureau of Land Management (BLM) in western Oregon play an important role in the region's social, ecological, and economic well-being. As stewards of these lands, the BLM has a responsibility to ensure that our management is effectively meeting our legal mandates and the needs of the communities in western Oregon.

Enclosed you will find our Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS) for six BLM districts in western Oregon. This document integrates the requirements for land use planning from the Federal Land Policy and Management Act and the requirements for analysis of federal actions from the National Environmental Policy Act.

This Draft RMP/EIS explains why we are proposing a plan revision, presents a full spectrum of different management alternatives, and analyzes the environmental effects of the alternatives. These alternatives respond to the Purpose and Need for action, described in Chapter 1, which outlines the goals that we seek to achieve. Based on this analysis and comments that we receive on this Draft RMP/EIS, we will prepare a Proposed RMP/Final EIS with the assistance of cooperating agencies.

Public engagement has always been a foundational principle for our planning team. Since the inception of this planning effort in 2012, we have held more than three dozen public meetings to solicit feedback and share our thinking. We have also worked closely with our state, federal, and county partners to ensure that the analysis is rigorous, thorough, and reflects our 20 years of experience of implementing our current plans. We will use the results of this analysis, along with your feedback, to begin developing the Proposed RMP/Final EIS.

Following publication of this Draft RMP/EIS, you will have 90 days to provide written comments. We would appreciate your feedback; please see the "Readers Guide" section for more specific information on the many ways you can comment on this document. Please join us by submitting your comments and participating in the upcoming public open houses and workshops in your community.

The people of western Oregon are in need of a lasting solution that will provide predictable outcomes and sustainable management of the BLM-administered lands. With your help, we can utilize your insight and comments to build an RMP that will provide sustainable solutions for the public lands that we are privileged to manage.

Thank you for your interest and participation in this planning process.

Jerome E. Perez
State Director
Bureau of Land Management
Oregon/Washington

United States Department of the Interior
Bureau of Land Management

Draft Resource Management Plan/Environmental Impact Statement for the Resource Management Plans for Western Oregon

Coos Bay, Eugene, Medford, Roseburg, and Salem Districts
and the Lakeview District's Klamath Falls Field Office

Cooperating agencies:

Benton County	State of Oregon
Clackamas County	Environmental Protection Agency
Columbia County	National Marine Fisheries Service
Coos County	U.S. Fish and Wildlife Service
Curry County	U.S. Forest Service
Douglas County	Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
Klamath County	Confederated Tribes of Grand Ronde
Lane County	Confederated Tribes of Siletz Indians
Lincoln County	Coquille Indian Tribe
Linn County	Cow Creek Band of Umpqua Tribe of Indians
Marion County	Klamath Tribes
Multnomah County	
Polk County	
Tillamook County	
Washington County	
Yamhill County	

Abstract: This Draft Resource Management Plan/Environmental Impact Statement addresses revision of the 1995 Resource Management Plans for the Coos Bay, Eugene, Medford, Roseburg, and Salem Districts and the Lakeview District's Klamath Falls Field Office. The purpose of this Resource Management Plan revision is to provide a sustained yield of timber, contribute to the conservation and recovery of threatened and endangered species, provide clean water in watersheds, restore fire-adapted ecosystems, provide recreation opportunities, and coordinate management of lands surrounding the Coquille Forest with the Coquille Tribe. The BLM analyzed the No Action alternative of continued implementation of the 1995 Resource Management Plans, four alternatives, and two sub-alternatives.

Comments on this Draft Resource Management Plan/Environmental Impact Statement must be submitted by July 23, 2015.

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Reader's Guide

The Bureau of Land Management (BLM) is revising the resource management plans (RMPs) for its Coos Bay, Eugene, Medford, Roseburg, and Salem Districts and the Lakeview District's Klamath Falls Field Office. The planning area for this RMP revision encompasses western Oregon and includes approximately 2.5 million acres of public land managed by the BLM. When approved, these RMPs will replace the existing RMPs and guide the management of public lands in the Coos Bay, Eugene, Medford, Roseburg, and Salem Districts and the Lakeview District's Klamath Falls Field Office into the future.

The BLM has prepared this Draft Resource Management Plan/Environmental Impact Statement (Draft RMP/EIS) in accordance with the National Environmental Policy Act of 1969, as amended, the Federal Land Policy and Management Act of 1976, as amended, the BLM NEPA Handbook (H-1790-1), the BLM Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

Organization of the Draft Resource Management Plan/Environmental Impact Statement

This Draft RMP/EIS provides a progression of information to the reviewer.

The Summary presents a brief description of the major elements of this document. The summary is necessarily neither comprehensive nor complete. Therefore, the details in the four chapters of this document are essential to fully understanding the planning process, the alternatives, and their effects.

Chapter 1 presents the purpose and need for this RMP revision and the guidance for the development of the action alternatives. Chapter 1 presents a discussion of the major authorizing laws and regulations that affect management of the BLM-administered lands in the planning area.

Chapter 2 describes the No Action alternative and the action alternatives that are analyzed in detail, including identification of the preferred alternative. This chapter also discusses alternatives that the BLM considered but did not analyze in detail. Finally, this chapter presents a comparison of the alternatives, including summaries of key features of the alternatives and key impacts of the alternatives.

Chapter 3 describes the environment that the RMPs are likely to affect and the environmental consequences of the alternatives. Although many EISs present the affected environment and environmental consequences in separate chapters, the BLM has combined these two topics into this single chapter to provide all of the relevant information on a resource in a single discussion. This chapter is includes sections for each resource that the RMPs are likely to affect. Each section begins with a summary of the methods used to analyze the impacts of the alternatives on this resource. The BLM has then divided each section into subsections that address a particular question about how the BLM's draft alternatives may affect the resource (the BLM refers to these questions as "issues"). Under each issue, the BLM describes the status and trends of the pertinent resource and the environmental consequences to the resource of the alternatives analyzed in detail, including the No Action alternative.

Chapter 4 describes the public involvement and collaboration that occurred during the preparation of this Draft RMP/EIS. That collaboration includes government-to-government relationships with tribes, formal cooperators in the planning process, and consultation with other agencies. This chapter also includes a list of staff involved in the RMPs for Western Oregon.

Following Chapter 4 is a list of acronyms, a glossary of words and terms that are not in common usage, and references cited in the document.

The appendices provide technical discussions and background information supporting the text of the Draft RMP/EIS.

Commenting

The BLM encourages the public to review this Draft RMP/EIS and provide comments pertaining to the alternatives and analysis. Comments will be most useful to the BLM to the extent that they

- present new information relevant to the analysis;
- present reasonable alternatives other than those analyzed in the Draft RMP/EIS;
- make suggestions, with a reasoned basis, for the development of a proposed RMP;
- question, with a reasoned basis, the adequacy of, methodology for, or assumptions used for the analysis; or
- question, with a reasoned basis, the accuracy of information in the Draft RMP/EIS

Comments that are simply votes in support of or opposition to a particular alternative, or position statements in support of or opposition to particular BLM policies or proposals, without providing reasons, are less useful to the BLM in the planning process.

To be considered timely, comments on this Draft RMP/ EIS must be submitted within 90 days of the publication in the Federal Register of the Notice of Availability for this Draft RMP/EIS. You can submit comments by mail to

RMPs for Western Oregon
Bureau of Land Management
P.O. Box 2965
Portland, Oregon 97208

or by electronic mail (email) to

BLM_OR_RMPs_WesternOregon@blm.gov

Comments by mail must be postmarked before July 23, 2015. Comments by email must be received before July 23, 2015. If you have questions, please contact Sarah Levy, BLM Public Affairs Specialist, at (503) 808-6217.

Persons who use a telecommunications device for the deaf may call the Federal Information Relay Service at 1-800-877-8339 to contact the above individual during normal business hours. The FIRS is available 24 hours a day, 7 days a week, to leave a message or question with the above individual. You will receive a reply during normal business hours.

All information in your comments including your address, phone number, email address, or other personal identifying information (PII) is maintained as a BLM record. Although your information is sensitive and protected from public access, it may be made available under a Freedom of Information Act request. You may request in your comment that your PII information be withheld from public review although the agency is unable to guarantee full protection of such information. Please consider all information you may want to include in your comments.

Next Steps in the Planning Process

The BLM is planning a series of public meetings after the release of the Draft RMP/EIS. The purpose of these meetings is to help members of the public understand the content of the Draft RMP/EIS and provide meaningful and constructive comments. There will likely be six "open-house" public meetings (one meeting per District) where people can engage with BLM employees on all resources addressed in the Draft RMP/EIS. The BLM will likely also be organizing issue-specific meetings on topics such as socio-economics, forestry, aquatics, and wildlife. Information on meeting locations and dates will be available at
http://www.blm.gov/or/plans/rmpswesternoregon/

Following the 90-day comment period for this Draft RMP/EIS, the BLM will review the comments and work with cooperating agencies to develop a Proposed RMP/Final EIS. In that document, the BLM will present the Proposed RMP, which will be either one of the alternatives analyzed in this Draft RMP/EIS or a newly developed alternative that is within the spectrum of the alternatives analyzed in this Draft RMP/EIS. In the Proposed RMP/Final EIS, the BLM will also provide copies or summaries of substantive comments on the Draft RMP/EIS, the BLM responses to those comments, and changes or additions to the text of the Draft RMP/EIS in response to comments.

Following publication of the Proposed RMP/Final EIS, any person who participated in the planning process and has an interest that may be adversely affected by the approval of the Proposed RMP may protest to the Director of the BLM within 30 days of the publication of the Proposed RMP/Final EIS. The BLM will submit the Proposed RMP to the Governor of Oregon to identify any known inconsistencies with State or local plans, policies, or programs.

Following resolution of any protests and the completion of the consistency review by the Governor of Oregon, the BLM will prepare a Record of Decision/RMP (ROD/RMP) to approve the RMP revision. The ROD/RMP will identify the decision by the State Director on the RMP revision and the rationale for the decision. The ROD/RMP will also contain the RMP itself, including the land use allocations, management objectives, and management direction.

The publication of the ROD/RMP will represent the completion of the RMP revision process. Following publication of the ROD/RMP, the BLM will take only those management actions that are specifically provided for in the approved RMP, or, if not specifically mentioned, actions that are clearly consistent with the goals, objectives, or management direction of the approved RMP.

Summary

This summary presents a brief description of the major elements of this document. This summary is necessarily neither comprehensive nor complete. Furthermore, this summary omits the citations, definitions, and explanations provided in the document. Therefore, the details in the four chapters of this document are essential to fully understanding the planning process, the alternatives, and their effects.

Introduction

The Bureau of Land Management (BLM) is revising the resource management plans (RMPs) for its Coos Bay, Eugene, Medford, Roseburg, and Salem Districts and the Lakeview District's Klamath Falls Field Office. This Draft RMP/Environmental Impact Statement (EIS) provides a description of the various alternative management approaches the BLM is considering for the management of these lands along with an analysis of the potential impacts of these alternatives.

The 1995 RMPs are consistent with the 1994 Northwest Forest Plan, which the Department of the Interior and the Department of Agriculture adopted for Federal forests within the range of the northern spotted owl. This RMP revision would replace the 1995 RMPs and thereby replace the Northwest Forest Plan for the management of BLM-administered lands in western Oregon. The purpose and need for this RMP revision are different from the purpose and need for the Northwest Forest Plan. As such, the action alternatives in this Draft RMP/EIS do not contain all elements of the Northwest Forest Plan.

The BLM conducted plan evaluations, which concluded that a plan revision is needed to address the changed circumstances and new information that has led to a substantial, long-term departure from the timber management outcomes predicted under the 1995 RMPs. Moreover, the BLM needs to revise existing plans to replace the 1995 RMPs' land use allocations and management direction because of new scientific information and policies related to the northern spotted owl.

The purpose of the RMP revision is to

- Provide a sustained yield of timber
- Contribute to the conservation and recovery of threatened and endangered species, including
    - maintaining a network of large blocks of forest to be managed for late-successional forests
    - maintaining older and more structurally complex multi-layered conifer forests
- Provide clean water in watersheds
- Restore fire-adapted ecosystems
- Provide recreation opportunities
- Coordinate management of lands surrounding the Coquille Forest with the Coquille Tribe

Alternatives

The BLM has designed the range of alternatives in this Draft RMP/EIS to span the full spectrum of alternatives that would respond to the purpose and need for the action. The BLM has developed the alternatives to represent a range of overall management approaches, rather than exemplify gradations in design features. In this Draft RMP/EIS, the BLM analyzed in detail the No Action alternative and four action alternatives. In addition, the BLM analyzed how two sub-alternatives, which modify an individual component of northern spotted owl conservation in an alternative, would alter effects on timber production and northern spotted owls. Table 1 summarizes key features of the alternatives that vary substantially among the alternatives and are easily quantified and summarized.

The No Action alternative in this Draft RMP/EIS is implementation of the 1995 RMPs as written (in contrast to the BLM's current implementation practices under the 1995 RMPs). Implementation of the timber management program has departed substantially from the outcomes predicted in the 1995 RMPs, and continuing to harvest timber at the declared annual productive capacity level for multiple decades into the future would not be possible using the current practices.

All action alternatives include the following land use allocations: Congressionally Reserved, District-Designated Reserves, Late-Successional Reserve, Riparian Reserve, Harvest Land Base, and Eastside Management Area (Figure 1). The location and acreage of these allocations, with the exception of Congressionally Reserved, vary by alternative. Within each action alternative, the Harvest Land Base, Late-Successional Reserve, and Riparian Reserve have specific, mapped sub-allocations with differing management direction.

Alternative A has a Late-Successional Reserve larger than the No Action alternative. The Harvest Land Base is comprised of the Uneven-Aged Timber Area and the High Intensity Timber Area. The High Intensity Timber Area includes regeneration harvest with no retention (clear cuts).

Alternative B has a Late-Successional Reserve similar in size to Alternative A, though of a different spatial design. The Harvest Land Base is comprised of the Uneven-Aged Timber Area, Low Intensity Timber Area, and Moderate Intensity Timber Area. The portion of the Harvest Land Base in Uneven-Aged Timber Area is the largest of all action alternatives. The Low Intensity Timber Area and Moderate Intensity Timber Area include regeneration harvest with varying levels of retention.

Sub-alternative B is identical to Alternative B, except that it includes protection of habitat within the home ranges of all northern spotted owl known and historic sites.

Alternative C has the largest Harvest Land Base of any of the alternatives. The Harvest Land Base is comprised of the Uneven-Aged Timber Area and the High Intensity Timber Area. The High Intensity Timber Area includes regeneration harvest with no retention (clear cuts). Alternative C has the smallest acreage in the Riparian Reserve of all of the alternatives.

Sub-alternative C is identical to Alternative C, except that the Late-Successional Reserve includes all stands 80 years old and older.

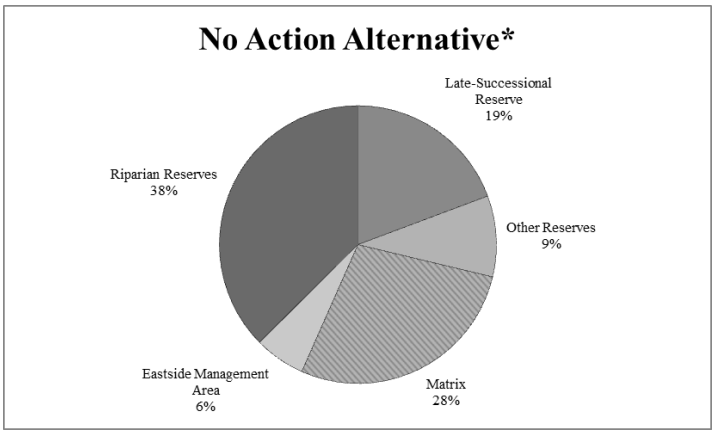
Alternative D has the smallest Late-Successional Reserve of any of the alternatives. The Harvest Land Base is comprised of the Uneven-Aged Timber Area, Owl Habitat Timber Area, and Moderate Intensity Timber Area. The Owl Habitat Timber Area includes timber harvest applied in a manner that would maintain northern spotted owl habitat. The Moderate Intensity Timber Area includes regeneration harvest with retention. Alternative D has the largest acreage in the Riparian Reserve of all of the action alternatives.

Table I. Key features of the alternatives.

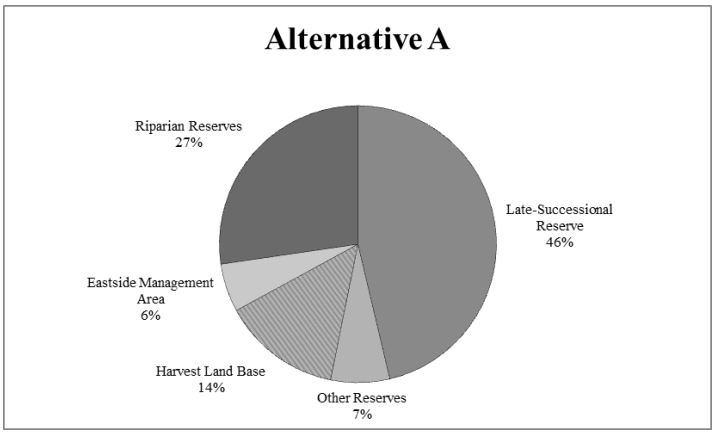
Alternative	Total Late-Successional Reserve (Acres)	Protection of Structurally-complex Forest	Riparian Reserve (Total Width)	Riparian Reserve (Inner Zone Width)	Marbled Murrelet Survey and Protection
No Action	478,860	None specified	2 SPTH[1] on fish-bearing streams; 1 SPTH on non-fish-bearing streams	None specified	Survey in Zones 1&2; protect contiguous recruitment and existing habitat within ½-mile of sites
Alt. A	1,147,527	≥ 120 years	1 SPTH on all streams	120' on perennial and fish-bearing streams; 50' on non-fish-bearing intermittent streams	None
Alt. B	1,127,320	District-defined map based on existing, district-specific information	1 SPTH on perennial and fish-bearing streams; 100' on debris-flow-prone non-fish-bearing intermittent streams; 50' on other non-fish-bearing intermittent streams	100' on perennial and fish-bearing streams; 50' on non-fish-bearing intermittent streams	Survey in Zone 1; protect contiguous habitat within 300' of sites
Sub. B	1,422,933				
Alt. C	949,279	≥ 160 years	150' on fish-bearing streams; 50' on non-fish-bearing streams	60' on fish-bearing streams; 50' on non-fish-bearing streams	Survey stands >120 years; protect contiguous habitat within 300' of sites
Sub. C	1,373,206	≥ 80 years			None
Alt. D	714,292	≥ 120/140/160 years on high/moderate/low productivity sites	1 SPTH on all streams	120' on all streams	Survey in Zones 1 and 2; protect habitat within ½-mile of sites

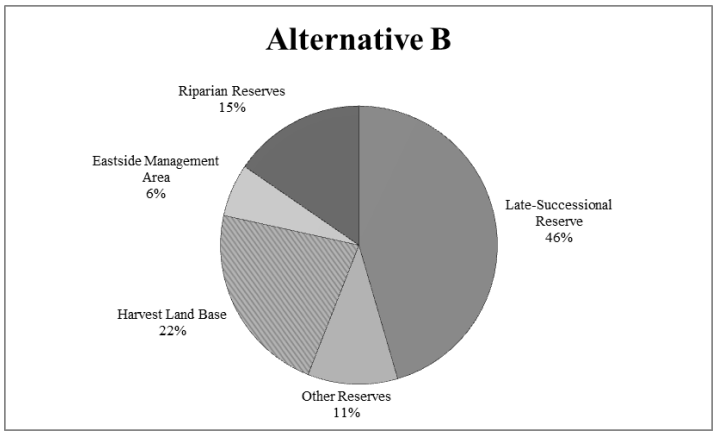
Alternative	Total Harvest Land Base (Acres)	Green Tree Retention	Areas of Critical Environmental Concern (# Designated)	Recreation Management Areas (SRMA[2] Acres, ERMA[3] Acres)	Protection of Lands with Wilderness Characteristics (Acres)	Suitable Wild and Scenic Rivers (# of River Segments)
No Action	691,998	GFMA[4]: 6-8 trees per acre Connectivity/Diversity: 12-18 trees per acre Southern GFMA: 16-25 trees per acre	89 (and 53 potential)	168,968 2,397,460	None	9 (and 51 eligible)
Alt. A	343,900	No retention	119	20,065 0	88,070	0
Alt. B	556,335	Low Intensity Timber Area: 15-30% retention Moderate Intensity Timber Area: 5-15% retention	114	24,972 139,320	50,727	6
Sub. B	298,121					
Alt. C	741,332	No retention	111	59,046 357,771	50,727	6
Sub. C	495,507					
Alt. D	650,382	Owl Habitat Timber Area: maintain owl habitat Moderate Intensity Timber Area: 5-15% retention	118	86,693 580,458	None	59

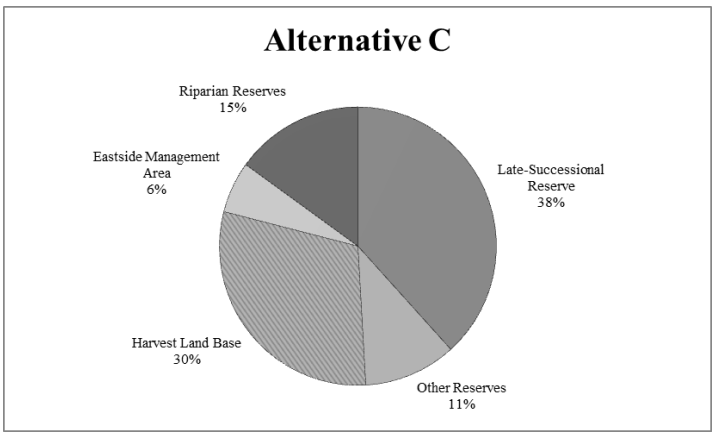
Figure i. Land use allocations under the alternatives.

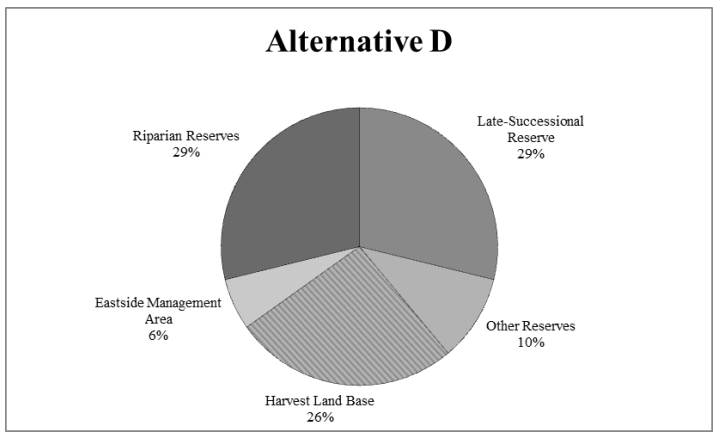


No Action alternative displays modified hierarchy (see Chapter 2).









Affected Environment and Environmental Consequences

This section summarizes the existing conditions and environmental consequences for each resource that the RMPs are likely to affect. Throughout this document, the BLM uses the term 'planning area' to refer to the 22 million acres of land within the geographic boundary of this planning effort regardless of jurisdiction, and uses the term 'decision area' to refer to the 2.5 million acres of BLM-administered land within the planning area.

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Air Quality

All action alternatives would produce more particulate emissions than the No Action alternative and current conditions. However, adherence to the requirements of the Oregon Smoke Management Plan would continue to limit impacts to human health and visibility from prescribed fires.

Areas of Critical Environmental Concern

The alternatives consider the designation of 121 potential Areas of Critical Environmental Concern. Alternative A would designate the most and Alternative C the fewest areas as Areas of Critical Environmental Concern at 119 and 111, respectively.

Climate Change

Carbon storage would increase under all alternatives. Greenhouse gas emissions associated with BLM-administered lands would increase under all alternatives, but would remain less than one percent of the 2010 statewide greenhouse gas emissions. Climate change provides uncertainty that reserves will function as intended and that planned timber harvest levels can be attained, with the uncertainty increasing over time.

Cultural and Paleontological Resources

The BLM can reduce or eliminate effects to cultural and paleontological resources through systematic and thorough cultural and paleontological resource inventories. Implementation of Alternatives A and D would be the least likely to result in potential adverse impacts to cultural and paleontological resources.

Fire and Fuels

All alternatives would increase stand-level fire resistance and reduce wildfire hazard on BLM-administered lands compared to current conditions. The BLM-administered lands constitute only a small portion of the entire interior/south dry forest landscape. Consequently, the modest shifts under any alternative would not result in any substantial change in the overall landscape fire resilience. The dry forest landscape would continue to have an overabundance of mid-seral closed forest and a deficit of late-seral open forest.

Fisheries

All of the alternatives would increase the potential large wood and small functional wood contribution to streams from the current conditions over time. Sediment production from road construction and operation would increase by less than one percent under all alternatives, and the effects to fish would not differ by alternative. These effects to fish would be short-term and localized and could result from increases in turbidity or deposition of fines in the stream channel substrates affecting habitat in the short term.

Forest Management

Even-aged systems with clear-cutting would produce more uniform stands in a mix of age classes without structural legacies. Two-aged systems with variable-retention regeneration harvesting would produce stands in a mix of age classes with legacy structures and multiple canopy layers. Uneven-aged management systems with selection harvesting regimes would produce mostly older, structurally complex stands and mature forests with multiple canopy layers.

The allowable sale quantity (ASQ) under the alternatives would range from 120 million board feet per year under Sub-alternative B to 486 million board feet per year under Alternative C. Non-ASQ timber harvest volumes in the first decade would range from 4 million board feet per year under Alternative D to 122 million board feet per year under the No Action alternative.

Hydrology

Under the No Action alternative, and Alternatives A and D, less than 0.5 percent of all perennial and fish-bearing reaches in the decision area would currently be susceptible to shade reductions that could affect stream temperature if the BLM applies thinning in the outer zone of the Riparian Reserves. Under Alternative B and C, approximately 5 percent of all perennial and fish-bearing reaches in the decision area would currently be susceptible to shade reductions that could affect stream temperature if the BLM applies thinning in the outer zone of the Riparian Reserves.

Under all alternatives, potential sediment delivery to streams from new road construction would constitute less than a one percent increase above current levels of fine sediment delivery from existing roads. Less than 2 percent of the decision area would be susceptible to peak flow increases over time under any alternative. Less than 1 percent of the Harvest Land Base would be susceptible to landsliding with the potential to deliver sediment to streams over time under any alternative.

Invasive Species

The risk of introducing and spreading invasive plant species over the next 10 years, and in the long term, would be lowest under Alternative D, and highest under Alternatives B and C. Sudden oak death infestations would occupy 100 percent of the Riparian Reserves in Infestation Zone 2 and almost 90 percent in Infestation Zone 3 by 2033 under Alternatives A and B.

Lands and Realty

Under all alternatives, BLM-administered lands would generally be available for rights-of-way. Alternative D would most constrain the BLM's ability to grant right-of-ways from the current conditions.

Lands with Wilderness Characteristics

Alternative A provides the greatest protection of identified lands with wilderness characteristics within the planning area. Alternatives B and C provide intermediate protection of lands with wilderness characteristics within the planning area. Alternative D provides no protection of lands with wilderness characteristics with the planning area.

Livestock Grazing

Under Alternatives A, B, and C, public land available for livestock grazing would decrease from 495,190 acres to 359,049 acres. This change would occur through the BLM making currently vacant allotments

unavailable for grazing. Under Alternative D, the BLM would no longer authorize livestock grazing within the decision area, a change that would affect 495,190 acres.

Minerals

Under the action alternatives, the BLM would petition for the withdrawal of an additional six to eight percent of the decision area. Approximately 90 percent of the decision area would remain open to locatable and salable mineral entry. All of the decision area would remain open to leasable mineral development.

National Trails System

Alternative D would provide the largest National Trail Corridor and protect the greatest number of acres within the viewshed. However, these acres only account for nine percent of all viewable acres.

Rare Plants and Fungi

Only two Federally-listed plant species occur within forest and woodland habitat in the decision area: Kincaid's lupine and Gentner's fritillary. Under all alternatives, the BLM would conduct pre-disturbance survey and apply conservation measures for these Federally-listed plant species. The BLM would manage Bureau Sensitive plant and fungi species under the BLM's sensitive species program under all alternatives. Under all action alternatives, species that are currently Survey & Manage and not included on the Bureau Sensitive species list would receive no specific protections.

Recreation and Visitor Services

Alternative A would provide a reduction in recreation opportunities when compared to the existing management situation. Alternative D would provide the greatest number and acres of recreation management areas in closest proximity to the twelve most populated communities in the planning area.

Soil Resources

All alternatives would increase the acreage of detrimental soil disturbance from timber harvest, road construction, and fuels treatments by 13 to 30 percent of current amounts during the first decade. The BLM would be able to reduce the acreage of detrimental soil conditions from timber harvest, road construction, and fuels treatments through sound management practices that would limit initial compaction levels, remove existing or created compacted surfaces, and improve soil water and organic matter levels.

Socioeconomics

BLM-administered lands provide a wide variety of market and non-market goods and services to the planning area such as timber, recreation, carbon storage, minerals, and source water protection. The annual harvest value of timber, compared to $23 million in 2012, would increase under all alternatives; from $37 million under Alternative D to $135 million under Alternative C. Using non-market valuation techniques the analysis estimates the 2012 value of recreation on BLM-administered lands at $223 million and the annual value of carbon storage at $99 million. Under all alternatives, the annual value of recreation would increase to $250 million. The annual value of net carbon storage would increase under all alternatives except Alternative C, under which it would fall to $55 million.

In 2012, BLM management contributed 7,900 jobs and $355 million in earnings to the planning area, which is about 0.4 percent of the total jobs and earnings. Under the alternatives, these contributions would range from a low of 6,900 jobs and $304 million in earnings (Alternative D) to a high of 12,419 jobs and $584 million in earnings (Alternative C). Employment effects to low-income populations in Coos, Curry, Douglas, and Klamath Counties would be disproportionately negative under Alternatives A and D. Low-income communities and tribes in these counties would also be vulnerable to these disproportionately negatively effects. Under Alternative B, employment effects would be disproportionately negative for Coos and Curry Counties.

There is uncertainty regarding the source and amounts of future payments to counties from activities on BLM-administered lands. Secure Rural Schools and Community Self-Determination Act payments to counties totaled $38 million in 2012. Had payments in 2012 been based on the O&C Act formula, they would have been $12 million. Under the alternatives, payments in 2018 would range from a low of $19 million under Alternative D to a high of $67 million under Alternative C.

Sustainable Energy

Under all alternatives, the majority of the land in the decision area would be available for the potential development of sustainable energy resources. While there is no current geothermal development and limited potential in the decision area, all action alternatives would be less constraining to geothermal development than the current condition.

Trails and Travel Management

All action alternatives would increase the acreage closed to off-highway vehicle use and decrease the acreage open to off-highway vehicle use when compared to the No Action alternative.

Tribal Interests

An ongoing dialogue between BLM representatives and designated tribal representatives and their leadership produced the issues addressed in the Tribal Interests section. A large portion of the tribally identified issues are covered under specific resource sections (e.g., fish, water, socio-economics, cultural resources), though the effects specific to tribal communities may differ due to the unique relationships that tribes have with the landscape and resources on it.

Visual Resources Management

Under all alternatives, visual resource quality would decline to some extent over time, because the BLM would manage a substantial acreage of land at a higher Visual Resource Management class than the Visual Resource Inventory class at which it inventoried. Alternative D would provide the greatest protection, and Alternatives A, B, and C would provide the least protection of visual resources.

Wildlife

Northern spotted owl

The northern spotted owl population is under severe biological stress in much of western Oregon and has an even chance of being extirpated from the Coast Range within 35 years. This population risk is predominately due to competitive interactions between northern spotted owls and barred owls. Under current barred owl encounter rates, the BLM has no opportunity through habitat management in the Coast

Range to reduce risks to the northern spotted owl during the next 50 years, and there are no substantive differences among the alternatives in their potential effects on those risks. However, in the western Cascades and Klamath Basin, the BLM would contribute to self-sustaining northern spotted owl populations during the next 50 years under all alternatives.

Marbled Murrelet

All alternatives would result in an increase in the amount of marbled murrelet high-quality nesting habitat and total nesting habitat in 50 years. Alternatives A, B, and C would result in the loss of 96, 12, and 210 future marbled murrelet sites, respectively, as a result of timber harvest in the Harvest Land Base in the absence of surveys.

Wild Horses

The Pokegama herd is the only wild horse herd in the decision area and is currently within the appropriate management level of 30 to 50 horses. Alternative D, which would eliminate livestock grazing, would reduce competition for forage and provide the potential for increased growth of the Pokegema herd. Otherwise, the alternatives would not differ in their effects on the Pokegama herd.

Wild and Scenic Rivers

Under Alternative A, the BLM would not designate any of the 51 eligible Wild and Scenic River segments as suitable, resulting in impacts to all eligible river segments and their associated values. Under Alternatives B and C, the BLM would designate six eligible Wild and Scenic River segments as suitable. Under Alternative D, the BLM would designate all 51 eligible Wild and Scenic River segments as suitable, resulting in the greatest protection for all segments and their associated river values.

Consultation and Coordination

The preparation of this Draft RMP/EIS has included 38 public involvement efforts, including formal scoping, regional workshops on recreation management, community listening sessions, and public meetings about the Planning Criteria and preliminary alternatives.

The BLM is planning a series of public meetings after the release of the Draft RMP/EIS. The purpose of these meetings is to help members of the public understand the content of the Draft RMP/EIS and provide meaningful and constructive comments. There will likely be six "open-house" public meetings (one meeting per District) where people can engage with BLM employees on all resources addressed in the Draft RMP/EIS. The BLM will likely also be organizing issue-specific meetings on topics such as socio-economics, forestry, aquatics, and wildlife. Information on meeting locations and dates will be available at http://www.blm.gov/or/plans/rmpswesternoregon/

The BLM is consulting on a government-to-government level with the nine federally recognized tribes located within, or that have interests within, the planning area. The Confederated Tribes of Grand Ronde, the Confederated Tribes of Siletz Indians, the Coquille Indian Tribe, the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians, the Cow Creek Band of Umpqua Tribe of Indians, and the Klamath Tribes are formal cooperators in the RMP revisions, in addition to their government-to-government status.

The BLM has been assisted in the preparation of this Draft RMP/EIS by a Cooperating Agency Advisory Group, including representatives of Federal and State agencies, counties, and Tribes. In addition to meeting as a full group periodically throughout the development of the Draft RMP/EIS, the Cooperating

Agency Advisory Group also created five working groups in order to facilitate a more detailed level of engagement with the BLM on the following topics: aquatics, outreach, terrestrial, socio-economics, and tribal issues.

Working through a robust engagement process with neutral facilitation, the cooperators have provided expertise on much of the subject matter the BLM is addressing in the Draft RMP/EIS, as well as advice based on experience with similar planning efforts. The cooperators have provided feedback on public outreach sessions, data sources and analytical methods, and components of the draft alternatives. They have provided oral and written feedback and ideas throughout the process of developing the Draft RMP/EIS. Nearly all cooperators have been positive about the level of engagement and the general direction of the planning process. However, the Association of O&C Counties (which is the designated representative of 15 counties) has continued to express a high level of concern about the BLM's planning process. Specifically, the Association of O&C Counties continues to assert that the BLM's Purpose and Need statement was fatally flawed by failing to place sustained sustained-yield timber production as the primary purpose of the planning effort.

The BLM district managers and planning personnel have met with individual county commissioners on an ongoing basis to provide updates on progress and key milestones. As noted above, several county governments are formal cooperators in the planning process. While the Association of O&C Counties represents most of the counties at the Cooperating Agency Advisory Group meetings, BLM district managers also maintain relationships with local county representatives.

Before signing a Record of Decision on the RMP revisions, the BLM will consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under Section 7(a)(2) of the Endangered Species Act (ESA). The BLM, U.S. Fish and Wildlife Service, and National Marine Fisheries Service signed an ESA Consultation Agreement, which identifies responsibilities for each agency and defines the processes, products, actions, timeframe, and expectations for the consultation process.

Appendix J – Lands and Realty

This appendix provides detailed data about lands and realty, found in **Chapters 2** and **3** of the EIS.

In this appendix:

Land Tenure Adjustment Criteria .

Land Withdrawals

Land Tenure Zone 3 Lands.

Inventory of Communication Sites .

Land Tenure Adjustment Criteria

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA) and other laws, Executive Orders, and Departmental and Bureau policy, the following factors will be considered in evaluating opportunities for disposal or acquisition of lands or interests in lands. This list is not considered all inclusive, but represents the major factors to be considered.

General Land Tenure Adjustment Evaluation Factors

- Improves manageability of specific areas.
- Maintains or enhances important public resource values and uses.
- Consolidates Federal mineral estate and/or reuniting split surface and mineral estates.
- Facilitates development of energy and mineral potential.
- Reduces difficulty or cost of public land administration.
- Provides accessibility to Federal land for public recreation and other uses.
- Amount of public investments in facilities or improvements and the potential for recovering those investments.
- Suitability of land for management by another Federal agency.
- Significance of decision in stabilizing or enhancing business, social, and economic conditions, and/or lifestyles.
- Meets long-term public management goals as opposed to short term.
- Facilitates National, State, and local BLM priorities.
- Consistency with cooperative agreements and plans or policies of other agencies.
- Facilitates implementation of other aspects of the approved resource management plans.

Acquisition Criteria

- Facilitates access to public land and resources retained for long-term public use.
- Secures Threatened or Endangered or Sensitive plant and animal species habitat.
- Protects riparian areas and wetlands.
- Contributes to biodiversity.
- Protects high-quality scenery.

- Enhances the opportunity for new or emerging public land uses or public resource values.
- Facilitates management practices, uses, scales of operation, or degrees of management intensity that are viable under economic program efficiency standards.
- Protects significant cultural resources and sites eligible for inclusion on the National Register of Historic Places where non-federal sites exist for the proposed use.

Disposal Criteria

The following criteria will be used to identify parcels in Land Tenure Zones 2 or 3 suitable for disposal:

- Suitability for purposes including but not limited to community expansion or economic development, such as industrial, residential, or agricultural development.
- Lands of limited public resource value.
- Lands that are difficult for the BLM to manage and unsuitable for transfer to other federal agencies or State and local governments.
- Lands that would aid in aggregating or repositioning other public lands or public land resource values where the public values to be acquired outweigh the values to be exchanged.

O&C Land Exchange Criteria

An O&C land exchange is an exchange within the O&C area as delineated in Public Law 105-321. Forest management and related factors to consider when evaluating the feasibility of an O&C land exchange include the following:

- Land exchanges which maintain the existing balance between the various land use allocations will be considered favorably.
- Land exchanges that enhance public resource values and/or improve land patterns and management capabilities of both non-federal and BLM administered lands within the planning area by consolidating ownership and reducing the potential for land use conflict.
- Offered lands which are primarily suitable for agriculture, business, or home sites, or which would require extensive post-acquisition management will not be favorably considered. The O&C lands designated for timber production will generally not be exchanged for lands which will be managed solely for a single use, such as species protection.
- Generally, where cutting rights are reserved on existing and future timber stands by the proponent, the proposed exchange will not be considered favorably.
- The exchange of O&C and CBWR lands specifically for lands located outside of the 18 O&C counties is prohibited by regulations in 43 CFR 2200. This restriction applies to timber and other interests in lands as well.

Land Withdrawals

Table J-1 through **Table J-6** contains detailed information about existing and proposed land withdrawals.

Table J-1. Withdrawal tables legend.

Authority/Order Type		**Segregation Effect:**	
DO	Director Order	A	Withdrawn from operation of the general land laws, the mining laws, and the Mineral Leasing Act
EO	Executive Order	B	Withdrawn from operation of the general land and mining laws
SO	Secretarial Order	C	Withdrawn from operation of the general land laws
BO	Bureau Order	D	Withdrawn from operation of the general land laws; Open to mining subject to Public Law 359
PL	Public Law	E	Withdrawn from operation of the general land laws; Withdrawn from mining except metalliferous
PLO	Public Land Order	F	Withdrawn from operation of the general agricultural and mining laws
PSR	Power Site Reserve		
PSC	Power Site Classification	**Recommendation:**	
R&PP	Recreation and Public Purpose	C	Continue
WPD	Water Power Designation	R	Revoke
FPC	Federal Power Commission	E	Expire
FO	Federal Energy Regulatory Commission Order		

*** Open to entry subject to Section 24 of the Federal Power Act.

**** Open to entry in part subject to Section 24 of the Federal Power Act.

Notes:

Location description indicates sections within which withdrawn lands are located. Information on which portions of the cited sections are withdrawn is available within the District Office.

Table does not include lands that have been completely transferred out of Federal ownership subsequent to withdrawal or lands within National Forest Boundaries.

Note: Acres are based on the most available information, but may have discrepancies because of the general nature of some of the information.

Table J-2. Withdrawals in the Coos Bay District.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 50856	PLO 7215	T. 19 S., R. 12 W., Sec. 1	40.43	Pacific Coastline, Highway 101	BLM	F	C
		T. 26 S., R. 14 W., Sec. 28	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 27 S., R. 14 W., Sec. 29	2.26	Pacific Coastline, Highway 101	BLM	F	Revoke patented parcel
		T. 30 S., R. 15 W., Sec. 12	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 32 S., R. 15 W., Sec. 4	71.75	Pacific Coastline, Highway 101	BLM	F	C
		T. 33 S., R. 14 W., Sec. 31	155.16	Pacific Coastline, Highway 101	BLM	F	C
		T. 34 S., R. 14 W., Sec. 6	40.7	Pacific Coastline, Highway 101	BLM	F	C
		T. 34 S., R. 14 W., Sec.33	162.05	Pacific Coastline, Highway 101	BLM	F	C
		T. 34 S., R. 14 W., Sec. 34	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 34 S., R. 15 W., Sec. 1	7.92	Pacific Coastline, Highway 101	BLM	F	C
		T. 38 S., R. 14 W., Sec. 4	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 38 S., R. 14 W., Sec. 5	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 38 S., R. 14 W., Sec. 34	34	Pacific Coastline, Highway 101	BLM	F	C
		T. 39 S., R. 14 W., Sec. 23	40	Pacific Coastline, Highway 101	BLM	F	C
		T. 41 S., R. 13 W., Sec. 6	2.56	Pacific Coastline, Highway 101	BLM	F	C
		T. 41 S., R. 13 W., Sec. 7	0.32	Pacific Coastline, Highway 101	BLM	F	C
Total Acres for OR 50856:			**757.15**				
ORE 016183C	PLO 3869	T. 20 S., R. 9 W., Sec. 31	81.29	Smith River Falls Recreation Site	BLM	B	C - Developed Sites
		T. 20 S., R. 9 W., Sec. 33	3.5	Vincent Creek Recreation Site	BLM	B	C
		T. 23 S., R. 10 W., Sec. 2	78.86	Loon Lake Recreation site	BLM	B	C
		T. 27 S., R. 10 W., Sec. 4	60	Park Creek Recreation Site	BLM	B	C
		T. 27 S., R. 10 W., Sec. 18	20	Big Tree Recreation Site	BLM	B	R
		T. 30 S., R. 9 W., Sec. 9	80	Bear Creek Recreation Site	BLM	B	R
		T. 32 S., R. 14 W., Sec. 12	120	Sixes River Recreation Site	BLM	B	C
Total Acres for ORE 016183C:			**443.65**				
OR 23558	SO 12/31/1930	T. 23 S., R. 10 W., Sec. 1	51.51	Rec Wdl. No. 43 East Shore Recreation Site	BLM	B	C - Developed Site
OR 19291A	PLO 3530	T. 27 S., R. 10 W., Secs. 17-20	590	Cherry Creek Natural Area	BLM	B	C - Protecting site, for research opportunities
OR 6398	PL 181	T. 27 S., R. 11 W., Sec. 35	120	Lavern County Park	BLM/Coos Co.	B	C - Developed County Park
		T. 27 S., R. 12 W., Sec. 35	160	Rock Prairie County Park	BLM/Coos Co.	B	C - Developed County Park
		T. 28 S., R. 9 W., Sec. 7	87.72	Judge Hamilton County Park	BLM/Coos Co.	B	C - Developed County Park
		T. 28 S., R. 11 W., Sec. 5	80	Middle Creek County Park	BLM/Coos Co.	B	C - Potential for County Park Development
		T. 28 S., R. 11 W., Sec. 11	80	Frona County Park	BLM/Coos Co.	B	C - Developed County Park
Total Acres for OR 6398:			**527.72**				

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 21318	SO 6/12/1907	T. 40 S., R. 13 W., Secs. 11, 14	320.75	Potential National Park	BLM	B	R - Not developed. No planned development. No public support for establishment of park or monument.
OR 19231	EO 11/24/1903	T. 22 S., R. 13 W., Sec. 14	71.1	Umpqua Jetty Maintenance	COE	B	R - COE indicated a desire to relinquish.
OR 21901	EO 8/23/1895	T. 22 S., R. 13 W., Sec. 13	130	Umpqua River Light Station	USCG	B	R - USCG indicated a desire to relinquish.
OR 4011	EO 7/14/1884	T. 26 S., R. 14 W., Secs. 2, 3	5.1	Bar Watch Administrative Site	USCG	B	C
OR 19227	EO 7/14/1884	T. 26 S., R. 14 W., Sec. 2	2.43	Military Facility	US Navy	B	C
OR 22094	EO 6/14/1876	T. 26 S., R. 14 W., Sec. 4	21.58	Sub surface only/Cape Arago Lighthouse	USCG		R
ORE 012693	PLO 5490	All Public Domain lands	50,329	Multiple use management	BLM	Surface closed to Ag laws	C
OR 54142	PLO 7436	T. 25 S., R. 13 W., Secs. 4-8, 18, 19	See total acres below	North Spit Rec Area and ACEC	BLM	Closed to the mining laws	C
OR 54142	PLO 7436	T. 25 S., R. 14 W., Secs. 12, 13, 23-26		North Spit Rec Area and ACEC	BLM	Closed to the mining laws	C
		Total Acres for OR 54142:	**1,779.27**				
OR 24294	PL 95-450	T. 26 S., R. 14 W., Secs. 5, 8, 17-19	15	Oregon Islands NWR	USFWS	A	C
		T. 27 S., R. 14 W., Sec. 19	8	Oregon Islands NWR	USFWS	A	
		T. 28 S., R. 15 W., Secs. 25, 26, 35	3.56	Oregon Islands NWR	USFWS	A	
		T. 29 S., R. 15 W., Sec. 2	4	Oregon Islands NWR	USFWS	A	
		T. 31 S., R. 16 W., Secs. 24, 25, 34, 35	30	Oregon Islands NWR	USFWS	A	
		T. 32 S., R. 16 W., Secs. 2, 3, 10, 17, 21, 28-31	54	Oregon Islands NWR	USFWS	A	
		T. 33 S., R. 15 W., Secs. 6, 8, 21, 22, 33	38	Oregon Islands NWR	USFWS	A	
		T. 34 S., R. 14 W., Sec. 30		Oregon Islands NWR	USFWS	A	
		T. 34 S., R. 15 W., Sec. 31	31.83	Oregon Islands NWR	USFWS	A	
		T. 36 S., R. 15 W., Secs. 2, 11, 15-17	32	Oregon Islands NWR	USFWS	A	
		T. 38 S., R. 14 W., Secs. 30, 31	12	Oregon Islands NWR	USFWS	A	
		T. 38 S., R. 15 W., Sec. 1	16	Oregon Islands NWR	USFWS	A	

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 39 S., R. 14 W., Secs. 6, 8, 16, 17	30	Oregon Islands NWR	USFWS	A	
		T. 40 S., R. 14 W., Secs. 4, 16, 22, 26	38	Oregon Islands NWR	USFWS	A	
OR 711	PLO 4395	T. 28 S., R. 15 W., Sec. 25	See total acres below	Oregon National Wildlife Refuge	USFWS	B	C
		T. 31 S., R. 16 W., Secs. 24, 25, 34		Oregon National Wildlife Refuge	USFWS	B	C
		T. 31 S., R. 15 W., Sec. 35		Oregon National Wildlife Refuge	USFWS	B	C
		T. 32 S., R. 16 W., Secs. 17, 21, 28-31		Oregon National Wildlife Refuge	USFWS	B	C
		T. 33 S., R. 15 W., Secs. 21, 22, 33		Oregon National Wildlife Refuge	USFWS	B	C
		T. 34 S., R. 15 W., Sec. 4		Oregon National Wildlife Refuge	USFWS	B	C
		T. 36 S., R. 15 W., Secs. 2, 11		Oregon National Wildlife Refuge	USFWS	B	C
		T. 38 S., R. 15 W., Sec. 1		Oregon National Wildlife Refuge	USFWS	B	C
		T. 38 S., R. 14 W., Secs. 30, 31		Oregon National Wildlife Refuge	USFWS	B	C
		T. 39 S., R. 14 W., Secs. 6, 8, 16, 17		Oregon National Wildlife Refuge	USFWS	B	C
		T. 40 S., R. 14 W., Secs. 4, 22		Oregon National Wildlife Refuge	USFWS	B	C
Total Acres for OR 711:			**222.56**				
OR 50874	PLO 7170	T. 29 S., R. 15 W., Secs. 35, 36	70.9	Lost Lake	BLM	B	C
OR 45401	PLO 6967	T. 30 S., R. 15 W., Secs. 2, 3, 10, 11, 15, 21, 28, 32, 33	963.38	New River ACEC	BLM	B	C
OR 51194	PLO 7170	T. 31 S., R. 15 W., Secs. 7, 8	111.48	Floras Lake	BLM	B	C
OR 51891	PLO 7246	T. 32 S., R. 14 W., Sec. 6	44.48	Edson Creek Rec Site	BLM	B	C
OR 24293	PL 91-504	T. 40 S., R. 14 W., Sec. 22	21	Oregon Islands NWR	USFWS	A	C
OR 22376	EO 7035	T. 40 S., R. 14 W., Sec. 35	21	Oregon Islands NWR	USFWS	B	C
OR 25306	PLO 6287	Unsurveyed islands rocks reefs		Oregon National Wildlife Refuge	USFWS	B	C
OR 11517	EO 5/6/1935	Unsurveyed islands rocks reefs	100	Oregon Islands NWR Addition	USFWS	B	C
OR 19130	SO of 4/30/1921	T. 27 S., R. 11 W., Sec. 35	40	Water Power Potential/PSC 1	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 10 W., Secs. 6, 8, 12, 14	165.26	Water Power Potential/PSC 1	BLM	D	R - unless viable for hydropower

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 19140	SO of 6/1/1926	T. 27 S., R. 10 W., Sec. 31	115.35	Water Power Potential/PSC 147	BLM	D	R - unless viable for hydropower
		T. 27 S., R. 11 W., Sec. 35	236.72	Water Power Potential/PSC 147	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 10 W., Secs. 5, 6	169.26	Water Power Potential/PSC 147	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 11 W., Sec. 1	320	Water Power Potential/PSC 147	BLM	D	R - unless viable for hydropower
		Total Acres for OR 19140:	**841.33**				
OR 19144	SO of 7/19/1926	T. 22 S., R. 8 W., Secs. 4***, 7, 9, 17, 21	276.1	Water Power Potential/PSC 162	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 9 W., Secs. 7-9	109.44	Water Power Potential/PSC 162	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 8 W., Sec. 13	80	Water Power Potential/PSC 162	BLM	D	R - unless viable for hydropower
		Total Acres for OR 19144:	**465.54**				
OR 19152	SO of 2/15/1928	T. 22 S., R. 9 W., Sec. 7	183.93	Water Power Potential/PSC 198	BLM	D	R - unless viable for hydropower
OR 20365	EO of 5/28/1912	T. 20 S., R. 9 W., Secs. 26, 28, 32, 34	245.22	Water Power Potential/PSR 273	BLM	D	R - unless viable for hydropower
OR 20365	EO of 5/28/1912	T. 21 S., R. 8 W., Secs. 2***, 4***	320	Water Power Potential/PSR 273	BLM	D	R - unless viable for hydropower
OR 19101	EO of 8/7/1917	T. 20 S., R. 8 W., Secs. 17, 19, 21, 27, 33	186.57	Water Power Potential/PSR 629,	BLM	D	R - unless viable for hydropower
		T. 20 S., R. 9 W., Secs. 21, 25, 27, 31, 33, 35	1,508.32	Water Power Potential/PSR 629	BLM	D	R - unless viable for hydropower
		T. 21 S., R. 8 W., Secs. 1, 9, 11	616.26	Water Power Potential/PSR 629	BLM	D	R - unless viable for hydropower
		Total Acres for OR 19101:	**2,311.15**				
OR 19011	SO of 7/13/1917	T. 20 S., R. 9 W., Secs. 21, 25, 27, 31, 33, 35	1,362.74	Water Power Potential/WPD 11	BLM		R - unless viable for hydropower
		T. 20 S., R. 8 W., Secs. 17, 19, 21, 27, 31, 33	1,586.55	Water Power Potential/WPD 11	BLM		R - unless viable for hydropower
		T. 21 S., R. 8 W., Secs. 1, 9, 11	1,062.95	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 9 W., Secs.7, 13, 15***, 17	282.52	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 8 W., Secs. 5, 21	20.03	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 7 W., Sec.19	47.45	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 10 W., Secs.1, 11***, 13, 35	37.38	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 9 W., Secs. 7***, 17***, 19***	200.21	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower
		T. 23S 7 W., Secs. 5, 7, 9, 15, 19***, 21, 23, 27, 31,	887.79	Water Power Potential/WPD 11	BLM	D	R - unless viable for hydropower

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		33					
OR 19102	EO of 6/29/1917	T. 22 S., R. 8 W., Sec. 24	3	Protect water power and reservoir potential/PSR 630	BLM	D	R - unless viable for hydropower.
OR 19105	EO of 7/24/1917	T. 22 S., R. 7 W., Sec. 19	29.93	Water Power Potential/PSR 633	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 8 W., Secs. 5, 21	20.03	Water Power Potential/PSR 633	BLM	D	R - unless viable for hydropower
		T. 22 S., R. 9 W., Secs. 7, 13, 15***, 17	282.52	Water Power Potential/PSR 633	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 7 W., Secs. 5, 7, 9, 15, 19***, 21, 23, 27, 31, 33	887.79	Water Power Potential/PSR 633	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 8 W., Sec. 11	29.38	Water Power Potential/PSR 633	BLM	D	R - unless viable for hydropower
OR 19106	EO of 7/17/1917	T. 22 S., R. 10 W., Sec. 35	239.95	Water Power Potential/PSR 634	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 9 W., Secs. 7***, 17***, 19***	200.21	Water Power Potential/PSR 634	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 10 W., Secs. 1, 13	211.51	Water Power Potential/PSR 634	BLM	D	R - unless viable for hydropower
		Total Acres for OR 19106:	**651.67**				
OR 19109	EO of 7/17/1917	T. 23 S., R. 10 W., Sec. 35	40	Water Power Potential/PSR 645,	BLM	D	R - unless viable for hydropower
OR 19012	SO of 7/13/1917	T. 23 S., R. 10 W., Sec. 35	40	Water Power Potential/WPD 12	BLM	D	R - unless viable for hydropower
OR 19113	EO of 12/12/1917	T. 26S., 9 W., Secs. 17***, 19***, 29***, 31***		Water Power Potential/PSR 659	BLM	D	R - unless viable for hydropower
		T. 27 S., R. 11 W., Sec. 15	182.8	Water Power Potential/PSR 659	BLM	D	R - unless viable for hydropower
		T. 30 S., R. 9 W., Secs. 9, 17	120	Water Power Potential/PSR 659	BLM	D	R - unless viable for hydropower
		T. 30 S., R. 10 W., Secs. 3, 13	280	Water Power Potential/PSR 659	BLM	D	R - unless viable for hydropower
OR 19014	SO of 12/12/1917	T. 26 S., R. 9 W., Secs. 17***, 19***, 29***, 31***		Water Power Potential/WPD 14	BLM	D	R - unless viable for hydropower
		T. 27 S., R. 11 W., Sec. 15	187	Water Power Potential/WPD 14	BLM	D	R - unless viable for hydropower
		T. 30 S., R. 9 W., Secs. 9, 17	200	Water Power Potential/WPD 14	BLM	D	R - unless viable for hydropower
		T. 30 S., R. 10 W., Sec. 3, 13	280	Water Power Potential/WPD 14	BLM	D	R - unless viable for hydropower
OR 19017	SO of 1/12/1921	T. 27 S., R. 11 W., Secs. 5***, 7****, 17, 19, 21****, 29, 31, 33****	2,418.76	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower
		T. 27 S., R. 12 W., Secs. 11***, 13***, 23***,	1,663.57	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		25***, 27***, 35***					
		T. 28 S., R. 9 W., Sec. 7	335.2	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 10 W., Secs. 3, 5, 9, 11, 15***	1,296.28	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 11 W., Secs. 1, 3, 5***, 7	883.12	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower
		T. 28 S., R. 12 W., Secs. 1****, 3***, 11***, 13, 15***21***,	1,516	Water Power Potential/WPD 17	BLM	D	R - unless viable for hydropower
		Total Acres for OR 19017:	**8,112.93**				
OR 19142	SO of 12/4/1926	T. 22 S., R. 10 W., Secs. 15***, 21***, 22***, 26***, 27***, 34***		Water Power Potential/PSC 157	BLM	D	R - unless viable for hydropower
		T. 23 S., R. 10 W., Sec. 2***	76.86	Water Power Potential/PSC 157	BLM	D	R - unless viable for hydropower
		T. 24 S., R. 8 W., Sec. 31***		Water Power Potential/PSC 157	BLM	D	R - unless viable for hydropower
OR 19116	EO of 12/12/1917	T. 26 S., R. 9 W., Secs.10***, 14***	640	Water Power Potential/PSR 662	BLM	D	R - unless viable for hydropower
		T. 32 S., R. 13 W., Secs. 17, PB 37	387	Water Power Potential/PSR 662	BLM	D	R - unless viable for hydropower
		T. 32 S., R. 14 W., Secs. 11, 12	160	Water Power Potential/PSR 662	BLM	D	R - unless viable for hydropower
	EO of 12/12/1910	T. 25 S., R. 12 W., Secs. 29-33	400	Resource Protection/Coal Lands	BLM		
OR 19180	USGS Order of 7/15/1947	T. 26 S., R. 8 W., Sec. 8	80	Water Power Potential/PSC 382	BLM	D	R - unless viable for hydropower
ORE 013683	PLO 4448	T. 29.5 S., R. 7 W., Secs. 32	4.3	Reclamation Project/Umpqua River	COE	B	C
OR 19142				Water Power Potential/PSC 157	BLM	D	

Table J-3. Withdrawals in the Eugene District.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
ORE 05555	BO of 7/12/1957	T. 15 S., R. 7 W., Sec. 7	40	Air Navigation	FAA	A	C
ORE 013117	PLO 3610	T. 18 S., R. 1 E., Sec. 31	See total acres below	Fall Creek Reservoir	COE	B	C
		T. 19 S., R. 1 E., Sec. 6		Fall Creek Reservoir	COE	B	C
Total Acres for ORE 013117:			**81.2**				
OR 19234	PLO 497	T. 17 S., R. 5 W., Secs. 27, 28	5.27	Fern Ridge Reservoir	COE	A	C
OR 19240	PLO 727	T. 19 S., R. 1 E., Sec. 34	1.37	Lookout Point Reservoir	COE	A	C
OR 711	PLO 4395	T. 16 S., R. 12 W., Sec. 33	1	Oregon Islands National Wildlife Refuge	USFWS	B	C
OR 25306	PLO 6287	T. 16 S., R. 12 W., Sec. 33	1	Oregon Islands National Wildlife Refuge	USFWS	B	C
ORE 016183A	PLO 3869	T. 16 S., R. 7 W., Sec. 19	See total acres below	Lake Creek, Whittaker Creek, Clay Creek, Haight Creek, Sharps Creek Recreation Sites	BLM	B	C
		T. 18 S., R. 8 W., Sec. 21		Lake Creek, Whittaker Creek, Clay Creek, Haight Creek, Sharps Creek Recreation Sites	BLM	B	C
		T. 19 S., R. 7 W., Secs. 19, 35		Lake Creek, Whittaker Creek, Clay Creek, Haight Creek, Sharps Creek Recreation Sites	BLM	B	C
		T. 22 S., R. 1 W., Sec. 15		Lake Creek, Whittaker Creek, Clay Creek, Haight Creek, Sharps Creek Recreation Sites	BLM	B	C
Total Acres for ORE 016183A:			**440.12**				
ORE 012093	PLO 5490	*Various Townships	9,000.52	Reserved for multiple use management	BLM	Surface closed to ag laws	E
OR 8754	PLO 5229	T. 15 S., R. 1 W., Secs. 29, 30, 31, 32	260	Shotgun Creek recreation site	BLM	B	C
OR 46473	PLO 6963	T. 18 S., R. 12 W., Secs. 3, 15	257.6	Florence Sand Dunes	BLM	B	C
OR 48744	PLO 7081	T. 17 S., R. 3 E., Secs. 3, 9, 10, 11	292.25	Eagle Rock Section of McKenzie River	BLM	B	C
OR 19133**	SO of 6/7/1922	T. 19 S., R. 7 W., Secs. 21, 25, 35	See total acres below	Protect water power and reservoir development potential/PSC 41	BLM	D	C
		T. 20 S., R. 6 W., Sec. 5		PSC 41	BLM	D	C
Total Acres for OR 19133:			**550.49**				
OR 19148**	SO of 5/23/1957	T. 20 S., R. 2 W., Sec. 31	See total acres below	Protect water power and reservoir development potential/PSC 180	BLM	D	C
		T. 21 S., R. 1 W., Secs. 31***, 33, 35		Protect water power and reservoir development potential/PSC 180	BLM	D	C
		T. 21 S., R. 2 W., Sec. 15		PSC 180	BLM	D	C
Total Acres for OR 19148:			**300.6**				
OR	DO of	T. 16 S., R. 2 E., Secs. 23,	276.64	Protect water power and reservoir	BLM	D	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
19186**	7/25/1952	24, 27		development potential/PSC 426			
OR 19040**	EO of 7/2/1910	T. 16 S., R. 2 E., Secs. 28***, 34***	See total acres below	Protect water power and reservoir development potential/PSR 95	BLM	D	C
		T. 17 S., R. 2 E., Sec. 2***		PSR 95	BLM	D	C
		T. 17 S., R. 3 E., Sec. 4		PSR 95	BLM	D	C
		Total Acres for OR 19040:	**152.28**				
OR 19059**	EO of 7/10/1910	T. 16 S., R. 3 E., Sec. 31***	See total acres below	Protect water power and reservoir development potential/PSR 285	BLM	D	C
		T. 17 S., R. 3 E., Sec. 4		Protect water power and reservoir development potential/PSR 285	BLM	D	C
		Total Acres for OR 19059:	**163.56**				
OR 19113**	EO of 12/12/1917	T. 15 S., R. 6 W., Sec. 7	See total acres below	Protect water-power development potential/PSR 659	BLM	D	C
		T. 16 S., R. 7 W., Sec. 19		Protect water-power development potential/PSR 659	BLM	D	C
		T. 17 S., R. 8 W., Secs. 1***, 3***, 17****		Protect water-power development potential/PSR 659	BLM	D	C
		T. 18 S., R. 7 W., Secs. 3***, 31, 33		Protect water-power development potential/PSR 659	BLM	D	C
		T. 18 S., R. 8 W., Secs. 17, ***21, 27, 35		Protect water-power development potential/PSR 659	BLM	D	C
		T. 19 S., R. 6 W., Secs. 7, 9, 29, 31		Protect water-power development potential/PSR 659	BLM	D	C
		T. 19 S., R. 7 W., Secs. 1, 3, 5, 9, 19, 21, 27, 35		Protect water-power development potential/PSR 659	BLM	D	C
		T. 19 S., R. 8 W., Secs. 3, 11, 13		Protect water-power development potential/PSR 659	BLM	D	C
		T. 20 S., R. 6 W., Secs. 1, 3, 5, 9, 11		Protect water-power development potential/PSR 659	BLM	D	C
		T. 20 S., R. 7 W., Sec. 3		Protect water-power development potential/PSR 659	BLM	D	C
		Total Acres for OR 19113:	**5,961.48**				
OR 19115**	EO of 12/12/1917	T. 16 S., R. 2 E., Secs. 29, 33***, 35***	See total acres below	Protect water-power development potential/PSR 661	BLM	D	C
		T. 17 S., R. 2 E., Sec. 1***		Protect water-power development potential/PSR 661	BLM	D	C
		T. 17 S., R. 3 E., Secs. 3***, 5***, 9***		Protect water-power development potential/PSR 661	BLM	D	C
		T. 20 S., R. 2 W., Sec. 31		Protect water-power development potential/PSR 661	BLM	D	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 21 S., R. 1 W., Secs. 31***, 33, 35		Protect water-power development potential/PSR 661	BLM	D	C
		T. 21 S., R. 2 W., Secs. 3***, 7***, 31		Protect water-power development potential/PSR 661	BLM	D	C
		T. 22 S., R. 2 W., Secs. 5, 15, 23		Protect water-power development potential/PSR 661	BLM	D	C
		T. 23 S., R. 2 W., Sec. 1		Protect water-power development potential/PSR 661	BLM	D	C
Total Acres for OR 19115:			**1,103.6**				
OR 19116**	EO of 12/12/1917	T. 18 S., R. 8 W., Sec. 28	40	Protect water-power development potential/PSR 662	BLM	D	C
OR 19127**	EO of 2/19/1920	T. 22 S., R. 1 W., Secs. 1***, 5, 9, 15****, 23, 27, 35	1,249.16	Protect water-power development potential/PSR 661	BLM	D	C
OR 19127**	EO of 2/19/1920	T. 23 S., R. 1 W., Secs. 1, 7		PSR 730	BLM	D	C
OR 19014**	SO of 12/12/1917	T. 15 S., R. 6 W., Sec. 7	See total acres below	Protect water-power development potential/WPD 14	BLM	D	C
		T. 16 S., R. 2 E., Secs. 29, 33***, 35***		Protect water-power development potential/WPD 14	BLM	D	C
		T. 16 S., R. 7 W., Sec. 19		Protect water-power development potential/WPD 14	BLM	D	C
		T. 17 S., R. 2 E., Sec. 1***		Protect water-power development potential/WPD 14	BLM	D	C
		T. 17 S., R. 3 E., Secs. 3***, 5***, Sec. 9***		Protect water-power development potential/WPD 14	BLM	D	C
		T. 17 S., R. 8 W., Secs. 1***, 3***		Protect water-power development potential/WPD 14	BLM	D	C
		T. 18 S., R. 7 W., Secs. 31, 33		Protect water-power development potential/WPD 14	BLM	D	C
		T. 18 S., R. 8 W., Secs. 17***, 21, 27, 35		Protect water-power development potential/WPD 14	BLM	D	C
		T. 19 S., R. 6 W., Secs. 7, 9, 29, 31		Protect water-power development potential/WPD 14	BLM	D	C
		T. 19 S., R. 7 W., Secs. 1****, 3****, 5, 9, 11***, 19, 21, 27, 35		Protect water-power development potential/WPD 14	BLM	D	C
		T. 19 S., R. 8 W., Secs. 3, 11, 13		Protect water-power development potential/WPD 14	BLM	D	C
		T. 20 S., R. 2 W., Sec. 31		Protect water-power development potential/WPD 14	BLM	D	C
		T. 20 S., R. 6 W., Secs. 1,		Protect water-power development	BLM	D	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		3, 5, 9, 11		potential/WPD 14			
		T. 20 S., R. 7 W., Sec. 3		Protect water-power development potential/WPD 14	BLM	D	C
		T. 21 S., R. 1 W., Secs. 31****, 33, 35		Protect water-power development potential/WPD 14	BLM	D	C
		T. 21 S., R. 2 W., Secs. 3***, 7, 31		Protect water-power development potential/WPD 14	BLM	D	C
		T. 22 S., R. 1 W., Secs. 1***, 5, 9, 15****, 23, 27, 35		Protect water-power development potential/WPD 14	BLM	D	C
		T. 22 S., R. 2 W., Secs. 5, 15, 23		Protect water-power development potential/WPD 14	BLM	D	C
		T. 23 S., R. 1 W., Secs. 1, 7		Protect water-power development potential/WPD 14	BLM	D	C
		T. 23 S., R. 2 W., Sec. 1		Protect water-power development potential/WPD 14	BLM	D	C
		Total Acres for OR 19014:	**8,234.24**				
OR 19016**	SO of 12/24/1919	T. 23 S., R. 1 W., Sec. 1	80	Protect water power and reservoir development potential/WPD 16	BLM	D	C
OR 52939	PLO 7445	T. 20 S., R. 2 W., Secs. 30, 31, 32, 33, 34	See total acres below	Row River Trail and associated recreation facilities	BLM	B	C
		T. 20 S., R. 3 W., Sec. 25, 36		Row River Trail and associated recreation facilities	BLM	B	C
		T. 21 S., R. 1 W., Secs. 19, 30, 31, 32		Row River Trail and associated recreation facilities	BLM	B	C
		T. 21 S., R. 2 W., Secs. 2, 3, 11, 13, 14, 24		Row River Trail and associated recreation facilities	BLM	B	C
		T. 21 S., R. 3 W., Sec. 1		Row River Trail and associated recreation facilities	BLM	B	C
		T. 22 S., R. 1 W., Sec. 5		Row River Trail and associated recreation facilities	BLM	B	C
		Total Acres for OR 52939:	**178.95**				
OR 50856	PLO 7215	T. 18 S., R. 12 W., Sec. 2	36.52	Pacific Coastline Highway 101	BLM	B	C

Table J-4. Withdrawals in the Klamath Falls Field Office.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
ORE 05433	BO of 6/14/57	T. 40 S., R. 10 E., Sec. 9	80	Air navigation/ANS 57	FAA	A	Modify withdrawal, 80 acres Revoke
		T. 40 S., R. 10 E., Sec. 10	80	Air navigation/ANS 57	FAA	A	80 acres revoked/Partial R/Continue
Total Acres for ORE 05433:			**160**				
OR 36244	BO of 2/11/47	T. 39 S., R. 9 E., Sec. 21	51.12	Kingsley Field	USAF	B	Modify withdrawal. Partial revocation/ continuation
OR19001	EO 5907	T. 38 S., R. 13 E., Sec. 35	40	Public Water Reserve 146	BLM	E	C
OR 20219	EO of 1/24/1914	T. 41 S., R. 13 E., Sec. 6	52.14	Public Water Reserve 15	BLM	E	C
		T. 40 S., R. 13 E., Secs. 19, 31	189.55	Public Water Reserve 15	BLM	E	C
		T. 41 S., R. 12 E., Sec. 1	40	Public Water Reserve 15	BLM	E	C
		T. 40 S., R. 12 E., Sec. 24	160	Public Water Reserve 15	BLM	E	C
Total Acres for OR 20219:			**441.69**				
OR 9041	EO 4/17/1926	T. 41 S., R. 14.5 E., Sec. 1	40	Public Water Reserve 107	BLM	E	C
ORE 016183E	PLO 3869	T. 39 S., R. 13 E., Secs. 2, 11	160	Gerber Reservoir recreation site	BLM	B	C – Needed to protect the investment of federal
ORE 016183D	PLO 3869	T. 38 S., R. 5 E., Sec. 21	40	Surveyor Mountain recreation site	BLM	B	C – Needed to protect the investment of federal
ORE 016183D	PLO 3869	T. 40 S., R. 7 E., Sec. 6	14.35	Topsy recreation site	BLM	B	C – Needed to protect the investment of federal
ORE 012799	PLO 3274	T. 39 S., R. 9 E., Sec. 21	10.04	Administrative site	USFWS	B	R – Suitable for return to Public Domain
OR 20243	SO of 7/9/1904	T. 39 S., R. 14 E., Secs. 5-8, 16-22	See total acres below	Klamath Basin Reclamation Project	BR	B	R – Suitable for return to Public Domain
		T. 38 S., R. 14 E., Secs. 31, 32		Klamath Basin Reclamation Project	BR	B	R – Suitable for return to Public Domain

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		Total Acres for OR 20243:	**3,585.82**				
	SO of 7/27/1904	T. 38 S., R. 13 E., Sec. 35	120	Klamath Basin Reclamation Project	BR	B	R – Wdl relinquished. Suitable for return to BLM.
		T. 39 S., R. 13 E., Secs. 1, 2, 11-14, 23, 26, 27, 33, 34	2,758.87	Klamath Basin Reclamation Project	BR	B	R – Wdl relinquished. Suitable for return to BLM.
		Total Acres for SO of 7/27/1904:	**2,878.87**				
OR 2870	PL 88-567	T. 34 S., R. 6 E., Secs. 1, 12, 13, 25, 26, 35, 36	See total acres below	Upper Klamath National Wildlife Refuge	USFWS		C
		T. 35 S., R. 6 E., Secs. 1, 2, 12, 13, 24, 25, 35, 36, PB 37, 38		Upper Klamath National Wildlife Refuge	USFWS		C
		T. 37 S., R. 8 E., Sec. 36		Upper Klamath National Wildlife Refuge	USFWS	Closed to homestead entry	C
		Total Acres for OR 2870:	**Not available**				
OR 4669	PLO 1512	T. 37 S., R. 7.5 E., Secs. 9, 10	6	Upper Klamath National Wildlife Refuge, Addition	USFWS		C
OR 20587	EO 4851	T. 35 S., R. 6 E., Secs. 1, 2, 12, 13, 24, 25, 35, 36, PB 37, 38	See total acres below	Upper Klamath National Wildlife Refuge	USFWS	B	C
		T. 36 S., R. 6 E., Secs. 2, 3, 11-14, PB 37-42		Upper Klamath National Wildlife Refuge	USFWS	B	C
		Total Acres for OR 20587:	**Not available**				
OR 22625	EO 924	T. 37 S., R. 8 E., Secs. 23-28, 31-36	See total acres below	Lower Klamath National Wildlife Refuge	USFWS	B	C
		T. 40 S., R. 8 E., Secs. 1-16, 21-27, 34-36		Lower Klamath National Wildlife Refuge	USFWS	B	C
		T. 40 S., R. 9 E., Secs. 6-8, 17-21, 27-35		Lower Klamath National Wildlife Refuge	USFWS	B	C
		T. 41 S., R. 10 E., Secs. 7, 17, 18		Lower Klamath National Wildlife Refuge	USFWS	B	C
		T. 41 S., R. 9 E., Secs. 1-6, 8-13		Lower Klamath National Wildlife Refuge	USFWS	B	C
		T. 41 S., R. 8 E., Secs. 1-5, 9-16		Lower Klamath National Wildlife Refuge	USFWS	B	C
		Total Acres for OR 22625:	**Not available**				
OR 20246	SO of 1/28/1905	T. 37 S., R. 8 E., Sec. 17	68.7	Klamath Basin Reclamation Project	BR		R

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 20249	SO of 1/20/1910	T. 34 S., R. 6 E., Secs. 1, 12, 13, 25, 26, 35, 36	See total acres below	Klamath Basin Reclamation Project,	BR	B	R
		T. 35 S., R. 6 E., Secs. 1, 2, 12, 13, 24, 25, 35, 36, PB 37, 38		Klamath Basin Reclamation Project	BR	B	C
		T. 36 S., R. 6 E., Secs. 2, 3, 11-14, PB 37-42		Klamath Basin Reclamation Project	BR	B	C
		Total Acres for OR 20249:	**Not available**				
OR 20253	SO of 6/25/1919	T. 41 S., R. 10 E., Secs. 15, 16,	See total acres below	Klamath Basin Reclamation Project	BR	B	C
		T. 41 S., R. 9 E., Secs. 3-6, 8-10, 12, 14-18		Klamath Basin Reclamation Project	BR	B	C
		T. 41 S., R. 8 E., Secs. 1, 4, 9, 11-16		Klamath Basin Reclamation Project	BR	B	C
		T. 40 S., R. 8 E., Sec.25		Klamath Basin Reclamation Project	BR	B	C
		Total Acres for OR 20253:	**Not available**				
OR 20244	SO of 7/19/1904	T. 40 S., R. 9 E., Sec. 24	See total acres below	Klamath Basin Reclamation Project	BR	B	C
		T. 41 S., R. 9 E., Secs. 3-6, 8-10, 12, 14-17		Klamath Basin Reclamation Project	BR	B	C
		Total Acres for OR 20244:	**Not available**				
OR 20246	SO of 1/28/1905	T. 41 S., R. 9 E., Secs. 3-6, 8-10, 12, 14-17		Klamath Basin Reclamation Project	BR	B	C
OR 20254	SO of 7/31/1919	T. 39 S., R. 11 E., Sec. 19	80	Klamath Basin Reclamation Project	BR	B	R – Withdrawal relinquished, suitable for return to Public Domain
OR 20240	SO of 6/20/1922	T. 41 S., R. 14 E., Secs. 19, 20	29.55	Klamath Basin Reclamation Project	BR	B	C
OR 20259	SO of 2/25/1939	T. 39 S., R. 12 E., Secs. 22, 26	120	Klamath Basin Reclamation Project	BR	B	R – Withdrawal relinquished, suitable for return to Public Domain
OR 20261	SO of 4/21/1940	T. 40 S., R. 14 E., Sec. 5	41.04	Klamath Basin Reclamation Project	BR	B	R – Withdrawal relinquished, suitable for return to Public Domain
OR 20239	SO of 2/21/1946	T. 41 S., R. 14 E., Secs. 15, 20-23	1,063.8	Klamath Basin Reclamation Project	BR	B	C
OR 20264	BO of 2/11/1947	T. 39 S., R. 9 E., Secs. 20-22, 25, 27, 28, 31-34	60.14	Klamath Basin Reclamation Project	BR	B	C
		T. 40 S., R. 9 E., Sec. 3	278.41	Klamath Basin Reclamation Project	BR	B	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
Total Acres for OR 20264:			**338.55**				
OR 20263	SO of 1/6/1944	T. 40 S., R. 9 E., Sec. 15	160	Klamath Basin Reclamation Project	BR	B	C
OR 20262	SO of 6/18/1940	T. 39 S., R. 12 E., Sec. 28	40	Klamath Basin Reclamation Project	BLM	D	C
	SO of 3/31/1939	T. 40 S., R. 14 E., Secs. 5***, 7***, 17***	53.35	Klamath Basin Reclamation Project			C
OR 19085	EO 2/1/1917	T. 41 S., R. 6 E., Secs. 2, 7, 10, 18	313.95	Water Power Potential/PSR 579	BLM	D	C
OR 44762		T. 40 S., R. 6 E., Secs.1, 12-14, 23, 26, 34, 35	See total acres below	Klamath Wild and Scenic River		Various	C
		T. 40 S., R. 7 E., Sec.6		Klamath Wild and Scenic River			C
Total Acres for OR 44762:			**Not available**				
OR 19054	EO 4/13/1912	T. 41 S., R. 6 E., Secs. 4, 8, 10	See total acres below	Water Power Potential/PSR 258	BLM	D	C
		T. 40 S., R. 6 E., Sec. 12, 14, 26, 34		Water Power Potential/PSR 258	BLM	D	C
		T. 41 S., R. 5 E., Sec. 13		Water Power Potential/PSR 258	BLM	D	C
Total Acres for OR 19054:			**1,611.34**				
OR 18974	FPC Order of 1/28/1954	T. 39 S., R. 7 E., Secs. 26-29, 35, 36		Protection of J.C. Boyle Power Project/Power project 2082	FERC		C
		T. 40 S., R. 7 E., Sec. 6	14.47	Protection of J.C. Boyle Power Project/Power project 2082	FERC	B	C
		T. 40 S., R. 6 E., Secs. 1, 12-14, 23, 26, 27, 34, 35	23.41	Protection of J.C. Boyle Power Project/Power project 2082	FERC	B	C
		T. 41 S., R. 6 E., Secs. 3, 5, 6, 10		Protection of J.C. Boyle Power Project/Power project 2082	FERC	B	C
Total Acres for OR 18974:			**Not available**				
OR 19131	SO 5/19/1921	T. 41 S., R. 5 E., Sec. 12	6.42	Protect water, power, and reservoir development Potential/PSC 2	BLM	B	C

Table J-5. Withdrawals in the Medford District.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
ORE 016674	PLO 5105	T. 33 S., R. 1 E., Secs. 11, 13, 14, 23, 24, 27, 35	See total acres below	Lost Creek Reservoir	COE	B	C
		T. 33 S., R. 2 E., Secs. 11, 15, 19		Lost Creek Reservoir	COE.	B	R (716.88 acres)
Total Acres for ORE 016674:			**2,483.48**				
ORE 016753	PLO 6373	T. 32 S., R. 1 E., Sec. 33	See total acres below	Elk Creek Reservoir	COE	B	C
		T. 33 S., R. 1 E., Secs. 5, 9, 21, 29		Elk Creek Reservoir	COE	B	C
Total acres for ORE 016753:			**840.59**				
OR 49	PLO 4132	T. 35 S., R. 6 W., Sec. 9	200	Sprague Orchard	BLM	B	C
OR 10729	PLO 5481	T. 36 S., R. 6 W., Sec. 3	160	Sprague Orchard	BLM	B	C
ORE 04135	PLO 1726	T. 35 S., R. 6 W., Sec.	See total acres below	Recreation area	BLM	B	R (519.8 acres)
		T. 33 S., R. 10 W., Secs.9, 10, 16		Recreation area	BLM	B	C
		T. 33 S., R. 9 W., Secs. 8, 16-18, 22, 23, 26, 35, 36		Recreation area	BLM	B	C
		T. 33 S., R. 8 W., Secs. 32-35		Recreation area	BLM	B	C
		T. 33 S., R. 7 W., Sec. 31		Recreation area	BLM	B	C
		T. 33 S., R. 1 E., Secs. 23, 24, 32		Recreation area	BLM	B	C
		T. 33 S., R. 2 E., Secs. 11, 19		Recreation area	BLM	B	C
		T. 34 S., R. 9 W., Sec. 1, 2		Recreation area	BLM	B	C
		T. 34 S., R. 8 W., Secs. 1, 5, 6, 12, 13, 24, 25		Recreation area	BLM	B	C
		T. 34 S., R. 7 W., Secs. 6, 19, 30, 31		Recreation area	BLM	B	C
		T. 34 S., R. 1 W., Secs. 2, 3, 10		Recreation area	BLM	B	C
		T. 35 S., R. 8 W., Sec. 1		Recreation area	BLM	B	C
		T. 35 S., R. 7 W., Secs. 3-6, 9, 10, 24		Recreation area	BLM	B	C
		T. 36 S., R. 7 W., Secs. 2, 3, 11, 12		Recreation area	BLM	B	C
		T. 36 S., R. 3 W., Secs. 11-13		Recreation area	BLM	B	C
		T. 36 S., R. 2 W., Sec. 13		Recreation area	BLM	B	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 39 S., R. 2 W., Secs.19, 23		Recreation area	BLM	B	C
Total Acres for ORE 04135:			**15,481.14**				
ORE 012261	PLO 3165	T. 33 S., R. 8 W., Sec. 33	See total acres below	Recreation area	BLM	B	C
		T. 34 S., R. 8 W., Secs. 2, 3, 13, 25		Recreation area	BLM	B	C
		T. 35 S., R. 8 W., Sec. 1		Recreation area	BLM	B	C
Total Acres for ORE 012261:			**174.21**				
ORE 016183D	PLO 3869	T. 32 S., R. 9 W., Sec. 16	See total acres below	Recreation area	BLM	B	R
		T. 35 S., R. 9 W., Sec. 11		Recreation area	BLM	B	R
		T. 38 S., R. 7 W., Sec. 1		Recreation area	BLM	B	R
		T. 39 S., R. 2 W., Sec. 25		Recreation area	BLM	B	R
		T. 39 S., R. 3 E., Secs. 21, 22		Recreation area	BLM	B	R
Total Acres for ORE 016183D:			**444.35**				
OR 19008	SO of 1/19/1917	T. 38 S., R. 3 E., Sec. 25***	See total acres below	Water Power Potential/WPD 3	BLM	C	R
		T. 38 S., R. 4 E., Secs. 31***, 33		Water Power Potential/WPD 3	BLM	C	R
		T. 39 S., R. 3 E., Secs. 3***, 11***, 15***,		Water Power Potential/WPD 3	BLM	C	R
		T. 39 S., R. 4 E., Secs. 5***, 9, 15, 21****, 27****		Water Power Potential/WPD 3	BLM	C	R
Total Acres for OR 19008:			**5,631.54**				
OR 19010	SO of 4/27/1917	T. 33 S., R. 1 E., Secs. 23, 27, 32, 33****	See total acres below	Water Power Potential/WPD 10	BLM	C	C
		T. 33 S., R. 2 E., Sec. 1***, 11***, 15, 17***, 19****		Water Power Potential/WPD 10	BLM	C	C
		T. 33 S., R. 3 E., Sec. 7***		Water Power Potential/WPD 10	BLM	C	C
		T. 34 S., R. 1 W., Sec. 3****, 15, 21***, 29***		Water Power Potential WPD 10	BLM	C	C
		T. 34 S., R. 1 E., Secs. 3****, 11***, 13, 23***, 25****, 35		Water Power Potential WPD 10	BLM	C	C
		T. 34 S., R. 2 E., Sec.7, 33****		Water Power Potential WPD 10	BLM	C	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 35 S., R. 7 W., Secs. 3-5 9-11, 13, 25***, 35***		Water Power Potential WPD 10	BLM	C	C
		T. 35 S., R. 6 W., Sec. 19		Water Power Potential WPD 10	BLM	C	C
		T. 35 S., R. 6 W., Secs. 5***, 9***, 13****		Water Power Potential WPD 10	BLM	C	C
		T. 35 S., R. 1 E., Secs. 1, 3, 5, 17		Water Power Potential WPD 10	BLM	C	C
		T. 35 S., R. 2 E., Sec. 13		Water Power Potential WPD 10	BLM	C	C
		T. 35 S., R. 3 E., Sec. 7		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 7 W., Sec. 11		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 6 W., Sec. 21		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 5 W., Secs. 21***, 23***		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 7 W., Secs. 19, 21****, 25****, 29***		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 3 W., Secs. 11, 13, 17***, 21***		Water Power Potential WPD 10	BLM	C	C
		T. 36 S., R. 2 W., Secs. 1***, 13***, 15***		Water Power Potential WPD 10	BLM	C	C
		T. 38 S., R. 8 W., Secs. 27, 35		Water Power Potential WPD 10	BLM	C	C
		T. 39 S., R. 8 W., Secs. 3, 5****, 9****, 17, 20***, 27***, 29		Water Power Potential WPD 10	BLM	C	C
		Total Acres for OR 19010:	**12,228.88**				
OR 19013	SO of 4/27/1917	T. 32 S., R. 6 W., Sec. 23	See total acres below	Transmission Line/WPD 13	BLM	C	R
		T. 33 S., R. 6 W., Sec. 15		Transmission Line/WPD 13	BLM	C	R
		T. 33 S., R. 1 E., Secs. 13, 32, 33		Transmission Line/WPD 13	BLM	C	R
		T. 33 S., R. 2 E., Secs. 17-19		Transmission Line/WPD 13	BLM	C	R
		T. 34 S., R. 5 W., Secs. 17, 29		Transmission Line/WPD 13	BLM	C	R
		T. 34 S., R. 1 W., Sec. 21		Transmission Line/WPD 13	BLM	C	R
		T. 34 S., R. 1 W., Secs. 9, 21, 29, 31		Transmission Line/WPD 13	BLM	C	R
		T. 35 S., R. 5 W., Sec. 19		Transmission Line/WPD 13	BLM	C	R
		T. 36 S., R. 5 W., Secs. 5, 23		Transmission Line/WPD 13	BLM	C	R

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 36 S., R. 4 W., Sec. 21		Transmission Line/WPD 13	BLM	C	R
		T. 36 S., R. 2 W., Sec. 1		Transmission Line/WPD 13	BLM	C	R
		T. 39 S., R. 2 E., Sec. 17, 35		Transmission Line/WPD 13	BLM	C	R
		T. 40 S., R. 3 E., Secs. 7, 17, 21, 27, 35		Transmission Line/WPD 13	BLM	C	R
		T. 41 S., R. 3 E., Sec. 1		Transmission Line/WPD 13	BLM	C	R
		T. 41 S., R. 4 E., Secs. 7, 17		Transmission Line/WPD 13	BLM	C	R
		Total Acres for OR 19013:	**127.27**				
OR 19018	SO of 4/13/1942	T. 33 S., R. 4 W., Sec. 31	See total acres below	Water Power Potential/WPD 18	BLM	C	C
		T. 34 S., R. 5 W., Sec. 31		Water Power Potential/WPD 18	BLM	C	C
		T. 34 S., R. 4 W., Sec. 5		Water Power Potential/WPD 18	BLM	C	C
		T. 34 S., R. 3 W., Secs. 23, 25, 35		Water Power Potential/WPD 18	BLM	C	C
		Total Acres for OR 19018:	**872.35**				
OR 19047	EO of 12/1/1910	T. 33 S., R. 1 E., Secs. 24, 32, 31****	See total acres below	Power Site Potential/PSR 161	BLM	C	C
		T. 34 S., R. 1 W., Secs. 2, 3, 10		Power Site Potential/PSR 161	BLM	C	C
		Total Acres for OR 19047:	**157.49**				
OR 19048	EO of 12/19/1910	T. 35 S., R. 7 W., Secs. 4, 6, 10, 26	See total acres below	Power Site Potential/PSR 167	BLM	C	C
		T. 36 S., R. 7 W., Secs. 2***, 12		Power Site Potential/ PSR 167	BLM	C	C
		T. 36 S., R. 3 W., Secs. 11, 12***		Power Site Potential/PSR 167	BLM	C	C
		Total Acres for OR 19048:	**495.38**				
OR 19078	EO of 3/28/1916	T. 36 S., R. 4 W., Secs. 22, 24***	2.17	Power Site Potential/PSR 528	BLM	C	C
OR 19088	EO of 1/19/1917	T. 38 S., R. 3 E., Sec. 25****	See total acres below	Power Site Potential/PSR 583	BLM	C	R
		T. 38 S., R. 4 E., Secs. 31, 33		Power Site Potential/PSR 583	BLM	C	R
		T. 39 S., R. 4 E., Secs. 5****, 9, 15, 21, 27		Power Site Potential/PSR 583	BLM	C	R
		Total Acres for OR 19088:	**1,799.03**				
OR 19089	EO of 1/19/1917	T. 39 S., R. 3 E., Secs. 3, 11, 15	160	Power Site Potential/PSR 584	BLM	C	R
OR 19094	EO of	T. 34 S., R. 1 E., Secs.	See total acres	Power Site Potential/PSR 619	BLM	C	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
	4/30/1917	3****, 11, 13, 23, 25, 35	below				
		T. 34 S., R. 2 E., Sec. 7		Power Site Potential/PSR 619	BLM	C	C
		T. 35 S., R. 1 W., Sec. 13		Power Site Potential/PSR 619	BLM	C	C
		T. 35 S., R. 1 E., Secs. 1, 3, 5, 17		Power Site Potential/PSR 619	BLM	C	C
		T. 35 S., R. 2 E., Secs. 3, 13		Power Site Potential/PSR 619	BLM	C	C
		T. 35 S., R. 3 E., Sec. 7		Power Site Potential/PSR 619	BLM	C	C
Total Acres for OR 19094:			**3,360.34**				
OR 19096	EO of 4/28/1917	T. 33 S., R. 1 E., Secs. 23****, 27****, 33****	See total acres below	Power Site Potential/PSR 621	BLM	C	C
		T. 33 S., R. 2 E., Secs. 1, 11***, 15***, 17***, 19****		Power Site Potential/PSR 621	BLM	C	C
		T. 33 S., R. 3 E., Sec. 7***		Power Site Potential/PSR 621	BLM	C	C
		T. 34 S., R. 1 W., Secs. 3****, 15***, 21***, 29***		Power Site Potential/PSR 621	BLM	C	C
		T. 35 S., R. 7 W., Secs. 3, 5****, 9, 11, 13****, 25***, 35***		Power Site Potential/PSR 621	BLM	C	C
		T. 35 S., R. 6 W., Secs. 19		Power Site Potential/PSR 621	BLM	C	C
		T. 35 S., R. 1 W., Secs. 5***, 9***		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 7 W., Sec. 11***		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 6 W., Sec. 21		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 5 W., Secs. 21***, 23***		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 4 W., Secs. 19***, 21*** 25, 29***		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 3 W., Secs. 11****, 13, 17***, 21***		Power Site Potential/PSR 621	BLM	C	C
		T. 36 S., R. 2 W., Secs. 1***, 13***, 15***		Power Site Potential/PSR 621	BLM	C	C
Total Acres for OR 19096:			**5,379.4**				
OR 19139	SO of 5/8/1926	T. 33 S., R. 10 W., Secs. 3, 9, 10, 12-14	See total acres below	Power Site Potential/PSC 143	BLM	C	C
		T. 33 S., R. 9 W., Secs. 8, 16-18, 23, 26, 36		Power Site Potential/PSC 143	BLM	C	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 33 S., R. 8 W., Secs. 32, 34, 35		Power Site Potential/PSC 143	BLM	C	C
		T. 33 S., R. 7 W., Secs. 31****, 32****		Power Site Potential/PSC 143	BLM	C	C
		T. 33 S., R. 1 E., Secs. 13, 14***, 23		Power Site Potential/PSC 143	BLM	C	C
		T. 33 S., R. 2 E., Sec. 3***		Power Site Potential/PSC 143	BLM	C	C
		T. 34 S., R. 9 W., Sec. 2		Power Site Potential/PSC 143	BLM	C	C
		T. 34 S., R. 8 W., Secs. 2, 6, 12, 13, 24, 25, 35		Power Site Potential/PSC 143	BLM	C	C
		T. 34 S., R. 7 W., Secs. 5, 6, 18, 19****, 30, 31		Power Site Potential/PSC 143	BLM	C	C
		T. 34 S., R. 1 E., Secs. 15, 23		Power Site Potential/PSC 143	BLM	C	C
		T. 34 S., R. 2 E., Sec. 33		Power Site Potential/PSC 143	BLM	C	C
		T. 35 S., R. 8 W., Sec. 1, 2		Power Site Potential/PSC 143	BLM	C	C
		T. 35 S., R. 7 W., Secs. 5-7		Power Site Potential/PSC 143	BLM	C	C
		T. 36 S., R. 7 W., Sec. 2***		Power Site Potential/PSC 143	BLM	C	C
		T. 36 S., R. 2 W., Sec. 18		Power Site Potential/PSC 143	BLM	C	C
		T. 37 S., R. 6 W., Secs.13, 15****, 23, 24		Power Site Potential/PSC 143	BLM	C	C
		T. 37 S., R. 5 W., Secs.17, 19***		Power Site Potential/PSC 143	BLM	C	C
		Total Acres for OR 19139:	**22,948.95**				
OR 19143	SO of 12/10/1926	T. 35 S., R. 7 W., Sec. 5	See total acres below	Power Site Potential/PSC 158	BLM	C	C
		T. 36 S., R. 7 W., Sec. 15****		Power Site Potential/PSC 158	BLM	C	C
		Total Acres for OR 19143:	**71.8**				
OR 19154	SO of 2/27/1929	T. 38 S., R. 4 E., Sec. 32	See total acres below	Power Site Potential/PSC 218	BLM	C	R
		T. 39 S., R. 2 E., Secs. 26, 35		Power Site Potential/PSC 218	BLM	C	R
		T. 39 S., R. 3 E., Secs. 11, 19, 20		Power Site Potential/PSC 218	BLM	C	R
		T. 39 S., R. 4 E., Secs. 5***, 15		Power Site Potential/PSC 218	BLM	C	R
		Total Acres for OR 19154:	**1,482.21**				

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 19173	SO of 4/11/1942	T. 33 S., R. 4 W., Sec. 31	See total acres below	Power Site Potential/PSC 330	BLM	C	C
		T. 34 S., R. 5 W., Sec. 31		Power Site Potential/PSC 330	BLM	C	C
		T. 34 S., R. 4 W., Sec. 5		Power Site Potential/PSC 330	BLM	C	C
		T. 34 S., R. 3 W., Secs. 23, 25, 26, 35		Power Site Potential/PSC 330	BLM	C	C
Total Acres for OR 19173:			**1,151.73**				
OR 19174	SO of 4/27/1943	T. 33 S., R. 1 W., Secs. 29, 33, 35	See total acres below	Power Site Potential/PSC 340	BLM	C	C
		T. 33 S., R. 1 E., Secs. 13, 17, 18, 23, 27, 31		Power Site Potential/PSC 340	BLM	C	C
		T. 33 S., R. 2 E., Secs. 16, 17, 19		Power Site Potential/PSC 340	BLM	C	C
		T. 34 S., R. 1 W., Secs. 9, 15, 23, 27, 29, 31		Power Site Potential/PSC 340	BLM	C	C
		T. 33 S., R. 2 E., Secs. 3, 11, 15, 23		Power Site Potential/PSC 340	BLM	C	C
		T. 35 S., R. 1 W., Sec. 7		Power Site Potential/PSC 340	BLM	C	C
Total Acres for OR 19174:			**5,207.45**				
OR 19291	PLO 3530	T. 39 S., R. 6 W., Secs. 5, 6	210.36	Brewer Spr. RNA	BLM	B	C
ORE 03644	B.O. of 1-24-1956	T. 34 S., R. 1 W., Sec. 10	See total acres below	Rogue River Basin Project	BOR	B	C
		T. 34 S., R. 2 W., Sec. 20		Rogue River Basin Project	BOR	B	C
		T. 34 S., R. 3 E., Sec. 24		Rogue River Basin Project	BOR	B	C
		T. 34 S., R. 4 E., Sec. 32		Rogue River Basin Project	BOR	B	C
		T. 39 S., R. 4 E., Sec. 6		Rogue River Basin Project	BOR	B	C
Total Acres for ORE 03644:			**875.93**				
ORE 011495	PLO 4289	T. 40 S., R. 7 W., Sec. 1****	1,132.39	Rogue River Basin Project	BOR	C	C
ORE 017844	PLO 4037	T. 39 S., R. 4 E., Sec. 6	162.5	Rogue River Basin Project	BOR	B	C
OR 20519	S.O. of 2-20-1943	T. 33 S., R. 1 E., Sec. 32	See total acres below	Medford/SV Project	BOR	B	R
		T. 34 S., R. 1 W., Sec. 2		Medford/SV Project	BOR	B	R
Total acres for OR 20519:			**84.64**				
OR 20572	B.O. of 8-18-1950	T. 35 S., R. 2 W., Secs. 34, 35	80	Air navigation site	FAA	A	C
ORE 03801	PLO 1189	T. 34 S., R. 8 W., Sec. 2	395.5	Recreation area	USFS	B	R
OR 19110	EO of 7/23/1917	T. 32 S., R. 6 W., Sec. 23	See total acres below	Transmission Line/PSR 649	BLM	C	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 33 S., R. 6 W., Sec. 15		Transmission Line/PSR 649	BLM	C	C
		T. 33 S., R. 1 E., Sec. 13		Transmission Line/PSR 649	BLM	C	C
		T. 33 S., R. 2 E., Secs. 9, 17-19		Transmission Line/PSR 649	BLM	C	C
		T. 34 S., R. 5 W., Secs. 17, 29		Transmission Line/PSR 649	BLM	C	C
		T. 34 S., R. 1 W., Sec. 21		Transmission Line/PSR 649	BLM	C	C
		T. 35 S., R. 5 W., Secs. 9, 21, 27, 29, 31		Transmission Line/PSR 649	BLM	C	C
		T. 36 S., R. 5 W., Secs. 5, 23		Transmission Line/PSR 649	BLM	C	C
		T. 36 S., R. 4 W., Sec. 21		Transmission Line/PSR 649	BLM	C	C
		T. 36 S., R. 2 W., Sec. 1		Transmission Line/PSR 649	BLM	C	C
		T. 39 S., R. 2 E., Secs. 17, 35		Transmission Line/PSR 649	BLM	C	C
		T. 40 S., R. 3 E., Secs. 7, 17, 21, 27, 35		Transmission Line/PSR 649	BLM	C	C
		T. 41 S., R. 3 E., Sec. 1		Transmission Line/PSR 649	BLM	C	C
		T. 41 S., R. 4 E., Secs. 7, 17		Transmission Line/PSR 649	BLM	C	C
		Total acres for OR 19110:	**Not available**				
OR 37299	FO of 1/19/1983	T. 31 S., R. 4 W., Secs. 27, 28, 34, 35	See total acres below	Water Power Project/PP-7161	FERC	C	C
		T. 32 S., R. 4 W., Sec. 3		Water Power Project/PP-7161	FERC	C	C
		Total acres for OR 37299:	**Not available**				
OR 19014	SO of 12/12/1917	T. 33 S., R. 10 W., Secs. 9****, 10, 11, 13	See total acres below	Water Power Potential/WPD 14	FERC	C	C
		T. 33 S., R. 9 W., Secs.17, 21, 23, 35		Water Power Potential/WPD 14	FERC	C	C
		T. 33 S., R. 8 W., Secs. 33****, 35		Water Power Potential/WPD 14	FERC	C	C
		T. 34 S., R. 9 W., Sec. 1		Water Power Potential/WPD 14	FERC	C	C
		T. 34 S., R. 8 W., Secs. 1, 3, 5		Water Power Potential/WPD 14	FERC	C	C
		Total Acres for OR 19014:	**Not available**				
OR 19125	EO of 12/27/1919	T. 33 S., R. 10 W., Secs. 9****, 10, 11, 13	See total acres below	Power Site Potential/PSR 728	FERC	C	C
		T. 33 S., R. 9 W., Secs. 17, 21, 23, 35		Power Site Potential/PSR 728	FERC	C	C
		T. 33 S., R. 8 W., Secs. 33****, 35		Power Site Potential/PSR 728	FERC	C	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 34 S., R. 9 W., Sec. 1		Power Site Potential/PSR 728	FERC	C	C
		T. 34 S., R. 8 W., Secs. 1, 3, 5		Power Site Potential/PSR 728	FERC	C	C
		Total Acres for OR 19125:	**Not available**				
OR 4337	PL 90-542	T. 33 S., R. 10 W., Secs. 9-14	See total acres below	Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 33 S., R. 9 W., Secs. 8, 15-18, 21-23, 26, 27, 35, 36		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 33 S., R. 8 W., Secs. 31-36		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 33 S., R. 7 W., Sec. 31		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 34 S., R. 9 W., Secs. 1, 2		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 34 S., R. 8 W., Secs. 1-3, 5, 6, 12, 13, 24, 25, 36		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 34 S., R. 7 W., Secs. 6, 18, 19, 30, 31		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 35 S., R. 8 W., Sec. 1		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 35 S., R. 7 W., Secs. 3-11, 14, 15, 23-26, 35, 36		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 36 S., R. 7 W., Secs. 1, 2, 11-14, 24		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		T. 36 S., R. 6 W., Secs. 18, 19		Protection of Wild and Scenic River values/Rogue W&SR	BLM	A	C
		Total Acres for OR 4337:	**Not available**				
OR 57512	FO of 6/6/2002	T. 36 S., R. 6 W., Secs. 19, 20, 29-31		Water Power Project/PP-12205	FERC	B	R
OR 19098	EO of 5/7/1917	T. 33 S., R. 2 E., Sec. 1***	See total acres below	Power Site Potential/PSR 623	BLM	C	C
		T. 35 S., R. 7 W., Secs. 6****, 10		Power Site Potential/PSR 623	BLM	C	C
		T. 36 S., R. 7 W., Sec. 12		Power Site Potential/PSR 623	BLM	C	C
		Total Acres for OR 19098:					
OR 49212	PLO 7136	T. 34 S., R. 8 W., Sec. 35	See total acres below	Protect Recreation Values/Galice Creek Recreation Area	BLM	B	E
		T. 35 S., R. 8 W., Secs. 2, 3		Protect Recreation Values/Galice Creek Recreation Area	BLM	B	E
		Total Acres for OR 49212:	**290**				

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
ORE 012261	PLO 3259	T. 36 S., R. 3 W., Sec. 11	79.73	Protection of R&PP/Recreation Area	BLM	B	C
OR 49218	PLO 7103	T. 37 S., R. 7 W., Sec. 36	See total acres below	Protection of Scenic, Fisheries, Wildlife, and Recreation Values	BLM	B	C
		T. 37 S., R. 6 W., Sec. 31		Limestone Caves and Crook Creek	BLM	B	C
		T. 39 S., R. 8 W., Sec. 11		Fisheries Area	BLM	B	C
Total Acres for OR 49218:			**758.46**				
OR 19138	SO of 1/7/1926	T. 38 S., R. 8 W., Secs. 9, 26***, 27, 28, 34, 35	See total acres below	Power Site Potential/PSC 123	BLM	C	C
		T. 39 S., R. 8 W., Secs. 5****, 15, 27****, 29, 33, 34****, 35		Power Site Potential/PSC 123	BLM	C	C
		T. 40 S., R. 8 W., Secs. 5****, 9		Power Site Potential/PSC 123	BLM	C	C
Total Acres for OR 19138:			**Not available**				
OR 19093	EO of 4/28/1917	T. 38 S., R. 8 W., Secs. 27, 35	See total acres below	Power Site Potential/PSR 618	BLM	C	C
		T. 39 S., R. 8 W., Secs. 3, 4***, 5, 9****, 17****, 21****, 27***, 29***		Power Site Potential/PSR 618	BLM	C	C
Total Acres for OR 19093:			**Not available**				
OR 19092	EO of 4/28/1917	T. 38 S., R. 8 W., Sec. 28	27.90	Power Site Potential/PSR 617	BLM	C	C
OR 56726	FO of 5/21/2001	T. 39 S., R. 2 E., Secs. 34, 35	See total acres below	Water Power Project/PP-12022	FERC	C	R
		T. 40 S., R. 2 E., Sec. 2		Water Power Project/PP-12022	FERC	C	R
Total Acres for OR 56726:			**Not available**				
OR 18974	FPC Orders OF 4/22/1959, 2/25/1975	T. 39 S., R. 2 E., Secs. 28, 35	See total acres below	Transmission Line/PP-2082	FERC	C	C
		T. 40 S., R. 2 E., Sec. 1		Transmission Line/PP-2082	FERC	C	C
		T. 40 S., R. 3 E., Secs. 6, 17		Transmission Line/PP-2082	FERC	C	C
		T. 41 S., R. 3 E., Sec. 1		Transmission Line/PP-2082	FERC	C	C
		T. 41 S., R. 4 E., Secs. 6-9, 12, 17		Transmission Line/PP-2082	FERC	C	C
Total Acres for OR 18974:			**Not available**				
	Act of 12/30/1982	T. 40 S., R. 2 E., Secs. 31, 32	See total acres below	Protection of wilderness potential/BLM Wilderness Study Area	BLM		C
		T. 41 S., R. 3 E., Secs. 5, 6		Protection of wilderness potential/BLM Wilderness Study Area	BLM		C
Total Acres for Act of 12/30/1982:			**Not available**				

Table J-6. Withdrawals in the Roseburg District.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 19101	EO of 8/7/1917	T. 20 S., R. 7 W., Secs. 25, 27****, 33***, 35	600	Water Power Potential/PSR 629	BLM	D	C
		T. 21 S., R. 7 W., Secs. 5, 9	392.59	Water Power Potential/PSR 629	BLM	D	C
Total Acres for OR 19101:			**992.59**				
OR 19011	SO of 7/13/1959	T. 20 S., R. 7 W., Secs. 25, 27****, 33***, 35	600	Water Power Potential/WPD 11	BLM	D	C
		T. 21 S., R. 7 W., Secs. 5, 9	392.59	Water Power Potential/WPD 11	BLM		C
		T. 22 S., R. 7 W., Secs. 19, 31	47.45	Water Power Potential/WPD 11	BLM	D	C
		T. 23 S., R. 7 W., Secs. 5, 9***, 15, 23, 27		Water Power Potential/WPD 11	BLM	D	C
		T. 24 S., R. 7 W., Secs. 3, 11, 13***, 15***, 17, 21***, 23, 29***, 33		Water Power Potential/WPD 11	BLM	D	C
		T. 25 S., R. 7 W., Secs. 5***, 7****, 9, 15, 17, 21****, 23, 27		Water Power Potential/WPD 11	BLM	D	C
		T. 26 S., R. 2 W., Secs. 7, 13, 15, 17, 23		Water Power Potential/WPD 11	BLM	D	C
		T. 26 S., R. 3 W., Secs. 1, 9***, 11, 17***		Water Power Potential/WPD 11	BLM	D	C
		T. 26 S., R. 4 W., Sec. 7		Water Power Potential/WPD 11	BLM	D	C
		T. 26 S., R. 6 W., Secs. 5***, 7		Water Power Potential/WPD 11	BLM	D	C
		T. 30 S., R. 3 W., Secs. 25****, 29***, 31, 33****, 35		Water Power Potential/WPD 11	BLM	D	C
		T. 30 S., R. 4 W., Secs. 15, 21, 23, 25****, 27		Water Power Potential/WPD 11	BLM	D	C
Total Acres for OR 19011:			**992.59**				
OR 19105	EO of 7/24/1917	T. 22 S., R. 7 W., Secs. 19, 31	47.45	Water Power Potential/PSR 633	BLM	D	C
		T. 23 S., R. 7 W., Secs. 5, 9***, 15, 23, 27		Water Power Potential/PSR 633	BLM	D	C
		T. 24 S., R. 7 W., Secs. 3, 11, 13***, 15***, 17, 21***, 23, 29***, 33		Water Power Potential/PSR 633	BLM	D	C
		T. 25 S., R. 7 W., Secs.		Water Power Potential/PSR 633	BLM	D	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		5***, 7****, 9, 15, 17, 21****, 23, 27					
		T. 26 S., R. 6 W., Secs. 5***, 7		Water Power Potential/PSR 633	BLM	D	C
Total Acres for OR 19105:			**Not available**				
OR 19057	EO of 6/4/1912	T. 23 S., R. 7 W., Secs. 21, 32		Water Power Potential/PSR 280	BLM	D	C
		T. 24 S., R. 7 W., Secs. 20***, 28		Water Power Potential/PSR 280	BLM	D	C
		T. 25 S., R. 7 W., Secs. 6****, 7***		Water Power Potential/PSR 280	BLM	D	C
		T. 26 S., R. 2 W., Sec. 21		Water Power Potential/PSR 280	BLM	D	C
		T. 26 S., R. 3 W., Sec. 9***		Water Power Potential/PSR 280	BLM	D	C
		T. 26 S., R. 4 W., Sec. 18***		Water Power Potential/PSR 280	BLM	D	C
		T. 26 S., R. 6 W., Sec. 8		Water Power Potential/PSR 280	BLM	D	C
		T. 30 S., R. 2 W., Sec. 28		Water Power Potential/PSR 280	BLM	D	C
		T. 30 S., R. 4 W., Sec. 25***		Water Power Potential/PSR 280	BLM	D	C
Total Acres for OR 19057:			**Not available**				
OR 19341	PLO 754	T. 24 S., R. 7 W., Secs. 20, 21	28.28	Timber Preservation	BLM	A	C
ORE 016183B	PLO 3869	T. 21 S., R. 6 W., Sec. 1	80	Gunter recreation site	BLM	B	C
		T. 24 S., R. 7 W., Sec. 13	23.7	Tyee recreation site	BLM	B	C
		T. 25 S., R. 1 W., Sec. 23	20	Scaredman	BLM	B	C
		T. 25 S., R. 1 W., Sec. 24	40	Recreation site	BLM	B	C
		T. 25 S., R. 1 W., Sec. 25	20	Scaredman	BLM	B	C
		T. 25 S., R. 1 W., Sec. 30	40	Recreation site	BLM	B	C
		T. 25 S., R. 2 W., Sec. 15	160	Rock Creek recreation site	BLM	B	C
		T. 25 S., R. 2 W., Sec. 21	320	Mill Pond recreation site	BLM	B	C
		T. 26 S., R. 2 W., Sec. 14	160	Susan Creek Falls	BLM	B	C
		T. 26 S., R. 3 W., Sec. 9	6.44	Lone Rock	BLM	B	C
		T. 27 S., R. 2 W., Sec. 16	178.53	Wolf Creek Trail	BLM	B	C
		T. 27 S., R. 3 W., Sec. 23	80	Cavitt Creek Forest	BLM	B	C
		T. 31 S., R. 8 W., Sec. 35	20	Darby Creek recreation site	BLM	B	C
Total Acres for ORE 016183B:			**Not available**				
OR 1102	EO of 6/29/1917	T. 25 S., R. 7 W., Sec. 6		Water Power Potential/PSR 630	BLM	D	C
OR 3660A	PLO 4537	T. 25 S., R. 7 W., Secs. 9, 10, 15	91.88	Umpqua recreation site	BLM	B	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 19144	SO of 1/20/1970	T. 25 S., R. 8 W., Sec.12	20.8	Water Power Potential/PSC 162	BLM	D	C
		T. 26 S., R. 6 W., Sec. 30***		Water Power Potential/PSC 162	BLM	D	C
		T. 26 S., R. 5 W., Sec. 26		Water Power Potential/PSC 162	BLM	D	C
Total Acres for OR 19144:			**Not available**				
OR 19153	SO of 6/29/1928	T. 26 S., R. 3 W., Sec. 17***		Water Power Potential/PSC 202	BLM	D	C
OR 44740	PL 100-557	T. 26 S., R. 2 W., Secs. 7, 8, 13, -18, . 20-24	1,620	North Umpqua Wild and Scenic River	BLM	VARIOUS	C
OR 18874	*FPC Orders of 12/28/1948 and 5/18/1953	T. 26 S., R. 3 W., Sec. 35		100 foot wide electric transmission line/PP 1927	BLM	B	C
		T. 26 S., R. 2 W., Secs. 7, 13-15, 17, 21, 29-31	110.11	100 foot wide electric transmission line/PP 1927	FERC	B	C
Total Acres for OR 18874:			**Not available**				
OR 19103	EO of 7/10/1917	T. 26 S., R. 2 W., Secs. 7, 13, 15, 17, 23	397.3	Water Power Potential/PSR 631	BLM	D	C
		T. 26 S., R. 3 W., Secs. 1, 9***, 11, 17***		Water Power Potential/PSR 631	BLM	D	C
		T. 26 S., R. 4 W., Sec. 7		Water Power Potential/PSR 631	BLM	D	C
Total Acres for OR 19103:			**Not available**				
OR 19184	SO of 5/29/1951	T. 26 S., R. 2 W., Secs. 14, 22, 24	300	Water Power Potential/PSC 416,	BLM	D	C
OR 19016	SO of 10/24/1919	T. 26 S., R. 2 W., Sec. 21	33.78	Water Power Potential/WPD 16	BLM	D	C
OR 18874	FPC Order of 3/30/1945	T. 26 S., R. 3 W., Secs. 1, 35	12.17	100 foot wide electric transmission line/PP 1927	FERC	B	
OR 5263	PLO 4848	T. 26 S., R. 3 W., Sec. 1	80	Swiftwater recreation site	BLM	B	C
		T. 27 S., R. 2 W., Sec. 1	80	Emile Creek recreation site	BLM	B	
		T. 27 S., R. 2 W., Sec. 8	80	Little River Wayside	BLM	B	
Total Acres for OR 5263:			**585.95**				
ORE 013683	PLO 4448	T. 29 S., R. 7 W., Secs. 17, 21	60.22	Umpqua River Reclamation Project	BR	B	C
		T. 30 S., R. 7 W., Secs. 5, 6	50.15	Umpqua River Reclamation Project	BR	B	C
Total Acres for ORE 013683:			**110.37**				
OR 19113	EO of 12/12/1917	T. 20 S., R. 7 W., Sec. 3	40	Water Power Potential/PSR 659	BLM	D	C
		T. 29 S., R. 9 W., Sec. 35	40	Water Power Potential/PSR 659	BLM	D	C
		T. 30 S., R. 3 W., Secs. 25****, 29***, 31,		Water Power Potential/PSR 659	BLM	D	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		33****. 35					
		T. 30 S., R. 4 W., Secs. 15, 21, 23, 25****. 27		Water Power Potential/PSR 659	BLM	D	C
		T. 30 S., R. 9 W., Sec. 3		Water Power Potential/PSR 659	BLM	D	C
		Total Acres for OR 19113:	**Not available**				
OR 19014	SO of 12/12/1917	T. 20 S., R. 7 W., Sec. 3		Water Power Potential/WPD 14	BLM	D	C
		T. 29 S., R. 9 W., Sec. 35	40	Water Power Potential/WPD 14	BLM	D	C
		T. 30 S., R. 9 W., Sec. 3		Water Power Potential/WPD 14	BLM	D	C
		Total Acres for OR 19014:	**Not available**				
OR 19152	SO of 2/15/1928	T. 30 S., R. 2 W., Secs. 23, 29, 31		Water Power Potential/PSC 198	BLM	D	C
		T. 30 S., R. 4 W., Sec. 15***		Water Power Potential/PSC 198	BLM	D	C
		Total Acres for OR 19152:	**Not available**				
OR 19171	SO of 1/6/1940	T. 30 S., R. 2 W., Sec. 12		Water Power Potential/PSC 315	BLM	D	C
		T. 30 S., R. 3 W., Secs. 19, 29		Water Power Potential/PSC 315	BLM	D	C
		T. 30 S., R. 4 W., Sec. 29		Water Power Potential/PSC 315	BLM	D	C
		T. 31 S., R. 3 W., Sec. 3	83.61	Water Power Potential/PSC 315	BLM	D	C
		Total Acres for OR 19171:	**Not available**				

Table J-7. Withdrawals in the Salem District.

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
OR 23947	PL 96-199	T. 10 S., R. 11 W., Sec. 30	100	Yaquina Head	BLM, USCG	A	C
OR 8920	PLO 5372	T. 8 S., R. 6 W., Sec. 33	80	Little Sink RNA	BLM	B	C
OR 37275	PL 98-328	T. 7 S., R. 3 E., Secs. 12-14;	See total acres below	Table Rock Wilderness	BLM	A	C
		T. 7 S., R. 4 E., Secs. 7-12, 15-22		Table Rock Wilderness	BLM	A	C
Total Acres for OR 37275:			**5,500**				
ORE 05555	BO of 7/12/1957	T. 15 S., R. 7 W., Sec. 7	110.9	Air Navigation/ANS-58-1, Prairie Mtn.	FAA	B	C
ORE 03060	PLO 989	T. 3 S., R. 5 E., Secs. 26-28	600	Fish Hatchery & Eagle Creek	USFWS	B	C
ORE 015487	PLO 3609	T. 4 S., R. 3 E., Sec. 13	320	Seed Orchard/Walter Horning	BLM	B	C
ORE 016183	PLO 3869	T. 3 S., R. 7 W., Sec. 32	35	Recreation site/Alder Glenn	BLM	B	C
ORE 016183	PLO 3869	T. 14 S., R. 7 W., Secs. 25, 26	40	Recreation site /Alsea Falls	BLM	B	C
ORE 016183	PLO 3869	T. 9 S., R. 3 E., Sec. 7	80	Recreation site /Canyon Creek	BLM	B	C
ORE 016183	PLO 3869	T. 12 S., R. 3 E., Sec. 3	80	Recreation site /Dogwood	BLM	B	C
ORE 016183	PLO 3869	T. 9 S., R. 3 E., Sec. 9	120	Recreation site /Elkhorn Valley	BLM	B	C
ORE 016183	PLO 3869	T. 9 S., R. 2 E., Sec. 25	160	Recreation site /Fishermen's Bend	BLM	B	C
ORE 016183	PLO 3869	T. 3 N., R. 3 W., Sec. 21	20	Recreation site /Little Bend	BLM	B	C
ORE 016183	PLO 3869	T. 7 S., R. 6 W., Secs. 4, 9		Recreation site /Mill Creek	BLM	B	C
ORE 016183	PLO 3869	T. 14 S., R. 9 W., Sec. 13	40	Recreation site /Missouri Bend	BLM	B	C
ORE 016183	PLO 3869	T. 3 S., R. 4 E., Sec. 11	160	Recreation site /North Fork Eagle Creek	BLM	B	C
ORE 016183	PLO 3869	T. 4 N., R. 3 W., Sec. 7	30	Recreation site /Scaponia	BLM	B	C
ORE 016183	PLO 3869	T. 11 S., R. 4 E., Sec. 19	80	Recreation site /Yellowbottom	BLM	B	C
OR 6363	PLO 5136	T. 12 S., R. 7 W., Sec. 28	40	Admin. Site/Amarys Peak	USFS	B	C
OR 50856	PLO 7215	T 3 S., R. , 10 W., Sec. 30	See total acres below	Protect Lands/Pacific Coast Hwy	BLM	B	C
		T 4 S., R. , 10 W., Secs. 19, 29		Protect Lands/Pacific Coast Hwy	BLM	B	C
		T 5 S., R. , 10 W., Secs. 5, 6, 20		Protect Lands/Pacific Coast Hwy	BLM	B	C
		T 8 S., R. , 11 W., Sec. 3		Protect Lands/Pacific Coast Hwy	BLM	B	C
		T 9 S., R. , 11 W., Sec. 4		Protect Lands/Pacific Coast Hwy	BLM	B	C
		T .13 S., R. , 11 W., Sec. 28		Protect Lands/Pacific Coast Hwy	BLM	B	C
		T 14 S., R. , 12 W., Sec. 35		Protect Lands/Pacific Coast Hwy	BLM	B	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
Total Acres for OR 50856:			**1,007.2**				
OR 18842	FPC Order of 11/17/1924	T. 2 S., R. 4 E., Sec. 1	24	Electric Power Generator/Sandy River - Marmot Dam Bull Run Project/PP 477	FERC	C	C
		T. 2 S., R. 5 E., Secs. 1, 15	24	Electric Power Generator/Sandy River - Marmot Dam Bull Run Project/PP 477	FERC	C	C
Total Acres for OR 18842:			**48**				
OR 19146	SO of 2/26/1927	T. 7 S., R. 3 E., Secs. 1, 5, 11-13, 15, 22-24		Potential Power Development/Molalla River PSC 170	BLM	D	R
OR 19147	SO of 2/26/1927	T. 8 S., R. 8 W., Sec. 35	957	Potential Power Development/Siletz River/PSC 171	BLM	D	R
OR 19166	SO of 1/3/1938	T. 5 N., R. 6 W., Sec. 6	10	Potential Power Development/Nehalem River/PSC 304	BLM	D	R
		T. 5 N., R. 7 W., Sec. 10	40	Potential Power Development/Nehalem River/PSC 304	BLM	D	R
Total Acres for OR 19166:			**50**				
OR 19183	DO of 11/9/1950	T. 14 S., R. 8 W., Secs. 15, 19, 21, 29	240	Potential Power Development/Alsea River/PSC 413	BLM	D	R
		T. 15 S., R. 8 W., Sec. 7	76	Potential Power Development/Alsea River/PSC 413	BLM	D	R
		T. 15 S., R. 9 W., Sec. 1	40	Potential Power Development/Alsea River/PSC 413	BLM	D	R
Total Acres for OR 19183:			**356**				
OR 19038	EO of 7/2/1910	T. 3 N., R. 8 W., Secs. 10, 18	61	Potential Power Development/Nehalem River/PSR 89	BLM	D	R
OR 19074	EO of 10/23/1914	T. 12 S., R. 1 W., Sec. 34	11	Potential Power Development/Santiam River/PSR 458	BLM	D	R
OR 19113, OR 19014	EO of 12/12/1917, SO of 12/12/1917	Various	6,149	Potential Power Development/Alsea, Nehalem, Scappoose and Trask Rivers/PSR 659, WPD 14	BLM	D	R
OR 19115, OR 19014	EO of 12/12/1917, SO of 12/12/1917	Various	10,370	Potential Power Development/Clackamas River/PSR 661, WPD 14	BLM	D	R
OR 19118	EO of 12/12/1917,	Various	1,143	Potential Power Development/Eagle Creek, So. Yamhill, Molalla and N. Santiam Rivers/PSR 664	BLM	D	R
OR 19127, OR 19014, OR 19016	EO 2/19/1920, SO 12/12/1917, SO of	Various	1,900	Potential Power Development/Clackamas, Nestucca, Sandy, Santiam Rivers/PSR 730, WPD 14 and WPD 16	BLM	D	R

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
	12/24/1919						
OR 1572	PLO 4305	T. 14 S., R. 7 W., Sec. 25	132.5	Recreation site/Alsea Falls	BLM	B	C
OR 3660	PLO 4537	T. 2 S., R. 7 E., Sec. 31	280	Recreation site/Wildwood	BLM	B	C
		T. 8 S., R. 4 E., Sec. 31	160	Recreation site/Salmon Falls	BLM	B	C
		T. 14 S., R. 9 W., Sec. 13	10	Rec Site/Missouri Bend	BLM	B	C
Total Acres for OR 3660:			**450**				
OR 19116	EO of 12/12/1917	T. 1 S., R. 6 W., Sec. 28	80	Protect Water Power and Reservoir Potential/PSR 662	BLM	D	C
		T. 3 S., R. 6 W., Secs. 8, 18	188	Protect Water Power and Reservoir Potential/PSR 662	BLM	D	C
		T. 1 S., R. 7 W., Sec. 26	160	Protect Water Power and Reservoir Potential/PSR 662	BLM	D	C
		T. 3 S., R. 7 W., Secs. 24, 26, 28, 32	1,003	Protect Water Power and Reservoir Potential/PSR 662	BLM	D	C
		T. 1 S., R. 8 W., Secs. 21, 22, 28, 29, 30		Protect Water Power and Reservoir Potential/PSR 662	BLM	D	C
Total Acres for OR 19116:			**Not available**				
OR 19187	DO of 1/21/1958	T. 12 S., R. 3 E., Secs. 10, 17, 19, 20, 27, 30	See total acres below	Protect Water Power and Reservoir Potential/PSC 442	BLM	D	C
		T. 12 S., R. 4 E., Sec. 19		Protect Water Power and Reservoir Potential/PSC 442	BLM	D	C
Total Acres for OR 19187:			**Not available**				
OR 44742	PL 100-557	T. 11 S., R. 3 E., Secs. 23-26, 35, 36	See total acres below	Protection under Wild & Scenic Rivers Act/Quartzville Creek W&SR	BLM	B	C
		T. 12 S., R. 3 E., Secs. 2, 3, 9, 10		Protection under Wild & Scenic Rivers Act/Quartzville Creek W&SR	BLM	B	C
Total Acres for OR 44742:			**Not available**				
OR 59658	PLO 7685	T. 11 S., R. 3 E., Secs. 25, 26, 35	See total acres below	Protection of recreation values/Quartzville Creek	BLM	B	C
		T. 12 S., R. 3 E., Secs. 2, 3, 9, 10		Protection of recreation values/Quartzville Creek	BLM	B	C
Total Acres for OR 59658:			**Not available**				
OR 44744	PL 100-557	T. 03 S., R. 7 E., Sec. 1	See total acres below	Salmon Wild & Scenic River	BLM	B	C
OR 59546	PL 104-208	T. 3 S., R. 10 W., Secs. 6, 7, 18, 19, 30,		Oregon Islands Wilderness Additions	BLM	A	C
		T. 5 N., R. 11 W., Sec. 1		Oregon Islands Wilderness Additions	BLM	A	C
Total Acres for OR 59546:			**95**				
OR 44746	PL 100-557	T. 1 S., R. 4 E., Sec. 1		Sandy Wild & Scenic River	BLM	B	C
OR 53424	PL 104-333	T. 9 S., R. 3 E., Sec. 1	See total acres below	Elkhorn Creek Wild & Scenic	BLM	B	C

Serial Number	Order Number	Legal Description	Acres	Purpose Name	Managing Agency	Segregation Effect	Recommendation
		T. 9 S., R. 4 E., Secs. 5, 6, 7		Elkhorn Creek Wild & Scenic	BLM	B	C
Total Acres for OR 59546:			**Not available**				
OR 11517	PLO 6287	Various		Oregon Islands National Wildlife Refuge	USFWS	B	C
ORE 11235	PLO 2952	T. 12 S., R. 3E.	860	Green Peter Reservoir	COE	C	C

Land Tenure Zone 3 Lands

Table J-8 through **Table J-13** contains Zone 3 lands that are available for disposal.

Table J-8. Land Tenure Zone 3 lands in the Coos Bay District.

Township	Range	Section	Subdivision	Acres	Status
19 S.	12 W.	1	Lots 1 and 2	40.48	PD
20 S.	10 W.	31	Por. lot 10	5.98	PD
20 S.	11 W.	36	Por. lot 9		
21 S.	11 W.	31	Lot 18	37.22	PD
21 S.	11 W.	32	Lots 16 and 23	59.01	PD
22 S.	08 W.	15	Lots 9 and 10	25.30	OC
22 S.	08 W.	21	Lots 7 and 14	2.42	OC
22 S.	13 W.	14	Lots 1 and 2	71.10	PD
25 S.	11 W.	30	Lot 5	39.92	PD
26 S.	08 W.	10	SE¼NE¼	40	PD
26 S.	11 W.	8	NW¼NE¼	40	PD
26 S.	12 W.	9	Por. SE¼SW¼	4	ACQ
26 S.	14 W.	3	Por. Lots 1 and 2, SE¼NW¼	62.18	PD
26 S.	14 W.	28	NW¼NE¼	40	PD
28 S.	12 W.	19	SE¼SE¼	40	CBWR
30 S.	12 W.	5	Lot 6	1.80	OC
30 S.	12 W.	6	Lots 3 and 4	1.14	PD
30 S.	13 W.	21	N½NE¼NW¼	20	PD
32 S.	14 W.	7	N½SW¼NE¼NW¼	5	PD
32 S.	15 W.	4	NE¼SE¼NE¼, S½NE¼NE¼, W1/2SE¼NE¼, Lots 1 - 4	71.75	PD
39 S.	12 W.	8	W½NW¼	80	PD
			Grand Total	**687.30**	**-**

Table J-9. Land Tenure Zone 3 lands in the Eugene District.

Township	Range	Section	Subdivision	Acres	Status
14S.	1E.	19	W½NE¼	80	PD
14S.	1E.	26	SE¼NE¼	40	PD
14S.	1E.	33	NE¼SE¼	40	OC
14 S.	2 E.	6	NE¼SW¼	40	PD
14 S.	3 E.	19	Lot 1	37.02	PD
15 S.	2 W.	25	Por. SE¼SE¼	16.19	OC
16 S.	5 W.	33	Lots 4, 7, and 8, and un-numbered lot	5.66	OC
16 S.	6 W.	7	Lot 6	3.76	OC
16 S.	2 E.	27	S½SE¼, NE¼NW¼	120	OC
16 S.	2 1/2 E.	1	All	32.81	PD
17 S.	1 W.	19	NW¼NE¼	40	OC
17 S.	1 W.	31	Lot 3, SW¼SW¼, SW¼SE¼	125.58	OC
17 S.	3 W.	15	Lot 6	0.85	OC
17 S.	6 W.	35	SE¼SE¼	40	OC
17 S.	11 W.	19	Lot 1	44.82	PD
18 S.	1 W.	5	Por. lot 8	0.84	OC
18 S.	1 W.	26	Lot 7	1.68	PD

Township	Range	Section	Subdivision	Acres	Status
18 S.	2 W.	1	Lots 1 - 4, SW¼NW¼	270.41	OC
18 S.	4 W.	33	SW¼NW¼	40	OC
18 S.	4 W.	35	SE¼NE¼	40	OC
18 S.	5 W.	15	NW¼NW¼	40	OC
18 S.	5 W.	23	SW¼NW¼, W½SW¼	120	OC
18 S.	7 W.	11	Por. NE¼NE¼	3	OC
18 S.	9 W.	7	SE¼SW¼	40	OC
18 S.	10 W.	11	Lot 9	6.24	PD
18 S.	11 W.	18	SE¼SE¼	40	PD
18 S.	12 W.	15	SE¼NE¼	40	PD
19 S.	3 W.	29	SE¼SW¼	40	OC
19 S.	3 W.	35	Lot 3	2.79	OC
19 S.	4 W.	29	Por. NE¼SW¼	0.36	OC
19 S.	4 W.	31	Lot 1, SW¼SE¼	81.33	OC
19 S.	5 W.	1	S½SW¼	80	OC
20 S.	4 W.	6	NE¼NE¼	40.23	PD
20 S.	4 W.	25	SE¼SW¼	40	OC
21 S.	2 W.	7	Lot 1	41.37	OC
21 S.	1 W.	31	Lot 13	1.42	OC
21 S.	4 W.	1	N½NE¼, NW¼NW¼	120	OC
22 S.	1 W.	5	Por. lot 18	2.20	OC
22 S.	3 W.	7	Lots 1 and 2	91.46	OC
			Grand Total	**1850.02**	**-**

Table J-10. Land Tenure Zone 3 lands in the Klamath Falls Field Office.

Township	Range	Section	Subdivision	Acres	Status
37 S.	14 E.	10	W½NE¼	80	PD
38 S.	8 E.	31	Lot 4	10.3	PD
38 S.	11 E.	17	NW¼NE¼	40	PD
38 S.	11 E.	17	E½SE¼	80	PD
38 S.	11 E.	32	NE¼SW¼, NW¼SE¼	80	PD
39 S.	8 E.	6	Lot 8	27.2	PD
39 S.	8 E.	7	Lot 5	16.9	PD
39 S.	11 E.	2	Lot 1	40.24	PD
39 S.	12 E.	28	NE¼SW¼	40	PD
40 S.	8 E.	17	SW¼SE¼	40	PD
40 S.	8 E.	33	NE¼SW¼	40	PD
40 S.	9 E.	23	SW¼NW¼	40	PD
40 S.	11 E.	9	N½NW¼, SE¼NW¼	120	PD
40 S.	11 E.	9	SE¼NE¼	40	PD
40 S.	11 E.	10	SE¼NE¼, S½NW¼, E½SW¼, W½SE¼	280	PD
40 S.	11 E.	14	NW¼NE¼, NE¼NW¼, S½NW¼, N½SW¼	240	PD
40 S.	12 E.	10	SE¼NW¼	40	PD
40 S.	12 E.	10	W½SE¼	80	PD
40 S.	12 E.	14	SE¼NW¼, N½SW¼, SW¼SW¼, NW¼SE¼	200	PD
40 S.	12 E.	15	N½NE¼	80	PD

Township	Range	Section	Subdivision	Acres	Status
40 S.	12 E.	15	SE¼SW¼, N½SW¼	120	PD
40 S.	12 E.	21	NE¼SE¼	40	PD
40 S.	12 E.	22	SW¼NE¼, SE¼NW¼	80	PD
40 S.	13 E.	35	SW¼NE¼	40	PD
41 S.	7 E.	13	NE¼NE¼	40	PD
41 S.	7 E.	13	Lot 4	24.69	PD
41 S.	11 E.	8	Lot 6	7.12	PD
			Grand Total	**1966.45**	**-**

Table J-11. Land Tenure Zone 3 lands in the Medford District.

Township	Range	Section	Subdivision	Acres	Status
33 S.	2 E.	1	SE¼SW¼	40	PD
34 S.	2 E.	29	SE¼NE¼	40	PD
34 S.	6 W.	22	NW¼SE¼	40	PD
34 S.	6 W.	33	SW¼SW¼, E½SW¼	120	OC
34 S.	6 W.	35	NW¼NE¼	40	OC
34 S.	8 W.	26	Lot 3	24.23	PD
35 S.	1 W.	15	NW¼SE¼	40	OC
35 S.	5 W.	31	SE¼NW¼, SW¼, W½SE¼	281.12	OC
35 S.	5 W.	32	SW¼NE¼, W½SE¼, NE¼SE¼	160	PD
35 S.	6 W.	11	E½NE¼, SW¼NE¼, NE¼SE¼	160	OC
35 S.	6 W.	14	NW¼SE¼	40	PD
35 S.	6 W.	17	NE¼NE¼, NW¼NW¼	80	OC
35 S.	6 W.	19	NE¼, N½NW¼	239.94	OC
35 S.	6 W.	21	NE¼NE¼	40	OC
35 S.	6 W.	29	NW¼NW¼	40	OC
35 S.	6 W.	30	S½SW¼	80	PD
35 S.	6 W.	31	SW¼NE¼, W½, NW¼SE¼	403.96	OC
35 S.	6 W.	33	E½NE¼, E½NW¼, NW¼NW¼, SE¼SE¼	240	OC
35 S.	6 W.	5	S½NE¼, SE¼SW¼, SE¼	280	OC
35 S.	6 W.	7	NE¼NE¼, N½NW¼, SW¼NW¼, SE¼NE¼	198.71	OC
36 S.	1 E.	6	SE¼SE¼	40	PD
36 S.	2 E.	34	SE¼SW¼, SW¼SE¼	80	PD
36 S.	3 W.	21	NE¼SW¼	40	OC
36 S.	3 W.	33	SW¼SW¼	40	OC
36 S.	3 W.	33	NW¼SE¼SW¼	10	PD
36 S.	3 W.	35	NE¼NE¼	40	OC
36 S.	4 W.	25	SE¼SW¼, S½SW¼SE¼	60	OC
36 S.	4 W.	35	Lot 5, W½SW¼	112.4	OC
36 S.	5 W.	29	S½SW¼	80	OC
36 S.	5 W.	4	E½NW¼, N½SW¼	159.26	PD
36 S.	5 W.	5	SE¼NE¼, NE¼SE¼	80	OC
36 S.	5 W.	9	W½E½, E½W½, E½NW¼SW¼	340	OC
36 S.	6 W.	1	Lots 2 - 4, S½NE¼, N½SW¼, SE¼NW¼, W½SE¼, SE¼SE¼	440.2	OC
36 S.	6 W.	11	NW¼NE¼	40	OC

Township	Range	Section	Subdivision	Acres	Status
36 S.	6 W.	17	N½N½	160	OC
36 S.	6 W.	3	SW¼, S½SE¼	240	OC
36 S.	6 W.	30	NW¼SW¼	37.78	PD
36 S.	6 W.	31	NW¼NW¼	37.47	OC
36 S.	6 W.	33	SE¼NE¼	40	OC
36 S.	6 W.	4	W½W½	161.06	PD
36 S.	6 W.	5	E½SE¼, SW¼NW¼, W½SW¼	200	OC
36 S.	6 W.	8	W½SE¼, SE¼SE¼	120	PD
36 S.	6 W.	9	N½NW¼, SW¼NW¼, E½SE¼	200	OC
37 S.	1 E.	15	SE¼NW¼	40	OC
37 S.	3 W.	1	Lot 8	13.82	PD
37 S.	3 W.	4	Lot 2	4.28	PD
37 S.	3 W.	5	Lot 7	39.69	PD/OC
37 S.	3 W.	5	Lot 8	30.72	PD/OC
37 S.	3 W.	5	Lot 9	4.78	PD
37 S.	5 W.	18	W½SW¼	90.4	PD
37 S.	5 W.	5	NE¼NW¼, SW¼NW¼, NW¼SW¼	118.87	OC
37 S.	5 W.	7	W½SW¼	90.15	OC
37 S.	6 W.	11	N½NW¼	80	OC
37 S.	6 W.	13	SW¼SE¼, E½SE¼	120	OC
37 S.	6 W.	15	NE¼NE¼, SW¼NE¼, SE¼NW¼	120	OC
37 S.	6 W.	24	NW¼NE¼	40	PD
37 S.	6 W.	3	SE¼NE¼, NE¼SE¼	80	OC
37 S.	6 W.	8	NE¼NE¼	40	PD
37 S.	6 W.	9	NE¼, N½SW¼, SE¼SW¼, W½SE¼, NE¼SE¼	400	OC
38 S.	1 E.	3	SW¼NW¼	40	OC
38 S.	1 E.	5	SE¼NE¼	40	OC
38 S.	1 W.	21	Lot 1, NE¼SW¼, S½SW¼	147.04	OC
38 S.	2 E.	34	SW¼NW¼, NW¼SW¼	80	PD
38 S.	2 W.	10	NE¼NW¼	40	PD
38 S.	2 W.	28	Lot 1	5	PD
38 S.	4 W.	17	NE¼NE¼	40	OC
38 S.	4 W.	25	Lot 7	9.26	PD
39 S.	1 W.	1	NE¼NE¼	40.23	OC
39 S.	2 W.	18	NW¼NE¼SW¼	10	PD
40 S.	8 W.	1	Lots 7 and 8	11.53	OC
40 S.	8 W.	5	Lots 6 and 7	21.21	OC
			Grand Total	**7143.11**	**-**

Table J-12. Land Tenure Zone 3 lands in the Roseburg District.

Township	Range	Section	Subdivision	Acres	Status
24 S.	5 W.	29	Lot 5	28	OC
24 S.	6 W.	27	W½, SW¼SE¼	360	OC
25 S.	6 W.	3	NW¼NE¼, NE¼SW¼, NE¼SE¼	122	OC
25 S.	6 W.	33	SE¼SE¼	40	OC
26 S.	2 W.	17	NE¼NE¼SE¼SE¼ (part North of Highway 138)	0.3	OC

Township	Range	Section	Subdivision	Acres	Status
26 S.	4 W.	10	Lot 1	7	PD
26 S.	4 W.	17	Lots 9 and 10	12	OC
26 S.	6 W.	17	Lot 2, SE¼NW¼, SE¼SW¼, SW¼SE¼	126	OC
26 S.	6 W.	3	SE¼NE¼, NE¼SE¼	80	OC
27 S.	4 W.	7	Lot 2	4	OC
28 S.	4 W.	29	SE¼NE¼	40	OC
28 S.	5 W.	28	NW¼NW¼	40	PD
28 S.	5 W.	29	E½NE¼	80	OC
30 S.	2 W.	34	SE¼SW¼	40	PD
30 S.	4 W.	1	Lot 9	4	OC
30 S.	6 W.	18	Lots 1 and 2	39	PD
			Grand Total	**1022.3**	**-**

Table J-13. Land Tenure Zone 3 lands in the Salem District.

Township	Range	Section	Subdivision	Acres	Status
3 N.	1 W.	9	Lot 8	1.24	Ot
3 N.	8 W.	10	NW¼NE¼	40	PD
3 N.	8 W.	11	Lot 2	0.01	PD
5 N.	6 W.	6	Lot 9	2.12	PD
5 N.	7 W.	10	SW¼NE¼	40	PD
7 N.	4 W.	6	Lot 7	0.03	PD
1 S.	3 W.	7	Lot 1	0.18	OC
1 S.	3 W.	8	Lot 1	0.05	PD
2 S.	2 E.	4	Lot 2	0.04	PD
2 S.	2 E.	9	Lot 7	0.11	Ot
2 S.	3 E.	23	Lots 8 and 12	6.25	OC
2 S.	3 E.	25	Lots 7 and 8	1.69	OC
2 S.	3 W.	13	N½SW¼	80	OC
2 S.	3 W.	23	N½NE¼, NE¼NW¼	120	OC
2 S.	4 W.	31	Lot 1	1.30	OC
3 S.	2 E.	7	Lot 1	0.87	OC
3 S.	4 W.	33	Lot 4	0.11	OC
3 S.	9 W.	20	NW¼NE¼	40	PD
3 S.	9 W.	28	SW¼SE¼	40	PD
3 S.	9 W.	33	NW¼NE¼	40	PD
3 S.	10 W.	30	Lot 15	0.45	PD
4 S.	1 E.	21	Lot 1	0.49	OC
4 S.	2 E.	11	NE¼NE¼, SW¼NE¼, E½SW¼, NW¼SE¼	200	OC
4 S.	2 E.	15	NW¼SE¼	40	OC
4 S.	2 E.	33	Lots 1	0.1	OC
4 S.	3 E.	9	SW¼NE¼, NW¼SE¼	80	OC
4 S.	3 E.	19	Un-numbered lot in SW¼SW¼	47.31	OC
4 S.	3 E.	21	E½NE¼, SW¼NW¼, N½SW¼	200	OC
4 S.	3 E.	29	E½NE¼	80	OC
4 S.	3 E.	31	S½NE¼, NW¼SE¼	120	OC
4 S.	1 W.	22	Un-numbered lot	0.5	PD
4 S.	3 W.	2	Lot 1	0.25	PD

Township	Range	Section	Subdivision	Acres	Status
4 S.	3 W.	34	Lots 1 and 2	4.4	PD
4 S.	10 W.	28	Lot 3	0.53	PD
5 S.	3 W.	4	Lot 1	1.16	PD
5 S.	5 W.	13	Lot 3	0.05	OC
5 S.	5 W.	31	Lot 1	3.57	OC
5 S.	5 W.	34	Lot 1	0.93	PD
5 S.	5 W.	35	Lot 1	8	OC
6 S.	3 W.	2	Lot 2	0.2	PD
6 S.	3 W.	5	Lot 1	2	OC
6 S.	1 E.	13	E½NW¼, SW¼NW¼	120	OC
6 S.	1 E.	25	NW¼NE¼, SE¼NW¼	80	OC
6 S.	9 W.	32	W½SE¼	80	PD
6 S.	9 W.	34	NW¼SE¼	40	PD
6 S.	10 W.	35	SE¼NE¼	40	PD
7 S.	1 E.	1	SE¼SW¼	40	OC
7 S.	3 W.	29	Lot 3	5.42	OC
7 S.	6 W.	34	SW¼SE¼	40	OC
8 S.	1 E.	3	SW¼NW¼, SW¼	200	OC
8 S.	1 E.	27	NE¼SW¼	40	OC
8 S.	1 E.	35	Lots 1 and 2, NW¼NW¼, S½	400.22	OC
8 S.	4 W.	24	M&B	1.54	Ot
8 S.	4 W.	25	M&B	8	Ot
8 S.	10 W.	20	W½NW¼NW¼	20	PD
8 S.	11 W.	3	Lot 8	4.73	PD
9 S.	1 W.	21	Lot 7, NW¼NE¼	84.21	OC
9 S.	3 W.	21	Lot 3	0.08	Ot
9 S.	3 W.	24	Un-numbered lot	1.4	PD
9 S.	3 W.	32	Lot 2	4.6	PD
9 S.	4 W.	9	Lot 5	1.16	OC
9 S.	4 W.	14	Lot 9	0.17	PD
9 S.	9 W.	19	Por. lot 29	10	PD
9 S.	9 W.	33	Lot 17	20	PD
9 S.	9 W.	34	W½NW¼SW¼	20	PD
9 S.	10 W.	26	SW¼NW¼	40	PD
9 S.	10 W.	36	Por. lots 5 and 6	10	PD
9 S.	11 W.	1	Lot 6	1.46	PD
9 S.	11 W.	4	SW¼SW¼	40	PD
10 S.	2 W.	8	Lot 1	6.13	PD
10 S.	3 W.	24	Lot 6	0.9	PD
10 S.	4 W.	11	Lot 5	1.52	OC
10 S.	5 W.	19	Lots 1 - 4, NE¼, E½NW¼, E½SW¼	480	OC
10 S.	5 W.	23	Lot 4	0.79	OC
10 S.	6 W.	22	Lots 2 and 3	15.7	PD
10 S.	7 W.	18	SW¼NE¼, SE¼SW¼, W½SE¼	160	PD
10 S.	10 W.	2	Lot 20	20	PD
11 S.	8 W.	6	NE¼SW¼, NW¼SE¼, SE¼SE¼	120	PD
11 S.	9 W.	31	Lot 2	43.25	PD
11 S.	10 W.	12	N½NE¼, NW¼SW¼, NE¼SE¼	160	PD

Township	Range	Section	Subdivision	Acres	Status
11 S.	10 W.	14	Lot 1	2.87	PD
11 S.	10 W.	23	NE¼SE¼	40	PD
11 S.	10 W.	24	SW¼SW¼	40	PD
11 S.	10 W.	25	Lot 1	37.22	PD
11 S.	10 W.	35	SE¼SE¼	40	PD
12 S.	4 E.	30	SE¼SW¼	40	PD
12 S.	4 E.	31	Lot 1, NE¼NW¼	84.81	PD
12 S.	2 W.	13	Lot 6	7.04	Ot
12 S.	6 W.	35	Lot 3	0.2	Ot
12 S.	8 W.	6	Lot 7	40.18	PD
12 S.	8 W.	7	Lots 1 and 2	79.04	PD
12 S.	9 W.	29	E½NE¼, SE¼SE¼	120	PD
12 S.	9 W.	32	E½NE¼, SW¼NE¼	120	PD
12 S.	9 W.	34	NE¼NW¼	40	PD
12 S.	9 W.	35	NE¼NW¼, S½SW¼	120	PD
12 S.	10 W.	6	SW¼SE¼	40	PD
12 S.	10 W.	14	NE¼NE¼	40	PD
12 S.	11 W.	10	Lots 3 and 4	76.16	PD
12 S.	11 W.	17	Lot 5	38.84	PD
13 S.	3 E.	9	NE¼NE¼	40	PD
13 S.	2 E.	24	N½NE¼, SE¼NE ¼	120	PD
13 S.	2 W.	21	NW¼NE¼	40	OC
13 S.	4 W.	30	Lot 5	8.49	PD
13 S.	5 W.	29	Lot 1	0.84	OC
13 S.	9 W.	10	E½NE¼, NE¼SE¼	120	PD
13 S.	9 W.	13	NW¼NW¼	40	PD
13 S.	11 W.	3	SW¼SE¼	40	PD
13 S.	11 W.	28	Lot 9	7.6	PD
13 S.	11 W.	33	NE¼SE¼	40	PD
14 S.	5 W.	25	Lot 1	0.26	OC
14 S.	11 W.	3	Lots 1, 2, and 25	111.5	PD
14 S.	11 W.	4	Lots 29 and 30	84.3	PD
14 S.	11 W.	5	Lot 10	40.62	PD
14 S.	11 W.	6	Lot 16	40	PD
14 S.	11 W.	10	Lots 1, 11 - 13, and 17	210.21	PD
14 S.	11 W.	15	NE¼SE¼	40	PD
14 S.	12 W.	35	SE¼NE¼	40	PD
15 S.	5 W.	6	Lot 5	1.46	PD
			Grand Total	**5596.86**	**-**

Inventory of Communication Sites

Table J-14 through **Table J-19** contains information on existing communication sites. **Appendix B** of the DEIS contains management direction related to management of communication sites.

Table J-14. Communication sites in the Coos Bay District.

Site Name	Township	Range	Section	Quarter Section
Roman Nose	19 S.	9 W.	23	NE¼ and NW¼
Johns's Peak	23 S.	9 W.	27	SW¼
Blue Ridge	26 S.	12 W.	35	SW¼
Signal Tree	29 S.	9 W.	33	SW¼
Anderson Mountain	29 S.	11 W.	21	SW¼
Sugar Loaf	29 S.	12 W.	23	NE¼
Bennett Butte	30 S.	13 W.	20	NW¼
Edson Butte	31 S.	14 W.	23	NW¼
Grizzly Mountain	37 S.	14 W.	4	SE¼
Bosley Butte	39 S.	13 W.	10	SE¼
Palmer Butte	40 S.	13 W.	10	SE¼
Black Mound	40 S.	13 W.	20	SW¼

Table J-15. Communication sites in the Eugene District.

Site Name	Township	Range	Section	Quarter Section
Horse Rock	15 S.	2 W.	1	NW¼
Mt. Tom	15 S.	2 W.	31	SW¼
Buck Mountain	16 S.	2 W.	7	NW¼
South McGowan	16 S.	2 W.	31	NW¼
Amy Road	16 S.	7 W.	1	NW¼ and SW¼
Elk Mountain	16 S.	8 W.	26	NE¼
Windy Peak	16 S.	8 W.	27	SW¼
Black Canyon	17 S.	2 W.	7	SW¼
Camp Creek Ridge	17 S.	2 W.	15	NE¼
Badger Mountain	17 S.	7 W.	35	NE¼
Vaughn Hill	18 S.	6 W.	5	SE¼ and NE¼
Brickerville	18 S.	10 W.	3	NW¼
High Point	19 S.	6 W.	23	NW¼
Eagle's Rest	20 S.	1 W.	12	NE¼
Cougar Mountain	20 S.	3 W.	1	NE¼
Hawley Butte	21 S.	1 W.	29	NE¼
Hobart Butte	22 S.	3 W.	1	NW¼
Laurel Butte	22 S.	3 W.	23	SE¼
Huckleberry Mountain	24 S.	1 W.	6	SW¼

Table J-16. Communication sites in the Klamath Falls Field Office.

Site Name	Township	Range	Section	Quarter Section
Yaniax	37 S.	12 E.	26	SW¼
Harpold	39 S.	11 E.	19	SE¼ and SW¼
Hamaker	40 S.	7 E.	26	NW¼
Stukel	40 S.	10 E.	10	SW¼
			15	NW¼
Buck Butte	40 S.	12 E.	20	NW¼
Brady Butte	41 S.	14 ½ E.	14	NW¼

Table J-17. Communication sites in the Medford District.

Site Name	Township	Range	Section	Quarter Section
Cedar Springs	32 S.	4 W.	25	NE¼
Ninemile Mountain	32 S.	9 W.	13	SW¼
Buck Rock	33 S.	1 W.	15	NW¼
King Mountain	33 S.	5 W.	24	NE¼
Peavine Lookout	34 S.	8 W.	21	NE¼
Flounce Rock	33 S.	2 E.	5	SE¼
Mt. Isabelle	37 S.	3 W.	31	SW¼
Mt. Sexton	34 S.	6 W.	24	SW¼
Elk Mountain	35 S.	5 W.	11	SE¼
Manzanita/Round Top	37 S.	6 W.	31	SE¼
Anderson Butte	38 S.	2 W.	34	NE¼
Nuggett Butte	36 S.	3 W.	9	SE¼
Tin Pan Peak	36 S.	4 W.	23	SW¼
Squires Peak	38 S.	3 W.	34	SE¼
Woodrat	38 S.	3 W.	36	NW¼
Gilbert Peak	35 S.	5 W.	33	NW¼
Fielder Mountain	36 S.	4 W.	7	SE¼
Beacon Hill	36 S.	5 W.	9	SE¼
Mt. Bluie	37 S.	5 W.	3	SE¼
Table Mountain	39 S.	3 E.	8	NW¼
Chestnut Mountain	39 S.	3 E.	35	NW¼
Mt. Baldy	36 S.	5 W.	27	NW¼
Tallowbox	39 S.	4 W.	11	NW¼
Rock Creek	39 S.	5 W.	21	NE¼ and NW¼
Little Grayback Lockout	39 S.	7 W.	2	SE¼
Soda Mountain	40 S.	3 E.	28	NW¼

Table J-18. Communication sites in the Roseburg District.

Site Name	Township	Range	Section	Quarter Section
Yellow Butte	23 S.	6 W.	27	NW¼
Lane Mountain	27 S.	4 W.	25	NE¼
Kenyon Mountain	30 S.	9 W.	3	NW¼
Canyon Mountain	31 S.	5 W.	3	SW¼

Table J-19. Communication sites in the Salem District.

Site Name	Township	Range	Section	Quarter Section
Lookout Point	1 S.	5 E.	13	SE¼
Blind Cabin Ridge	1 S.	5 W.	31	NE¼
Dixie Mountain	2 N.	2 W.	27	NE¼
Brightwood	2 S.	6 E.	14	NW¼
Trask Mountain	2 S.	6 W.	29	NW¼
High Heaven	3 S.	5 W.	33	SE¼
Bald Mountain	3 S.	6 W.	29	SW¼
Goat Mountain	5 S.	4 E.	14	SW¼
Prospect Hill	8 S.	4 W.	24	SE¼
Mt. Horeb	9 S.	4 E.	17	NE¼
Snow Peak	11 S.	2 E.	5	NW¼

Site Name	Township	Range	Section	Quarter Section
Yellowstone Mountain	11 S.	3 E.	32	NW¼
Prairie Mtn. East	15 S.	7 W.	4	SE¼
Prairie Mtn.	15 S.	7 W.	7	SW¼
Prairie Mtn. West	15 S.	7 W.	7	SW¼

Appendix K – Livestock Grazing

This appendix provides the background information regarding standards for range improvements, grazing allotments, and standards for rangeland health. These topics are referenced in Chapters 1-3.

This appendix contains the following:

- Standard procedures and design elements for range improvements within the Medford District and Klamath Falls Field Office
- Grazing Allotments in the Klamath Falls Field Office and Medford District
- Standards for Rangeland Health
- Drought management policies

Standard Procedures and Design Elements for Range Improvements within the Klamath Falls Field Office and Medford District

The following standard procedures and design elements would be adhered to in implementation of the proposed construction of range improvements within the Klamath Falls Field Office and Medford District:

- Inventories and surveys for cultural resources, threatened and endangered species, and Special Status Species would be conducted prior to authorization of any project construction, and appropriate mitigation implemented to reduce or eliminate potential effects.

- Surface disturbance at all project sites would be held to a minimum. Disturbed soil would be rehabilitated to blend into surrounding soil surface and reseeded as needed with a mixture of native grasses, forbs, shrubs, and trees as applicable to replace ground cover, reduce soil loss from wind and water erosion, and discourage the potential establishment of any invasive, non-native plant species.

- Where possible, existing roads and trails would provide access for range improvement construction. If needed, unimproved trails and tracks would be created to reach construction sites and provide access for future maintenance of the improvements. Locate unimproved trails or tracks outside riparian management areas where workable.

All range improvements would be constructed in accordance with USDI BLM Manual 1741-1 (1989, Fencing), USDI BLM Manual 1741-2 (1990, Water Developments) and Oregon Water Resources Department for water developments.

Additional design features specific to the individual types of improvements are the following:

Reservoirs

- Development of reservoirs would involve the construction of pits and dams to impound water for livestock and wildlife use.
- Pits would be in dry lake beds or other natural depressions. Dams would be constructed in drainages or to one side of a drainage, with a diversion ditch constructed into the impoundment area.
- Water right applications would be coordinated as needed with applicable agencies, irrigation districts, and other interested parties.

- A water right permit would be obtained from the Oregon Water Resources Department prior to construction.
- Water storage capacity would not exceed 3.0 acre-feet.
- Dams would be located, if possible, to take advantage of natural spillway sites; otherwise, a spillway would be constructed around the dam for the reservoir. The slopes of the dam must be a minimum 3 to 1 on the upstream face and minimum of 2 to 1 on the downstream face. Minimum width of the top of all dams would be 12 feet.
- The spillway would be designed to withstand the 50-year flood flow without overtopping the dam. It should also direct the pass flow downstream to prevent erosion of the embankment.
- Fill material, if needed, would come from the impoundment area and/or a borrow area for dams.
- Excavated material from pits would be piled adjacent to the pit. The potential for erosion of the excavated material into the pit would be eliminated. Topsoil would be stockpiled and used to rehabilitate the borrow areas.
- All brush, stumps, roots, and organic matter would be cleared from the borrow area and beneath the dam. Only fill materials consisting of non-organic and cohesive soils adjusted in moisture to optimum water content would be used for construction of the dam. Individual layers would not exceed 8 inches in thickness and would be compacted with a sheepsfoot roller or similar equipment. Fill material should be placed in thin layers parallel with the long axis of the dam.

Spring Developments

- The spring source would be fenced to prevent livestock grazing and trampling.
- Escape ramps would be installed in all water troughs to allow wildlife to escape.
- Overflow from troughs would be piped away from the developed source area.

Fencing

- Fences would be designed to prevent the passage of livestock without stopping the movement of wildlife.
- Wire spacing would follow these specifications :The majority of fences would be constructed as follows: 4-wire with the bottom wire 16-18 inches off the ground with the sequence of the remaining 3-wires above this being 6 inches, 6 inches, and 12 inches; the maximum height of the fence (ground to top wire) would be 42 inches.
- The bottom wire on all fencing would be 2-strand smooth wire, not barbed, to facilitate antelope crossings.
- Steel “t-post” spacing would be between 16 feet and 24 feet, depending on local conditions.
- Brace posts, tree scabs, and/or rock jacks (rock cribs) would be constructed to enhance fence integrity with one at least every 0.25 mile.
- No woven wire “sheep” fences would be constructed on public lands.
- Brushing and tree limb removal will be limited to only that necessary for surveying, placement, and construction of a fence.
- Where fences cross existing roads, either gates or cattle guards would be installed.
- Where workable, fence construction would be located outside riparian management areas.

Grazing Allotments in the Klamath Falls Field Office and Medford District

The following tables summarize information for allotments on the Klamath Falls Field Office and the Medford District. **Table K-1** and **Table K-2** contain detailed information about these grazing allotments including acres derived from the BLM allotment and pasture boundary (GRA) theme. For all allotments proposed to be made unavailable to livestock grazing see Appendix B (Management Direction).

Table K-1. Klamath Falls Field Office available grazing allotments.

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Chase Mountain	00101	9,213	195	-	5/15-8/13	C	2001	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 1,681, Horses 100	Critical deer winter range habitat occurs within the allotment. Allotment contains a portion of the HMA.
Edge Creek	00102	8,241	207	-	5/1-9/1	I	2000	Not Meeting Standards; Grazing is not a factor.	Deferred-Rotation		Range Improvement Potential, common allotment, exclosures or other areas closed to grazing, portion proposed for closure.
Buck Mountain[1]	00103	7,416	204	-	5/15-9/1	I	2000	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 1,643	None
Buck Lake	00104	12,019	280	-	6/15-10/15	C	2000	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 2,129	Range Improvement Potential, common allotment, exclosures or other areas closed to grazing
Johnson Prairie	00105	120	12	-	5/1-10/1	C	2000	Not Meeting Standards; Grazing is not a factor.	Yearly		None
Dixie[1]	00107	4,436	320	100	5/1-8/15	I	2002	Not Meeting Standards; Grazing is a factor.	Yearly	Deer 928, Elk 100, Horses 50	Range Improvement Potential, exclosures or other areas closed to grazing. Allotment contains portion of the HMA.
Dry Lake	00140	101	10	-	5/1-6/30	C	2001	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 10	None
Chicken Hills	00141	3,602	80	-	5/15-9/15	C	2001	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 931	None
Long Lake	00142	366	18	-	6/16-9/30	C	2000	Meeting All Standards	Yearly		None
Grubb Springs	00147	3,563	130	-	5/1-9/30	C	2000	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 650	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Adams	00800	40	6	-	4/15-7/15	C	2005	Not Meeting Standards, Grazing is a factor	Yearly		None
Haught	00801	401	27	-	5/1-7/31	C	Not Completed	Not Completed	Yearly	Deer 7	None
Stock Drive	00802	40	2	-	5/1-6/30	C	2006	Meeting All Standards	Yearly		None
J Spring	00803	241	7	-	5/1-6/30	C	2003	Meeting All Standards	Yearly	Deer 6 Antelope 2	None
Bar CL	00804	481	20	22	5/1-5/31	C	Not Completed	Not Completed	Yearly	Deer 10	None
SE 80	00805	80	8	-	5/1-10/31	C	2006	Meeting All Standards	Yearly	Deer 1	None
Two Mile	00806	659	56	-	5/1-9/30	C	2006	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 16 Elk 16	None
Barnwell	00807	1,634	75	-	5/1-6/15	C	Not Completed	Not Completed	Yearly	Deer 80	Range Improvement Potential
Lee	00808	40	10	-	6/1-8/15	C	Not Completed	Not Completed	Yearly		None
Brown	00809	80	30	-	6/1-8/30	C	Not Completed	Not Completed	Yearly	Deer 1	None
Brenda	00810	120	18	-	5/16-6/30	C	2006	Meeting All Standards	Yearly	Deer 24 Elk 24	None
Cheyne	00811	809	51	-	5/1-6/15	C	2004	Meeting All Standards	Yearly	Deer 40	None
Stukel-Coffin	00812	729	55	-	5/1-7/1	C	2002	Meeting All Standards	Yearly	Deer 14, Elk 5	None
Plum Hills	00813	163	20	-	5/1-6/15	C	Not Completed	Not Complete	Yearly	Deer 4	None
Cunningham	00814	839	108	-	5/1-6/15	C	Not Completed	Not Completed	Yearly	Deer 14	None
Stukel-Dehlinger C.	00815	1,683	240	-	4/15-8/8	I	2002	Meeting All Standards	Yearly	Deer 31, Elk 11	None
Stukel-Dehlinger H.	00816	387	30	-	5/10-8/10	C	2002	Meeting All Standards	Yearly	Deer 8	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Drew	00817	766	72	-	5/1-6/30	C	2005	Meeting All Standards	Yearly	Deer 34, Elk 14	None
Duncan	00818	202	15	-	5/1-6/15	C	Not Completed	Not Completed	Yearly	Deer 4	None
Dupont	00819	77	7	-	4/15-6/1	C	Not Completed	Not Completed	Yearly		None
North Horsefly	00821	1,287	68	-	5/1-6/15	C	2007	Meeting All Standards	Yearly	Deer 18	None
Stukel-O'Neill	00822	3,405	210	-	5/1-7/15	I	2002	Meeting All Standards	Yearly	Deer 59, Elk 20	Exclosures or other areas closed to grazing
North Horsefly	00823	569	60	-	6/16-8/1	C	2007	Meeting All Standards	Yearly	Deer 17	None
Jeld-Wen	00824	313	36	-	6/1-7/15	C	2006	Meeting All Standards	Yearly	Deer 7	None
Naylox	00825	757	76	-	5/1-6/30	C	2005	Meeting All Standards	Yearly	Deer 14	None
Haskins	00826	567	80	-	5/1-7/15	C	2004	Meeting All Standards	Yearly	Deer 11	None
Stukel-High	00827	347	17	-	5/1-6/15	C	2003	Meeting All Standards	Yearly	Deer 5	None
Stukel-Hill	00828	975	60	-	5/1-6/15	C	2002	Meeting All Standards	Yearly	Deer 18, Elk 7	None
Horton	00829	757	26	-	4/21-6/30	C	Not Completed	Not Completed	Yearly	Deer 36	Range Improvement Potential
Hungry Hollow	00830	281	40/H	-	6/1-8/30	C	2005	Meeting All Standards	Yearly	Deer 5	Proposed for conversion from horse to cattle
Warlow	00831	560	50	-	5/1-9/30	C	2007	Meeting All Standards	Yearly	Deer 8, Elk 3	None
Jesperson	00832	1,559	158	-	5/1-7/1	C	Not Completed	Not Completed	Yearly	Deer 30, Elk 30	None
Kellison	00834	352	19	-	5/1-6/13	C	2004	Not Meeting Standards; Grazing is not a factor.	Yearly	Deer 6	None
Ketcham	00835	381	20	-	5/1-6/15	C	Not Completed	Not Completed	Yearly	Deer 16	Range Improvement Potential
Harpold Chaining	00836	850	96	-	5/1-5/30	C	2007	Not Meeting Standards; Grazing is a factor.	Yearly	Deer 101	Range Improvement Potential

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Bryant-Horton	00837	1,210	130	-	6/1-7/9	C	2006	Meeting All Standards	Yearly	Deer 24, Elk 8	None
Windy Ridge	00838	602	52	-	5/1-5/31	C	Not Completed	Not Completed	Yearly	Deer 11	Range Improvement Potential
Bryant-Loveness	00839	3,306	490	-	5/1-6/30	C	Not Completed	Not Completed	Yearly	Deer 161 Elk 21	Range Improvement Potential
Bryant-Lyon	00840	569	38	-	5/1-9/30	C	Not Completed	Not Completed	Yearly	Deer 11	None
Marshall	00841	351	14	-	4/21-5/30	C	Not Completed	Not Completed	Yearly	Deer 17	None
Short Lake	00842	428	40	-	5/1-6/30	C	2005	Not Meeting Standards; Grazing is a factor.	Yearly	Deer 42	Range Improvement Potential
McAuliffe	00843	87	10	-	4/16-6/15	C	Not Completed	Not Completed	Yearly	Deer 1	None
Paddock	00844	399	31	-	5/1-6/30	M	2003	Meeting All Standards	Deferred-Rotation	Deer 8, Antelope 3	None
Klamath Hills	00845	197	55	-	4/1-5/31	C	Not Completed	Not Completed	Yearly	Deer 10	None
OK	00846	1,289	105	35	5/1-6/15	C	Not Completed	Not Completed	Yearly	Deer 24	Range Improvement Potential
Swede Cabin	00847	2,018	108	-	5/1-6/15	I	2007	Meeting All Standards	Yearly	Deer 36	Range Improvement Potential
Pope	00848	446	48	-	5/1-7/31	C	2007	Meeting All Standards	Yearly	Deer 19	None
Rajnus Bros.	00849	240	16	-	5/1-6/17	C	Not Completed	Not Completed	Yearly	Deer 10	None
Wilkinson	00850	398	18	-	5/1-6/5	C	Not Completed	Not Completed	Yearly	Deer 6	None
Harpold Ridge	00851	1,049	108	-	4/21-6/30	M	2006	Meeting All Standards	Yearly	Deer 49	None
Rodgers	00852	2,448	235	-	5/1-7/1	I	2003	Meeting All Standards	Yearly	Deer 48, Elk 17	Exclosures or other areas closed to grazing.
7C	00853	646	104	-	5/1-6/30	C	2007	Meeting All Standards	Yearly	Deer 13	None
Jump	00854	200	20	-	5/1-5/30	C	2007	Meeting All Standards	Yearly	Deer 4	None
Bryant-Smith	00855	1,217	109	-	5/15-8/31	C	2007	Meeting All Standards	Yearly	Deer 22, Elk 7	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Bryant-Stastny	00856	443	70	-	5/10-9/30	C	2007	Meeting All Standards	Yearly	Deer 8, Elk 3	None
Bryant-Taylor	00857	765	74	-	4/15-9/30	C	2007	Meeting All Standards	Yearly	Deer 14, Elk 4	None
Swan Lake Rim	00858	6,524	300	-	5/1-6/30	M	2006	Meeting All Standards	Rest-Rotation	Deer 121, Elk 116	Common allotment
Cunard	00859	468	60/H	-	5/1-7/31	C	2002	Meeting All Standards	Rest-Rotation	Deer 7	Proposed for conversion from horse to cattle.
McCartie	00860	556	83	-	5/1-5/30	C	2004	Meeting All Standards	Rest-Rotation	Deer 25	None
Yainax Butte	00861	2,919	120	-	7/1-9/30	M	2005	Meeting All Standards	Deferred-Rotation	Deer 119	Exclosures or other areas closed to grazing.
Klamath Forest Estates	00862	2,742	47	-	5/1-5/31	M	2005	Meeting All Standards	Yearly	Deer 47	None
Wirth	00863	1,361	100	-	4/15-10/15	C	Not Completed	Not Completed	Yearly	Deer 25	None
Rajnus & Son	00864	1,459	110	-	5/1-6/30	C	2007	Not Meeting Standards Grazing is not a factor	Yearly	Deer 28	None
Mills Creek	00865	283	40	-	5/1-6/14	C	Not Completed	Not Completed	Yearly	Deer 5	Range Improvement Potential
Bear Valley	00876	4,980	415	-	7/1-8/9	I	2000/2003	Meeting All Standards	Deferred-Rotation	Deer 94, Antelope 34	Common allotment, exclosures or other areas closed to grazing
Bumpheads	00877	9,385	420	265	4/21-6/30	I	2003	Not Meeting Standards; Grazing is a factor.	Deferred-Rotation	Deer 173, Antelope 63	Exclosures or other areas closed to grazing
Campbell	00878	1,370	47/H	13	5/1-10/26	C	2002	Meeting All Standards	Yearly	Deer 28, Antelope 10	Proposed for conversion from horse to cattle.
DeVaul	00879	378	12	15	5/1-8/30	C	2003	Meeting All Standards	Yearly	Deer 5, Antelope 2	None
Goodlow	00881	348	32	52	5/1-8/31	C	2003	Meeting All Standards	Yearly	Deer 6, Antelope 2	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Horsefly	00882	26,947	2,656	2075	4/15-6/30, 10/1-11/15	I	1999/2003	Meeting All Standards	Rest-Rotation/ High Intensity-Short Duration	Deer 495, Elk 30, Antelope 181	Exclosures or other areas closed to grazing, common allotment
Horton	00883	1,005	58	211	4/21-5/20	C	2002	Meeting All Standards	Yearly	Deer 41, Antelope 6	None
Pankey Basin	00884	309	43	38	5/15-8/31	C	2003	Not Meeting Standards; Grazing is a factor.	Yearly	Deer 5, Antelope 2	Range Improvement Potential, exclosures or other areas closed to grazing
Dry Prairie	00885	8,025	642	358	5/1-9/30	I	1999/2003	Meeting All Standards	Rest-Rotation	Deer 149, Antelope 55	Exclosures or other areas closed to grazing, common allotment, proposed range improvement.
Horse Camp Rim	00886	8,928	445	281	5/1-7/31	I	2003	Meeting All Standards	Rest-Rotation	Deer 172, Antelope 63	Exclosures or other areas closed to grazing
Pitchlog	00887	9,402	434	796	5/10-6/30	I	1999/2003	Meeting All Standards	Rest-Rotation/ High Intensity-Short Duration	Deer 174, Elk 37, Antelope 64	Exclosures or other areas closed to grazing
Rock Creek	00888	2,521	216	639	5/1-5/31	I	2003	Meeting All Standards	Rest-Rotation	Deer 130, Antelope 19	None
Timber Hill	00889	2,542	270	134	6/21-7/31	I	1999/2003	Meeting All Standards	Yearly	Deer 55, Antelope 20	None
Willow Valley	00890	19,925	1,225	506	4/15-6/30	I	2000/2003	Not Meeting Standards, Grazing is a factor	Rest-Rotation	Deer 960, Antelope 141	Exclosures or other areas closed to grazing, common allotment.
Williams	00892	1,854	75	-	5/1-5/31	M	2004	Meeting All Standards	Yearly	Deer 34, Antelope 12	None
Fields	00893	26	6	-	4/21-5/20	C	2005	Meeting All Standards	Yearly	Deer 4, Antelope 1	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[4]	Grazing System	Wildlife AUM's	Other Information
Voight	00894	112	8	-	5/1-6/15	C	2003	Meeting All Standards	Yearly	Deer 2	None
Harpold Canyon	00895	1,085	76	-	5/1-9/30	C	2006	Meeting All Standards	Yearly	Deer 20	None
McFall	00896	578	60	-	5/1-6/30	C	2006	Meeting All Standards	Yearly	Deer 11	Common allotment
Bly Mountain	01800	120	9	-	6/1-8/31	C	Not Completed	Not Completed	Yearly		None

[1] All or a portion of the allotment is located within the Cascade Siskiyou National Monument
[2] Active Preference is cattle AUMs, unless specified as H for domestic horse use.
[3] Selective Management Categories: Improve (I)-managed to resolve a high level of resource conflicts and concerns and receive the highest priority for funding and management actions; Maintain (M)-managed to maintain satisfactory resource conditions and will be actively managed to ensure that resource values do not decline; Custodial (C)-managed custodially to protect resource conditions and values.
[4] In allotments where grazing was a factor to nonattainment of a RHA standard, within one year of the assessment, a change to livestock grazing was implemented to eliminate livestock grazing as a contributing factor.

Table K-2. Medford District grazing allotments.

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use[3]	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[5]	Grazing System	Other Information
Lost Creek	10001	9,962	382	-	Sp, Su, F	I	2001	Not Meeting Standards, Grazing is not a factor	Yearly	Common Allotment
Flat Creek	10002	12,066	328	-	Su, F	C	2000	Not Meeting Standards, Grazing is not a factor	Yearly	None
Longbranch	10004	324	22	-	Sp, Su	C	2002	Meeting All Standards	Yearly	Portion Proposed for Closure
Meadows	10007	1,563	92	-	Sp, Su	I	2003	Meeting All Standards	Yearly	None
Neil-Tarbell	10008	517	56	-	Sp, Su	C	2011	Meeting All Standards	Yearly	None
North Sams Valley	10009	120	8	-	Su	C	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None
Upper Table Rock	10012	714	66	-	Su	I	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Clear Creek	10013	3,794	45	-	Su, F	C	2002	Meeting All Standards	Yearly	None
Lick Creek	10015	201	15	-	Sp, Su	C	2003	Meeting All Standards	Yearly	None
Brownsboro Park	10016	382	68	-	Sp, Su	I	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None
Kanutchan Fields	10017	2,427	177	-	Sp, Su	I	2002	Not Meeting Standards, Grazing is not a factor	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use[3]	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[5]	Grazing System	Other Information
Sugarloaf	10019	1,570	15	-	Sp, Su	C	2002	Meeting All Standards	Yearly	None
Section 9	10021	403	25	-	Sp, Su	C	2003	Meeting All Standards	Yearly	None
Section 7	10022	374	11	-	Sp, Su	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Bull Run	10023	40	5	-	Su	C	2011	Meeting All Standards	Yearly	None
Big Butte	10024	21,802	1,663	-	Sp, Su	I	2000	Not Meeting Standards, Grazing is not a factor	Deferred-Rotation	Common Allotment
Reese Creek	10027	40	7	-	Su	C	1999	Meeting All Standards	Yearly	Common Allotment
Derby Road Sawmill	10029	524	45	-	Sp, Su	C	2003	Meeting All Standards	Yearly	None
Summit Prairie	10031	30,578	1,165	-	Sp, Su, F	I	2000	Not Meeting Standards, Grazing is not a factor	Deferred-Rotation	Common Allotment
Vestal Butte	10035	2,243	120	-	Sp, Su	I	2011	Meeting all Standards	Yearly	None
Bear Mountain	10037	1,006	81	-	Sp, Su	I	2011	Meeting All Standards	Yearly	None
Crowfoot	10038	7,400	365	-	Sp, Su	I	2011	Meeting All Standards	Yearly	None
Crowfoot Creek	10039	516	70	-	Sp, Su	C	2008	Meeting All Standards	Yearly	None
Cobleigh Road	10040	89	7	-	Su	C	2003	Meeting All Standards	Yearly	None
Moser Mountain	10041	40	3	-	Sp	C	2011	Meeting All Standards	Yearly	None
Devon South	10043	412	33	-	Sp, Su	C	2008	Meeting All Standards	Yearly	None
Salt Creek	10044	463	85	-	Sp, Su	I	2002	Meeting All Standards	Yearly	None
Cove Creek	10112	1,290	75	-	Su	I	2011	Not Meeting the Standard and Grazing is a factor	Yearly	None
Buckpoint	10114	3,845	150	-	Su	C	2008	Not Meeting Standards, Grazing is not a factor	Yearly	None
Howard Prairie	10116	24	60	-	F, W	M	2012	Not Meeting the Standard and Grazing is not a factor	Yearly	None
Grizzly	10119	5,153	378	-	Su, F	I	1999	Not Meeting Standards, Grazing is not a factor	Yearly	Common Allotment
Lake Creek Spring	10121	4,250	447	-	Su	I	2009	Not Meeting Standards, Grazing is not a factor	Yearly	None
Lake Creek Summer	10122	4,442	550	-	Su, F	I	2009	Not Meeting Standards, Grazing is not a factor	Yearly	None

Allotment Name	Allotment Number	BLM Acres	Active Grazing Preference (AUMs)[2]	Suspended Grazing Preference (AUMs)	Season-of-Use[3]	Selective Management Category[4]	Rangeland Health Assessment Completed	Rangeland Health Assessment Finding[5]	Grazing System	Other Information
Deer Creek-Reno Lease	10124	4,062	314	-	Su, F	C	2009	Not Meeting Standards, Grazing is not a factor	Yearly	None
Heppsie Mountain	10126	4,105	294	-	Su, F	I	2007	Not Meeting Standards, Grazing is not a factor	Yearly	None
Antelope Road	10132	403	19	-	Sp, Su	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	None
Brownsboro	10133	121	7	-	Sp, Su	C	2003	Not Meeting Standards, Grazing is a factor	Yearly	None
Yankee Reservoir	10134	442	15	-	Su	I	2003	Not Meeting Standards, Grazing is a factor	Yearly	None
Canal	10136	440	58	-	Su	C	2003	Not Meeting Standards, Grazing is a factor	Yearly	None
Cove Ranch	10143	80	20	-	Su, F, W	C	2009	Not Meeting Standards, Grazing is not a factor	Yearly	None
North Cove Creek	10148	284	20	-	Su, F	C	2009	Not Meeting Standards, Grazing is not a factor	Yearly	None
Deadwood[1]	20106	7,966	788	-	Su	I	Not Completed	Not Completed	Yearly	Common Allotment
Poole Hill	20113	1,731	25	-	F	C	2007	Not Meeting Standards, Grazing is not a factor	Yearly	None
Conde Creek	20117	5,491	591	-	Su, F	I	2009	Not Meeting Standards, grazing is a factor	Yearly	Common Allotment
Billy Mountain	20203	4,977	175	-	Sp, Su	I	1999	Not Meeting Standards, Grazing is not a factor	Yearly	None
Lower Big Applegate	20206	11,909	258	-	Sp, Su	I	2012	Not Meeting Standards, Grazing is not a factor.	Yearly	None
Foots Creek	20219	115	12	-	Su	C	2009	Meeting All Standards	Yearly	None
Ferns Lease	20224	248	28	-	Su	C	Not Completed	Not Completed	Yearly	None
Deer Creek	20308	894	77	-	Sp, Su, F, W	C	2003	Not Meeting Standards, Grazing is not a factor	Yearly	Portion Proposed for Closure

[1] All or a portion of the allotment is located within the Cascade Siskiyou National Monument.
[2] Active Preference is cattle AUMs.
[3] Season of use categories for Medford W= winter (Nov-Jan), Sp=spring (Feb-Apr), Su=summer (May-Aug), F=fall (Sept-Oct)
[4] Selective Management Categories: Improve (I)-managed to resolve a high level of resource conflicts and concerns and receive the highest priority for funding and management actions; Maintain (M)-managed to maintain satisfactory resource conditions and will be actively managed to ensure that resource values do not decline; Custodial (C)-managed custodially to protect resource conditions and values.
[5] In allotments where grazing was a factor to nonattainment of a RHA standard, within one year of the assessment, a change to livestock grazing was implemented to eliminate livestock grazing as a contributing factor.

Standards for Rangeland Health

The following section contains the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington.* These standards and guidelines are referenced in *Chapters 2 and 3* of this Draft EIS. Livestock grazing would be managed in accordance with these standards and guidelines.

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
AUGUST 12, 1997

Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington

Introduction

These Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington were developed in consultation with Resource Advisory Councils and Provincial Advisory Committees, tribes and others. These standards and guidelines meet the requirements and intent of 43 Code of Federal Regulations, Subpart 4180 (Rangeland Health) and are to be used as presented, in their entirety. These standards and guidelines 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 condition. Nothing in this document should be interpreted as an abrogation of Federal trust responsibilities in protection of treaty rights of Indian tribes or any other statutory responsibilities including, but not limited to, the Taylor Grazing Act, the Clean Water Act, and the Endangered Species Act.

Fundamentals of Rangeland Health

The objectives of the rangeland health regulations referred to above are "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 western livestock industry and communities that are dependent upon productive, healthy public rangelands."

To help meet these objectives, the regulations on rangeland health identify fundamental principles providing direction to the States, districts, and on-the-ground public land managers and users in the management and use of rangeland ecosystems.

A hierarchy, or order, of ecological function and process exists within each ecosystem. The rangeland ecosystem consists of four primary, interactive components: a physical component, a biological component, a social component, and an economic component. This perspective implies that the physical function of an ecosystem supports the biological health, diversity, and productivity of that system. In turn, the interaction of the physical and biological components of the ecosystem provides the basic needs of society and supports economic use and potential.

The Fundamentals of Rangeland Health stated in 43 CFR 4180 are:

1. Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity and the timing and duration of flow.

2. Ecological processes, including the hydrologic cycle, nutrient cycle and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

3. Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established Bureau of Land Management objectives such as meeting wildlife needs.

4. Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality, and plant and animal populations and communities. They provide direction in the development and implementation of the standards for rangeland health.

Standards for Rangeland Health

The standards for rangeland health (standards), based on the above fundamentals, are expressions of the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems. Although the focus of these standards is on domestic livestock grazing on Bureau of Land Management lands, on-the-ground decisions must consider the effects and impacts of all uses.

Standards that address the physical components of rangeland ecosystems focus on the roles and interactions of geology and landform, soil, climate and water as they govern watershed function and soil stability. The biological components addressed in the standards focus on the roles and interactions of plants, animals and microbes (producers, consumers and decomposers), and their habitats in the ecosystem. The biological component of rangeland ecosystems is supported by physical function of the system, and it is recognized that biological activity influences and supports many of the ecosystem's physical functions.

Guidance contained in 43 CFR 4180 of the regulations directs management toward the maintenance or restoration of the physical function and biological health of rangeland ecosystems. Focusing on the basic ecological health and function of rangelands is expected to provide for the maintenance, enhancement, or creation of future social and economic options.

The standards are based upon the ecological potential and capability of each site. In assessing a site's condition or degree of function, it must be understood that the evaluation compares each site to its own potential or capability. Potential and capability are defined as follows:

- **Potential**-The highest level of condition or degree of function a site can attain given no political, social, or economic constraints.

- **Capability**-The highest level of condition or degree of function a site can attain given certain political, social, or economic constraints. For example, these constraints might include riparian areas permanently occupied by a highway or railroad bed that prevent the stream's full access to its original flood plain. If such constraints are removed, the site may be able to move toward its potential.

In designing and implementing management strategies to meet the standards of rangeland health, the potential of the site must be identified, and any constraints recognized, in order that plan goals and objectives are realistic and physically and economically achievable.

Standards and Guidelines in Relation to the Planning Process

The standards apply to the goals of land use plans, activity plans, and project plans (Allotment Management Plans, Annual Operating Plans, Habitat Management Plans, etc.). They establish the physical and biological conditions or degree of function toward which management of publicly-owned rangeland is to be directed. In the development of a plan, direction provided by the standards and the

social and economic needs expressed by local communities and individuals are brought together in formulating the goal(s) of that plan.

When the standards and the social and economic goals of the planning participants are woven together in the plan goal(s), the quantifiable, time specific objective(s) of the plan are then developed. Objectives describe and quantify the desired future conditions to be achieved within a specified timeframe. Each plan objective should address the physical, biological, social, and economic elements identified in the plan goal.

Standards apply to all ecological sites and landforms on public rangelands throughout Oregon and Washington. The standards require site-specific information for full on-ground usability. For each standard, a set of indicators is identified for use in tailoring the standards to site-specific situations. These indicators are used for rangeland ecosystem assessments and monitoring and for developing terms and conditions for permits and leases that achieve the plan goal.

Guidelines for livestock grazing management offer guidance in achieving the plan goal and objectives. The guidelines outline practices, methods, techniques and considerations used to ensure that progress is achieved in a way, and at a rate, that meets the plan goal and objectives.

Indicators of Rangeland Health

The condition or degree of function of a site in relation to the standards and its trend toward or away from any standard is determined through the use of reliable and scientifically sound indicators. The consistent application of such indicators can provide an objective view of the condition and trend of a site when used by trained observers.

For example, the amount and distribution of ground cover can be used to indicate that infiltration at the soil surface can take place as described in the standard relating to upland watershed function. In applying this indicator, the specific levels of plant cover necessary to support infiltration in a particular soil should be identified using currently available information from reference areas, if they exist; from technical sources like soil survey reports, Ecological Site Inventories, and Ecological Site Descriptions, or from other existing reference materials. Reference areas are lands that best represent the potential of a specific ecological site in both physical function and biological health. In many instances potential reference areas are identified in Ecological Site Descriptions and are referred to as “type locations.” In the absence of suitable reference areas, the selection of indicators to be used in measuring or judging condition or function should be made by an interdisciplinary team of experienced professionals and other trained individuals.

Not all indicators identified for each standard are expected to be employed in every situation. Criteria for selecting appropriate indicators and methods of measurement and observation include, but are not limited to: 1. the relationship between the attribute(s) being measured or observed and the desired outcome; 2. the relationship between the activity (e.g., livestock grazing) and the attribute(s) being measured or observed; and 3. funds and workforce available to conduct the measurements or observations.

Assessments and Monitoring

The standards are the basis for assessing and monitoring rangeland condition and trend. Carrying out well-designed assessment and monitoring is critical to restoring or maintaining healthy rangelands and determining trends and conditions.

Assessments are a cursory form of evaluation based on the standards that can be used at different landscape scales. Assessments, conducted by qualified interdisciplinary teams (which may include but are not limited to physical, biological, and social specialists, and interagency personnel) with participation

from permittees and other interested parties, are appropriate at the watershed and sub-watershed levels, at the allotment and pasture levels and on individual ecological sites or groups of sites. Assessments identify the condition or degree of function within the rangeland ecosystem and indicate resource problems and issues that should be monitored or studied in more detail. The results of assessments are a valuable tool for managers in assigning priorities within an administrative area and the subsequent allocation of personnel, money and time in resource monitoring and treatment. The results of assessments may also be used in making management decisions where an obvious problem exists.

Monitoring, which is the well documented and orderly collection, analysis and interpretation of resource data, serves as the basis for determining trends in the condition or degree of function of rangeland resources and for making management decisions. Monitoring should be designed and carried out to identify trends in resource conditions, to point out resource problems, to help indicate the cause of such problems, to point out solutions, and/or to contribute to adaptive management decisions. In cases where monitoring data do not exist, professional judgment, supported by interdisciplinary team recommendation, may be relied upon by the authorized officer in order to take necessary action. Review and evaluation of new information must be an ongoing activity.

To be effective, monitoring must be consistent over time, throughout administrative areas, and in the methods of measurement and observation of selected indicators. Those doing the monitoring must have the knowledge and skill required by the level or intensity of the monitoring being done, as well as the experience to properly interpret the results. Technical support for training must be made available.

Measurability

It is recognized that not every area will immediately meet the standards and that it will sometimes be a long-term process to restore some rangelands to properly functioning condition. It is intended that in cases where standards are not being met, measurable progress should be made toward achieving those standards, and significant progress should be made toward fulfilling the fundamentals of rangeland health. Measurability is defined on a case-specific basis based upon the stated planning objectives (i.e., quantifiable, time specific), taking into account economic and social goals along with the biological and ecological capability of the area. To the extent that a rate of recovery conforms with the planning objectives, the area is allowed the time to meet the standard under the selected management regime.

Implementation

The material contained in this document will be incorporated into existing Land Use Plans and used in the development of new Land Use Plans. According to 43 CFR 4130.3-1, permits and leases shall incorporate terms and conditions that ensure conformance with 43 CFR 4180. Terms and conditions of existing permits and leases will be modified to reflect standards and guidelines at the earliest possible date with priority for modification being at the discretion of the authorized officer. Terms and conditions of new permits and leases will reflect standards and guidelines in their development.

Indicators identified in this document will serve as a focus of interpretation of existing monitoring data and will provide the basis of design for monitoring and assessment techniques, and in the development of monitoring and assessment plans.

The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining, through assessment or monitoring by experienced professionals and interdisciplinary teams, that a standard is not being achieved and that livestock are a significant contributing factor to the failure to achieve the standards and conform with the guidelines.

Standards for Rangeland Health

Standard 1 Watershed Function – Uplands

Upland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and landform.

Rationale and Intent
This standard focuses on the basic physical functions of upland soils that support plant growth, the maintenance or development of plant populations and communities, and promote dependable flows of quality water from the watershed.

To achieve and sustain rangeland health, watersheds must function properly. Watersheds consist of three principle components: the uplands, riparian/wetland areas and the aquatic zone. This standard addresses the upland component of the watershed. When functioning properly, within its potential, a watershed captures, stores and safely releases the moisture associated with normal precipitation events (equal to or less than the 25 year, 5 hour event) that falls within its boundaries. Uplands make up the largest part of the watershed and are where most of the moisture received during precipitation events is captured and stored.

While all watersheds consist of similar components and processes, each is unique in its individual makeup. Each watershed displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and current condition. In directing management toward achieving this standard, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own capability and how it fits with both smaller and larger units of the landscape. A set of potential indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The appropriate indicators to be used in determining attainment of the standard should be drawn from the following list.

Potential Indicators
Protection of the soil surface from raindrop impact; detention of overland flow; maintenance of infiltration and permeability, and protection of the soil surface from erosion, consistent with the potential/capability of the site, as evidenced by the following:

- Amount and distribution of plant cover (including forest canopy cover)
- Amount and distribution of plant litter
- Accumulation/incorporation of organic matter
- Amount and distribution of bare ground
- Amount and distribution of rock, stone, and gravel
- Plant composition and community structure
- Thickness and continuity of A horizon
- Character of micro-relief
- Presence and integrity of biotic crusts
- Root occupancy of the soil profile
- Biological activity (plant, animal, and insect)
- Absence of accelerated erosion and overland flow

Soil and plant conditions promote moisture storage as evidenced by:

- Amount and distribution of plant cover (including forest canopy cover)
- Amount and distribution of plant litter
- Plant composition and community structure
- Accumulation/incorporation of organic matter

Standard 2 Watershed Function - Riparian/Wetland Areas

Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.

Rationale and Intent
Riparian-wetland areas are grouped into two major categories: 1. lentic, or standing water systems such as lakes, ponds, seeps, bogs, and meadows; and 2. lotic, or moving water systems such as rivers, streams, and springs. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Riparian areas commonly occupy the transition zone between the uplands and surface water bodies (the aquatic zone) or permanently saturated wetlands.

Properly functioning condition of riparian and wetland areas describes the degree of physical function of these components of the watershed. Their functionality is important to water quality in the capture and retention of sediment and debris, the detention and detoxification of pollutants, and in moderating seasonal extremes of water temperature. Properly functioning riparian areas and wetlands enhance the timing and duration of streamflow through dissipation of flood energy, improved bank storage, and ground water recharge. Properly functioning condition should not be confused with the Desired Plant Community (DPC) or the Desired Future Condition (DFC) since, in most cases, it is the precursor to these levels of resource condition and is required for their attainment.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The criteria are based upon the potential (or upon the capability where potential cannot be achieved) of individual sites or land forms.

Potential Indicators
Hydrologic, vegetative, and erosional/depositional processes interact in supporting physical function, consistent with the potential or capability of the site, as evidenced by:

- Frequency of floodplain/wetland inundation;
- Plant composition, age class distribution, and community structure;
- Root mass;
- Point bars re-vegetating;
- Streambank/shoreline stability;
- Riparian area width;
- Sediment deposition;
- Active/stable beaver dams;
- Coarse/large woody debris;
- Upland watershed conditions;

- Frequency/duration of soil saturation; and
- Water table fluctuation.

Stream channel characteristics are appropriate for landscape position as evidenced by:

- Channel width/depth ratio;
- Channel sinuosity;
- Gradient;
- Rocks and coarse and/or large woody debris;
- Overhanging banks;
- Pool/riffle ratio;
- Pool size and frequency; and
- Stream embeddedness.

Standard 3 Ecological Processes

Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.

Rationale and Intent

This standard addresses the ecological processes of energy flow and nutrient cycling as influenced by existing and desired plant and animal communities without establishing the kinds, amounts, or proportions of plant and animal community compositions. While emphasis may be on native species, an ecological site may be capable of supporting a number of different native and introduced plant and animal populations and communities while meeting this standard. This standard also addresses the hydrologic cycle, which is essential for plant growth and appropriate levels of energy flow and nutrient cycling. Standards 1 and 2 address the watershed aspects of the hydrologic cycle.

With few exceptions, all life on earth is supported by the energy supplied by the sun and captured by plants in the process of photosynthesis. This energy enters the food chain when plants are consumed by insects and herbivores and passes upward through the food chain to the carnivores. Eventually, the energy reaches the decomposers and is released as the thermal output of decomposition or through oxidation.

The ability of plants to capture sunlight energy, to grow and develop, to play a role in soil development and watershed function, to provide habitat for wildlife and to support economic uses depends on the availability of nutrients and moisture. Nutrients necessary for plant growth are made available to plants through the decomposition and metabolization of organic matter by insects, bacteria, and fungi, the weathering of rocks and extraction from the atmosphere. Nutrients are transported through the soil by plant uptake, leaching and by rodent, insect and microbial activity. They follow cyclical patterns as they are used and reused by living organisms.

The ability of rangelands to supply resources and satisfy social and economic needs depends on the buildup and cycling of nutrients over time. Interrupting or slowing nutrient cycling can lead to site degradation, as these lands become increasingly deficient in the nutrients plants require.

Some plant communities, because of past use, frequent fire or other histories of extreme or continued disturbance, are incapable of meeting this standard. For example, shallow-rooted winter-annual grasses that completely dominate some sites do not fully occupy the potential rooting depth of some soils, thereby reducing nutrient cycling well below optimum levels. In addition, these plants have a relatively short growth period and thus capture less sunlight than more diverse plant communities. Plant communities like those cited in this example are considered to have crossed the threshold of recovery and often require great expense to be recovered. The cost of recovery must be weighed against the site's potential ecological/economic value in establishing treatment priorities.

The role of fire in natural ecosystems should be considered, whether it acts as a primary driver or only as one of many factors. It may play a significant role in both nutrient cycling and energy flows.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met.

Potential Indicators

Photosynthesis is effectively occurring throughout the potential growing season, consistent with the potential/capability of the site, as evidenced by plant composition and community structure.

Nutrient cycling is occurring effectively, consistent with the potential/capability of the site, as evidenced by:

- Plant composition and community structure;
- Accumulation, distribution, incorporation of plant litter and organic matter into the soil;
- Animal community structure and composition;
- Root occupancy in the soil profile; and
- Biological activity including plant growth, herbivory, and rodent, insect, and microbial activity.

Standard 4 Water Quality

Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.

Rationale and Intent

The quality of the water yielded by a watershed is determined by the physical and chemical properties of the geology and soils unique to the watershed, the prevailing climate and weather patterns, current resource conditions, the uses to which the land is put and the quality of the management of those uses. Standards 1, 2, and 3 contribute to attaining this standard.

States are legally required to establish water quality standards and Federal land management agencies are to comply with those standards. In mixed ownership watersheds, agencies, like any other landowners, have limited influence on the quality of the water yielded by the watershed. The actions taken by the agency will contribute to meeting State water quality standards during the period that water crosses agency-administered holdings.

Potential Indicators

Water quality meets applicable water quality standards as evidenced by:

- Water temperature;
- Dissolved oxygen;
- Fecal coliform;
- Turbidity;
- pH;
- Populations of aquatic organisms; and
- Effects on beneficial uses (i.e., effects of management activities on beneficial uses as defined under the Clean Water Act and State implementing regulations).

Standard 5 Native, T&E, and Locally Important Species

Habitats 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.

Rationale and Intent

Federal agencies are mandated to protect threatened and endangered species and will take appropriate action to avoid the listing of any species. This standard focuses on retaining and restoring native plant and animal (including fish) species, populations and communities (including threatened, endangered and other special status species and species of local importance). In meeting the standard, native plant communities and animal habitats would be spatially distributed across the landscape with a density and frequency of species suitable to ensure reproductive capability and sustainability. Plant populations and communities would exhibit a range of age classes necessary to sustain recruitment and mortality fluctuations.

Potential Indicators

Essential habitat elements for species, populations, and communities are present and available, consistent with the potential/capability of the landscape, as evidenced by:

- plant community composition, age class distribution, productivity;
- animal community composition, productivity;
- habitat elements;
- spatial distribution of habitat;
- habitat connectivity; and
- population stability/resilience

Guidelines for Livestock Grazing Management

Guidelines for livestock grazing management offer guidance in achieving plan goals, meeting standards for rangeland health and fulfilling the fundamentals of rangeland health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with permittees/lessees and the interested public. Guidelines enable managers to adjust grazing management on public lands to meet current and anticipated climatic and biological conditions.

General Guidelines

1. Involve diverse interests in rangeland assessment, planning and monitoring.
2. Assessment and monitoring are essential to the management of rangelands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues using interdisciplinary teams of specialists, managers, and knowledgeable land users.

Once identified, critical, site-specific problems or issues should be targeted for more intensive, quantitative monitoring or investigation. Priority for monitoring and treatment should be given to those areas that are ecologically at-risk where benefits can be maximized given existing budgets and other resources.

Livestock Grazing Management

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to:
   a. Provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability.
   b. Provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, floodwater energy dissipation in the riparian areas.
   c. Promote soil surface conditions that support infiltration.
   d. Avoid sub-surface soil compaction that retards the movement of water in the soil profile.
   e. Help prevent the increase and spread of noxious weeds.
   f. Maintain or restore diverse plant populations and communities that fully occupy the potential rooting volume of the soil
   g. Maintain or restore plant communities that optimize the length of the photosynthetic period.
   h. Promote soil and site conditions that provide the opportunity for the establishment of desirable plants
   i. Protect or restore water quality.
   j. Provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T and E, special status, and locally important species) and desired plants and animals.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.
3. Grazing management systems should consider nutritional and her health requirements of the livestock in the system.
4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in the integration.
5. Competition for forage and browse between livestock, big game animals, and wild horses must be considered in designing and implementing a grazing plan.
6. Provide periodic rest form grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.
7. Range improvements practices should be prioritized to promotes rehabilitation and resolve grazing concerns on transitory grazing land.
8. The potential for conflict between grazing use on public land and adjoining land uses must be considered in the design and implementation of the grazing management plan.

Facilitating the Management of Livestock Grazing

1. The uses of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements are used where appropriate to:
   a. Provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability.
   b. Encourage a uniform level of proper grazing use throughout the grazing unit;
   c. Avoid unwanted or damaging concentrations of livestock on streambank, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitat, and plant communities and
   d. Protect water quality.
2. Roads used to facilitate livestock grazing are constructed and maintained in a manner that minimized the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

Accelerating Rangeland Recovery

1. Upland treatments that alter the vegetative composition of a site, like prescribed burning, juniper management and seedings or plants must be based on the potential of the site and should:
2. Retain or promote infiltration, permeability, and soil moisture storage
   a. Contribute to nutrient cycling and energy flow.
   b. Protect water quality
   c. Help prevent the increase and spread of noxious weeds
   d. Contribute to the diversity of plant communities and plant community composition and structure
   e. Support the conservation of T&E, other special status species and species of local importance
   f. Be followed up with grazing management and other treatments that extend the life of the treatments and address the cause of the original treatment need.
   g. Seedings and plantings of non-native vegetation should only be used in those cases where native species are not available in sufficient quantities, native species are incapable of maintaining or achieving the Standards; or where non-native species are essential to the protection of the functional integrity of the site.
3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the systems hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.

Drought Management Policies

With drought conditions and issues, the principal focus of the Bureau of Land Management's actions is to maintain the long-term health and productivity of the Nation's rangelands with awareness to maintain a balance to those who rely on public lands for their livelihood.

Pre-Season

Preferable four or months before turn out, but a minimum of one month prior to turn out (or 2 weeks if authorized use is year round).

Inform grazing permittee and lessees, in writing, about current and projected drought conditions. Outline potential responsive management actions the BLM may take that would affect their use of public lands for grazing in the coming grazing season. Actively engage and encourage operators to communicate and coordinate identifying and implementing appropriately responsive grazing management adjustments.

Inform permittee of suggested adjustments to grazing use, as necessary, which may include reducing livestock numbers, shortening the season of use, altering pasture move dates, changing pasture rotations, authorizing water hauling, allowing use in vacant allotments.

Line officers have the option to implement needed changes through a formal agreement between the BLM and grazing operator (which is recommended to be implemented by decision) that specifies the drought-related grazing adjustments (43 CFR 4110.3-3 (a)), or by temporarily suspending or otherwise modifying use via a decision that may be put into immediate effect, if necessary (43 CFR 4113.3-2 (a) and 3-3 (b). Be sure to include the intended duration of the drought-related grazing adjustment with rationale.

Issuing a grazing decision to implement an agreement for changes in use provides for administrative finality of the approval of actions that will occur under the agreement. Issuing a grazing a grazing agreement where agreement cannot be reached must be preceded by a reasonable attempt at consultation, cooperation, and coordination with affected grazing operators, the state having lands or responsible for managing resources in the affected area and the interested public.

Mid-Season

Evaluate on-the-ground resource conditions to determine the effects and appropriateness of continued grazing by all users. Continue to interact with affected livestock permittees and lessees to refine livestock grazing management practices as needed. Communicate to permittees or lessees in advance the conditions or circumstances that would prompt further livestock management adjustments or modifications.

During multiple-year drought cycles consult with the agency to determine if temporary reductions of ungulate populations are appropriate to provide for healthy long-term habitats.

Late-Season

Notify permit or lease holder they must move or remove livestock within a designated period, if adverse impacts to resources attributable to livestock grazing are occurring despite the drought response actions implemented.

Regulation 43 CFR 4130.8-2(b) authorizes the BLM to refund grazing fees if previously approved grazing use is not made due to drought conditions.

Coordinate with State Fish and Wildlife Agencies on drought response actions and potential effects to fish and wildlife pursuant to state-level Memorandums of Understanding with the BLM.

Coordinate and consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service on drought response actions and potential effects to Federally-listed fish and wildlife pursuant to section 7 of the Endangered Species Act.

References

USDI BLM. 1989. BLM Manual Handbook 1741-1 – Fencing. Available at BLM district offices.
USDI BLM. 1990. BLM Manual Handbook 1741-2 – Water Developments. Available at BLM district offices.

Appendix L – Energy and Minerals

This appendix contains the following:

- Trends in salable mineral developments and proposed guidelines on salable mineral exploration and development activity
- Trends in locatable mineral developments and regulation for locatable mineral exploration and development activity
- Reasonably foreseeable leasable mineral developments and proposed stipulations on leasable mineral exploration and development activity
- Quarry management in special areas
- Rankings of prospective mineral occurrence or development ranking of each special area that is recommended for withdrawal from locatable mineral entry

Trends in Salable Mineral Developments and Guidelines

Table L-1 shows the estimated number of new quarries that could be developed or the existing sites that will require expansion for development per district over a 10-year period. Based on past BLM data, one-half acre per site was used as the estimated amount of land to be disturbed for either a new site or the expansion of an existing site. As **Table L-1** shows, the BLM estimates that 37 quarry developments or expansions would utilize 18.5 acres of land in the next 10 years.

Table L-1. Salable mineral development ten-year scenario for new or expanded* quarry development. The BLM assumes 0.5 acres per quarry.

	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem	Totals
Number of quarries	7	4	2	9	6	9	**37**
Total (Acres)	**3.5**	**2**	**1**	**4.5**	**3**	**4.5**	**18.5**

* Expanded development beyond the existing quarry development footprint.

Salable Mineral Developments and Guidelines

Where practicable, the following requirements should be incorporated into quarry design and use of mineral material sites:

- BLM quarries will be designed to have slopes no steeper than 1.5 : 1, which is the current State of Oregon standard. Bench height should not exceed 40 feet and bench width should be at least 12 feet wide or wider if regularly used by earthmoving equipment.
- All topsoil shall be stockpiled or windrowed as appropriate, for use in reclamation. Where needed, stabilization and erosion control of overburden and stockpiles will be employed.
- Clearing of timber and brush should be planned at least 10 feet beyond the edge of the excavation limit.
- If applicable, the quarry floor should be designed with an out slope to provide for adequate drainage. Alternatively, often water can be managed through infiltration.
- The operator shall comply with Federal, local and state safety codes or regulations covering quarry operations, warning signs and traffic control. All necessary permits must be obtained from Federal, State, and local agencies.
- Use of the quarry site beyond that of the contract period will require authorization normally under a temporary use permit.
- Where reasonably practicable, based on the approved mining and reclamation plan, all material sites will be graded to conform with the surrounding topography prior to closure. Topsoil will be

utilized to create a medium for re-vegetation. Access roads no longer needed will be reclaimed. Other reclamation strategies include helicopter landing site, log landing, dispersed camp site, recreational shooting range, overburden waste sites for ditch cleanings or landslides, fire staging areas, helicopter ponds sites, hang gliding sites, raptor nesting (in rock walls of the quarry benches), or other post-quarry uses.

Trends in Locatable Mineral Development and Regulation

Tables L-2 and L-3 show the estimated number of notices and plans of operation that may be filed over the next ten years. The BLM used past data to estimate the number of proposals and the acres per operation. This data showed that the average plan of operation is about three acres and the average notice is about one-quarter of an acre. Based on the number of past submittals of mining proposals the BLM expects that 86 notices and 24 plans of operations will be submitted over a 10-year period (**Table L-2**). These notices will cover 21 acres, with the majority of the notices in the Medford district. Approximately 24 plans of operation will cover 72 acres, with the majority of the plans of operation in the Medford District (**Table L-3**). Notices or plans of operation will utilize 93 acres over the next 10 years in the decision area.

Table L-2. Locatable mineral development 10-year scenario notices of operation. The BLM assumes 0.25 acres per notice.

	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem	Totals
Number of notices	4	4	-	70	4	4	**86**
Total (Acres)	**1**	**1**	**-**	**17**	**1**	**1**	**21**

Table L-3. Locatable mineral development 10-year scenario plans of operation. The BLM assumes 3 acres per plan of operation.

	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem	Totals
Number of plans of operation	1	1	-	20	1	1	**24**
Total (Acres)	**3**	**3**	**-**	**60**	**3**	**3**	**72**

Mining is regulated by the *Surface Management Regulations* (43 CFR 3809) and *Use and Occupancy Under the Mining Laws* (43 CFR 3715). It is the responsibility of the mining claimant/operator to prevent "unnecessary or undue degradation," perform all necessary reclamation work, and comply with relevant Federal and State regulations.

Operations ordinarily resulting in only negligible disturbance as defined in 43 CFR 3809.5 are considered to be casual use and no notification to the BLM is required. All activities exceeding casual use must file a notice or plan of operations.

Reasonably Foreseeable Leasable Mineral Developments and Proposed Restrictions

The Reasonably Foreseeable Mineral and Energy Developments from the 2008 RMP/EIS (Appendix Q pp. 564, 568-622) is incorporated by reference.

The BLM has completed a review in 2015 of the fluid mineral reasonably foreseeable development scenarios (RFDs) for the 2008 RMP/EIS. The intent of the review was to determine if the RFDs could be included into this EIS by reference. The review focused on whether the circumstances or research completed in the RFDs had substantially altered since 2008.

Discussions with Dr. Allan Niem, the author or co-author of the predominantly referenced materials in

this EIS, indicates that the geologic settings and interpreted petroleum plays and systems have not altered substantially. Dr. Niem's work is focusing on detailing his original research. No substantial publications have been issued since 2008 that would alter the RFDs interpretations. There are no concerns in incorporating by reference the resource portion of the RFDs from the 2008 RMP/EIS.

Potential development scenarios of the Coos Basin Coalbed Natural Gas (CBNG) Play, as described in this EIS, were dependent upon industry interest and development, as well as natural gas prices, occurring in 2008. Between 2008 and the present, the gas prices have dropped more than 3-fold, the original company involved with the Coos Basin development has gone into receivership through bankruptcy, and the current holder of the Coos Basin developments is Westport Energy. Westport Energy has retained property interests, but intends to abandon permanently all but five wells, which are located in the shallow gases. The remaining five wells will be kept in long-term suspension (Bob Houston, Oregon Department of Geology and Mineral Industries, personal communication-multiple events, 2014 and 2015). Therefore, based on this information, the projected development scenarios described in 2008 were not accurate.

However, a change in development scenario of CBNG for this EIS is not likely warranted. Analysis of the projected infrastructure was completed, with resulting stipulations. Analysis does not guarantee development; any development less than the analysis do not create an exceedance of impact. There are a great many unknowns that may occur within the life of this DEIS and future RMP. Neither the geologic setting nor the mineral potential for CBNG has altered since 2008. The current operator is maintaining resource extraction capabilities for future development. That development could occur under many highly feasible circumstances. The first is the development of the natural gas export facility in Coos Bay. Such systems would increase the market value of the Coos Basin CBNG and provide an immediate connection to market. Secondly, there would possibly be an increase in the domestic value of natural gas. During the research of 2008, natural gas prices ranged up to $15.00/MMcf at wellhead. It has since reached lows below $3.00/MMcf. As historical prices did reach the high level at one time, it is plausible that the same level could be reached or exceeded, making development of the Coos Basin once more marketable. Based on this reasoning, especially the foreseeable development of the Coos Bay export facility within the life of the RMP, it is recommended that the development scenarios within the 2008 document be maintained and incorporated into this EIS by reference.

Proposed Stipulations on Leasable Mineral Exploration and Development Activity

The section titled Proposed Restrictions and Requirements on Mineral and Energy Exploration and Development Activity from the 2008 RMP/EIS (USDI BLM 2008, Appendix Q, pp. 623-631) is incorporated by reference.

The State Geologist and the Medford District Geologist reviewed the stipulations of the 2008 document and found them applicable.

The same special leasing stipulations as Recreation Sites from Appendix Q, p. 628 of the 2008 RMP/EIS shall be applied to the land use allocation of Recreation Management Areas.

The land use allocations of eligible Wild and Scenic River segments and lands managed for Wilderness Characteristics shall have the following stipulations:

No Surface Occupancy
Resource: eligible Wild and Scenic River segments and Lands managed for Wilderness Characteristics

Stipulation: Surface occupancy and use are prohibited within all eligible Wild and Scenic River segments and Lands managed for Wilderness Characteristics.
Objective: To protect eligible Wild and Scenic River segments and Lands managed for Wilderness Characteristics lands.
Exception: An exception to this stipulation may be granted by the Authorized Officer, if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.
Modification: The boundaries of the stipulated area may be modified by the Authorized Officer, if the eligible Wild and Scenic River segments and Lands managed for Wilderness Characteristics boundaries are changed.
Waiver: This stipulation may be waived, if the Authorized Officer determines that the entire leasehold no longer contains eligible Wild and Scenic River segments and Lands managed for Wilderness Characteristics designations.

The stipulations will apply to all forms of leasable fluid minerals, including geothermal.

Quarry Management within Special Areas

This section includes a discussion of Lands managed for their Wilderness Characteristics, eligible Wild and Scenic River segments, Areas of Critical Environmental Concern, and Recreation Management Areas that have quarries within their boundaries.

When gathering data for this information, many of the BLM staff (geologists, realty specialists, and engineers) stated that even though the entire area is proposed for closure to salable mineral development, many of the districts prefer to keep some or all of the developed quarries open until the quarry is depleted. See the appropriate section of this RMP revision for which areas closed to salable mineral entry for each alternative. Eligible Wild and Scenic River segments, Lands managed for Wilderness Characteristics ACECs, and RMAs that have existing developed quarries within their boundaries are detailed in **Tables L-4** through **L-7**.

Table L-4. Quarries located in Lands managed for Wilderness Characteristics (LWCs) by district/field office.

District/Field Office	LWC Name	Quarry Name
Medford	Burton-Ninemile	Burton Butte
		Negro Bend
		Unnamed
	Dakubetede	Anderson Butte
	Wild Rogue Addition	Fire Fly
		Kelsey Peak
		Marble Gap
		Mt. Ruben
		Mt. Ruben Road
		Serpeng Springs

Table L-5. Quarries located in eligible Wild and Scenic River segments by district/field office.

District/Field Office	Eligible Wild and Scenic River	Quarry Name
Coos Bay	South Fork Coquille River	Oregon State Highway Pit
		Old Diamond Pit
Medford	Cow Creek	Cow Creek Number C
		Russell Road
	Elk Valley Creek	Elk Valley Quarry
	Quines Creek	Quines Creek Quarry
Roseburg	Cow Creek	Cattle Creek
		Quarry
Salem	Luckiamute River	Pedee Quarry

Table L-6. Quarries located in Areas of Environmental Concern by district/field office.

District/Field Office	ACEC Name	Quarry Name
Coos Bay	Roman Nose	Roman Nose
Eugene	Low Elevation Headwaters of the McKenzie River	West Hagan
Medford	Dakubetede	Anderson Butte
	East Fork Whiskey Creek	Mt. Ruben
		Mt. Ruben Road
	Old Baldy	Old Baldy
Roseburg	China Ditch	Buck Fork Creek
		Quarry/28-4-13B

Table L-7. Quarries located in Recreation Management Areas (RMAs) by district/field office.

District/Field Office	RMA Name	Quarry Name
Eugene	Coburg Hiking Trail System	McGowan Creek
	Upper Lake Creek	Lake Creek
		Prairie Mt.
		Prairie Mtn.

Ranking of the Prospective Mineral Occurrence and/or Development of Each Special Area Recommended for Withdrawal from Locatable Mineral Entry

Tables L-8 through **L-11** list the estimated prospective mineral occurrence and/or development ranking of each eligible Wild and Scenic River segments, lands managed for Wilderness Characteristics, ACEC, and RMA that is recommended for withdrawal from locatable mineral entry. Some proposals have multiple polygons; when this was the case, each polygon was analyzed separately and that is why some sites have multiple rankings. Chapter 3 contains information on which areas are proposed for a recommendation for withdrawal from mineral entry by each alternative.

Table L-8. Ranking of each Lands managed for their Wilderness Characteristics that are recommended for withdrawal from locatable mineral entry. These withdrawals vary by alternative.

Lands Managed for Wilderness Characteristics	Ranking
Berry Creek	Low
Bull of the Woods-Opal Creek Add - Evans Mountain	High
Bull of the Woods-Opal Creek Add - Nasty Rock	High
Burton-Ninemile	High
Clackamas Wilderness Add - Memaloose Creek	Low
Clackamas Wilderness Add - South Fork Clackamas #1	Low
Clackamas Wilderness Add - South Fork Clackamas #2	Low
Dakubetede	High
Round Top Mountain	High
Salmon Huckleberry Add - Boulder Creek	Low
Salmon Huckleberry Add - Eagle River	Low
Salmon Huckleberry Add - Salmon River	Low
Table Rock Wilderness Add	Low
Wasson Creek	Low
Wellington Mountain	High
Whiskey Creek	High
Wild Rogue	High
Wild Rogue Additions	High

Table L-9. Ranking of each eligible Wild and Scenic River segment that is recommended for withdrawal from locatable mineral entry for all alternatives including the No Action alternative.

Eligible Wild and Scenic River Segment Name	Ranking
Alsea River	Low
Antelope Creek	Medium
Applegate River	High
Big Butte Creek (including South Fork Big Butte)	Medium
Cheney Creek	Medium
Clackamas River	Low
Cow Creek	High
Drift Creek	Low
Drift Creek Segment A and B	Low
Elk Valley Creek	High
Fall Creek - Eugene	Low
Fall Creek - Salem	Low/Low
Kilches River	Low
Lake Creek	Low
Left Fork Foots Creek	High
Little Applegate River	High
Little Luckiamute River	Medium
Little North Santiam River	High
Lobster Creek	Low
Lobster Creek Segment B	Low
McKenzie River	Low
Middle Santiam River	Low
Nehalem River	Low
Nelson Creek	Low

Eligible Wild and Scenic River Segment Name	Ranking
Nestucca River Segment B	Low
North Fork Clackamas River	Low
North Fork Gate Creek	Low
North Fork Siletz River	Low
North Fork Trask River	Low
North Santiam	Medium
Quines Creek	High
Riffle Creek	High
Rogue River	High
Sam's Creek	High
Sandy River Segments A and B	Low
Siletz River	Low
Sixes River	High
South Fork Coos River	Low
South Fork Coquille River	High
South Fork Gate Creek	Low
South Fork Little Butte Creek	Low
South Fork Trask River	Low
South Umpqua River	High
South Yamhill River	Medium
Table Rock Fork Molalla River	Medium
Trask River	Low
Tualatin River	Low
Umpqua River	Medium
West Fork Illinois River	High
Willamette River	Low
Wilson River	Low
Yaquina River	Low

Table L-10. Ranking of each Area of Environmental Concern (ACEC) that is recommended for withdrawal from locatable mineral entry. These withdrawals vary by alternative.

ACEC Name	Ranking
Baker Cypress	Low
Bear Gulch	High
Beatty Creek	High
Beaver Creek	Low
Bobby Creek	Low
Brewer Spruce	Medium/High
Bumpheads	Low
Bushnell-Irwin Rocks	Low
Callahan Meadows	Medium
Camas Swale	Low
Cherry Creek	Low
China Wall	Low
Coburg Hills	Low
Cougar Mountain Yew Grove	Low
Crabtree Complex	Medium
Dakubetede	Medium/High

ACEC Name	Ranking
Dorena Lake	Low
East Fork Whiskey Creek	High
Eight Dollar Mountain	Medium/High
Elk Creek	Low
Forest Peak	Low
Fox Hollow	Low
Grass Mountain	Low
Grassy Mountain	Low
Grayback Glades	Medium
Heceta Sand Dunes	Medium
High Peak - Moon Creek	Low
Holton Creek	Medium
Horse Rock Ridge	Low
Hult Marsh	Low
Hunter Creek Bog	High
Iron Creek	High
Little North Fork Wilson River	Medium
Little Sink	Low
Lost Prairie	Low/Low
Lower Scappoose Eagle	Low/Medium
Mary's Peak	Low/Medium
McCully Mountain	Low
McGowan Meadow	Low
Middle Santiam Terrace	Low
Mill Creek Ridge	Low
Mohawk	Low
Molalla Meadows	Low
Myrtle Island	Low
Nestucca River	Low
New River	Medium/High
North Bank	Low
North Fork Chetco	Medium
North Fork Coquille River	Low
North Fork Hunter Creek	Low/High
North Fork Silver Creek	High
North Myrtle Creek	Medium
North Santiam	Low
North Spit	Medium
Oak Basin Prairies	Low
Old Baldy	Low
Pickett Creek	Medium
Pipe Fork	Medium
Red Pond	Low
Reeves Creek	Medium
Rickreall Ridge	Low
Rocky Peak	Medium
Rough and Ready	Medium/High
Saddle Bag Mountain	Medium

ACEC Name	Ranking
Sandy River Gorge	Low
Silt Creek	Low
Snow Peak	Medium
Soosap Meadows	Low
Spencer Creek	Low
Surveyor	Low
Table Rocks	Low/Medium
Tater Hill	High
The Butte	Low
Tunnel Creek	Low
Upper Elk Meadows	Low
Upper Klamath River	Low/Medium
Upper Klamath River Addition	Low
Upper Rock Creek	Low
Upper Willamette Valley Margin	Low/Medium
Valley of the Giants	Low
Walker Flat	Low
Wassen Creek	Low
Waterloo	Low
West Fork Illinois River	Medium/High
White Rock Fen	Low
Wilhoit Springs	Medium
Willamette Valley Prairie Oak and Pine Area	Low
Williams Lake	Low
Woodcock Bog	Medium
Yainax Butte	Low
Yaquina Head	Low
Yellowstone Creek	High

Table L-11. Ranking of each Recreational Management Area that is recommended for withdrawal from locatable mineral entry. These recommendations vary by alternative.

Recreation Management Area Name	Ranking
Alder Glen Campground	Low
Armstrong Gulch Trailhead	Medium
Barlow Creek Trail and Trailhead	Low
Bastendorff Beach	Low
Bear Gulch Trailhead	Medium
Bolt Mountain Trail	Medium
Carpenter Bypass Mountain Bike Trail	Low
Carpenter Bypass Staging Area	Low
Cascade View OHV Complex	Low
Cathedral Hills Trails	Medium
Cedar Grove	Low
Clay Creek Recreation Site	Low
Clay Creek Trail	Low
Coos Head	Low
Crooked Creek OHV Staging Site	Low
Culp Creek Expansion Site	Low

Recreation Management Area Name	Ranking
Culp Creek Trailhead	Low
Deer Creek Education/Interpretive Area	Medium
Dorena Dam Trail Access Site	Low
Dovre	Low
Eagles Rest Hiking/Biking Trail	Low
Edson Creek Campground	Low
Eight Dollar Mountain	High
Eight Dollar Mountain Interpretive Site	High
Elderberry Flat Campground	Medium
Elk Bend	Low
Elkhorn Creek WSR	Medium
Emerald Trail	Low
Esmond lake Trailhead and Trail	Low
Fan Creek	Low
Flores lake	Medium
Gold Nugget Waysides	High
Grizzly Peak	Medium
Hill Creek Trail	Low
Hill Creek Wayside	Low
Hult Equestrian Staging Area	Low
Hult Reservoir Non-Motorized Trail	Low
Hult Reservoir Recreation Area	Low
Hunter Creek Trail System	High
Ivors Wayside	Low
Jacksonville Woodlands Trails	High
Kenney Meadows Recreation Site	High
King Mountain Trail	High
Klamath River WSR	Low/Medium
Loon Lake Recreation Area	Low
Lost Creek Trails	Low
Lower Lake Creek Falls	Low
Martin Rapids Overlook	Low
McGowan Creek Environmental Education Area Trail	Low
McGowan Creek Environmental Education Area	Low
McKenzie River Campground	Low
McKercher Park (R&PP Lease)	Low
Mosby Creek Trailhead	Low
North Bank - Comstock Day Use Area	Low
North Bank Habitat Management Area	Low
North Bank- Western Trailhead	Low
North Bowl Campground	Low
North Spit Beach and Ponds Unit	Medium
North Umpqua Trail - Swiftwater	Low/Medium
North Umpqua Trail - Tioga	Low
North Umpqua Wild Scenic River Corridor	Low/Medium
Northwest Hills	Medium
Pacific Crest Trail (PCT) 1 and 2	Low
Park Creek Campground	Low

Recreation Management Area Name	Ranking
Provolt Seed Orchard	High
Rennie Boat landing	Low
Rocky Peak Trail	Medium
Rogue Wild and Scenic River	Medium/High
Rough and Ready Trail	Medium
Row River Trail	Low/Medium
Row River Trail Expansion	Low/Medium
Sandy Ridge Trailhead	Low
Sawmill Trail	Low
Sharps Creek Recreation Site	Medium
Shotgun Creek Recreation Site	Low
Shotgun Non-Motorized Trail System	Low
Shotgun OHV Trail System	Low
Silver Creek Boat and McKenzie River Watchable Wildlife Site	Low
Siuslaw Bend Campground	Low
Sixes River Campground	Medium
Smith Creek	Low
Smith River Falls Campground	Low
Sterling Mine Ditch Trail	High
Stick Beach	Medium
Storm Ranch	Medium
Table Rocks	Low/Medium
Taylor landing Recreation Site	Low
Three Bears- Hardy Creek	Low
Tyrrell Seed Orchard Interpretive Trail	Low
Upper lake Creek ERMA	Low
Vincent Creek Campground	Low
Whitewater Day Use Area	Low
Whittaker Creek Recreation Area	Low
Whittaker Creek Trail	Low
Wild Rogue Canyon	Low/Medium/High
Wilhoit Springs	Medium
Willamalane Non-Motorized Trails	Low
Willamette River Greenway (R&PP lease)	Low
Wolf Creek Environmental Education Site and Trail	Low
Wolf Creek Falls Trail	Low

References

USDI BLM. 2008. Final Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts. Bureau of Land Management, Oregon State Office, Portland, OR.

Appendix M – Special Status Species – Botany

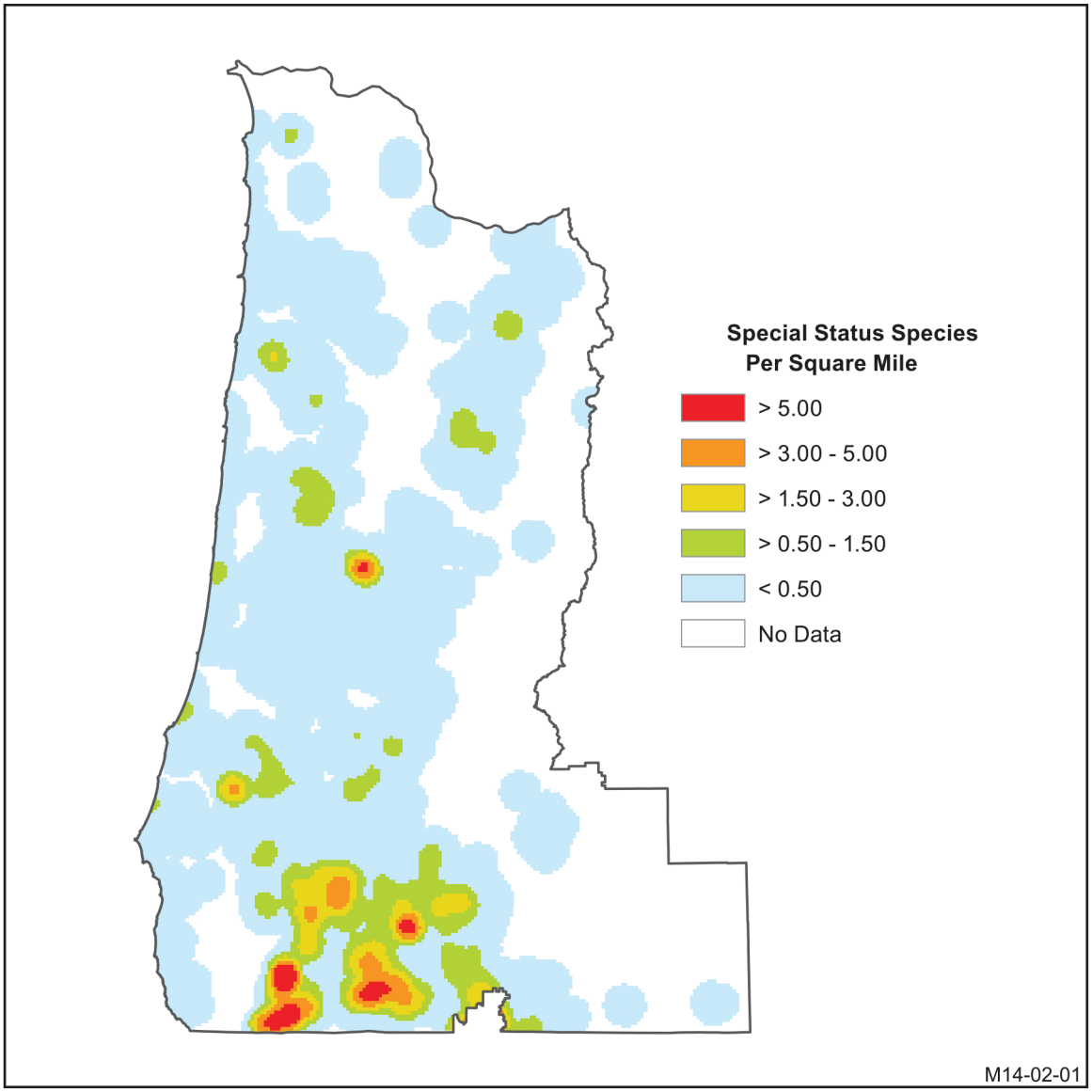

Figure M-1. Special Status Species "Hot Spots" wihin the decision area

Table M-1. BLM sensitive plants and fungi (BLM Oregon/Washington State Director's Sensitive Species List, December 2011).

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
FU	*Albatrellus avellaneus*	Fungus	CF	Endemic to coastal lowlands from Northern California to Canada; occurs principally in coastal Sitka spruce, western hemlock and in Pacific silver fir old growth forest, at elevations of 112-1,260 (472) feet.
FU	*Alpova alexsmithii*	Fungus	CF	Endemic to the Pacific Northwest. Known from Mountain Hemlock, Pacific Silver Fir, and Western Hemlock vegetation zones at elevations of 2,852-5,805 feet.
FU	*Arcangeliella camphorata*	Fungus	CF	Known from approximately 20 sites in Oregon. Occurs principally in soil and litter in western hemlock, tan oak, live oak, sugar pine, Douglas-fir, Pacific madrone, California black oak, Port Orford cedar and Sitka spruce series at elevations of 3-3,385 (1,847) feet.
FU	*Boletus pulcherrimus*	Fungus	CF	Endemic to western North America. Populations have been located in white fir (79%), mountain hemlock (12%), developed (5%), Douglas fir (2%), western hemlock (2%). Subzones included moist-wet ABCO-ABGR, wet-dry western hemlock and wet Douglas-fir. Populations range from 42-5,620 feet in elevation and are found in equal numbers on south, east, and west-facing slopes.
FU	*Bridgeoporus nobilissimus*	Fungus	CF	Ranges from the Olympic Mountains and the western Cascade Range. Fruiting bodies occur on large, dying and dead noble fir and Pacific silver fir in late-successional old-growth forests and on remnant stumps and snags in young and mature second-growth forests in the Pacific silver fir and western hemlock zones in western Washington and Oregon (Cowden 2002, Redberg *et al*. 2003).
FU	*Chamonixia caespitosa*	Fungus	CF	Known from Europe, Asia, and North America. In the Pacific Northwest it is found with *Tsuga* species and Pacific silver fir at high elevation and western hemlock, Douglas-fir, and Sitka spruce in coastal forests.
FU	*Choiromyces venosus*	Fungus	CF	Known from Europe and both North American coasts; however, it is known from only three sites in North America. The one Oregon population occurs in the western hemlock wetlands association at 1,677 feet elevation.
FU	*Cortinarius barlowensis*	Fungus	CF	Widely distributed in the western Cascades of both Oregon and Washington and the coast of Washington. In OR and WA principally in montane Pacific silver fir and coastal western hemlock series at elevations of 25-4,729 feet.
FU	*Cystangium idahoensis*	Fungus	CF	Known from only two locations in Oregon and one location in Idaho. Found in wetland areas within Pacific silver fir, and western hemlock plant association from 2,738-3,455 feet in elevation.
FU	*Dermocybe humboldtensis*	Fungus	CF	Known from Humboldt County, CA, to Douglas County, OR. Occurs in White Fir-Grand Fir vegetation zones at elevations of 1,337-1,781 feet. Associated species include

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				Douglas fir and ponderosa pine within Klamath and Oregon Coast Range provinces.
FU	*Gastroboletus vividus*	Fungus	CF	Known from the Sierra Nevada in California to the Washington Cascades. Found in Mountain Hemlock (67%), Douglas-fir (17%) and White Fir-Grand Fir (17%) vegetation zones at elevations of 4,266-6,747 feet.
FU	*Gymnomyces fragrans*	Fungus	CF	Known from California, Idaho, and Oregon in the Pacific silver fir, mountain hemlock and Shasta red fir plant associations. Populations range from 4,803-6,853 feet in elevation.
FU	*Helvella crassitunicata*	Fungus	CF	Known from the Pacific Northwest and occurs primarily in Mountain Hemlock and Pacific Silver Fir vegetation zones at elevations of 1,533-9,673 feet.
FU	*Mythicomyces corneipes*	Fungus	CF, RI	Known from the Pacific Northwest, Canada, England, and Scandinavia primarily in Western Hemlock and Pacific Silver Fir vegetation zones at elevations of 969-6,081 feet.
FU	*Phaeocollybia californica*	Fungus	CF	Endemic to the Pacific Northwest from western central Oregon, south to extreme northern California. In coastal to inland lowlands associated with the roots of Pacific silver fir, Sitka spruce, Douglas-fir, and Western hemlock within an elevation range of 206-3855 feet.
FU	*Phaeocollybia gregaria*	Fungus	CF	Endemic to Oregon and Northern California, in coastal rainforests. Associated with the roots of western hemlock, Sitka spruce and Douglas-fir in coastal rainforests at 486-3,628 feet elevation.
FU	*Phaeocollybia oregonensis*	Fungus	CF	Known from western Oregon to British Columbia Soil in association with roots of Douglas fir, western hemlock, and Pacific silver fir; 721-3,916 feet elevation.
FU	*Pseudorhizina californica*	Fungus	CF	Known from Oregon and Washington primarily in Pacific Silver Fir, White Fir-Grand Fir, and Mountain Hemlock vegetation zones at elevations of 668-6,515 feet.
FU	*Ramaria amyloidea*	Fungus	CF	Endemic to western Oregon and Washington and northwest California. Occurs in Mountain Hemlock, Pacific Silver Fir, Western Hemlock, and White Fir-Grand Fir vegetation zones at elevations of 1,592-5,729 feet.
FU	*Ramaria rubella* var. *blanda*	Fungus	CF	Known from the Pacific Northwest and Tennessee. Associated with western hemlock rainforest from 442- 1,813 feet elevation.
FU	*Ramaria spinulosa* var. *diminutiva*	Fungus	CF	Known from the Pacific Northwest from very few sites. It is associated pine and Douglas-fir (Exeter *et al*. 2006; GeoBOB database).
FU	*Rhizopogon chamaleontinus*	Fungus	CF	Known from the Klamath Mountains Physiographic Province within Douglas-fir/Tanoak series/Incense cedar forests at approximately 1,050 feet elevation.
FU	*Rhizopogon ellipsosporus*	Fungus	CF	Known in Oregon in the Klamath Mountains Physiographic Province and in California in the Sierra Nevada Mountains. In Oregon, it is found primarily within Douglas-fir, western red cedar, and white fir-grand fir associations from 1,040 to 4,116 feet elevation.
FU	*Rhizopogon exiguus*	Fungus	CF	Known from Oregon and Washington within Douglas-fir, white fir/grand fir, western red cedar, and western hemlock associations at 54-3,844 feet elevation.
FU	*Rhizopogon inquinatus*	Fungus	CF	Known in western Oregon and Idaho within mountain hemlock and western hemlock

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				associations from 1,490-4,507 feet elevation.
FU	*Stagnicola perplexa*	Fungus	CF	Known from the boreal forests of North America and Europe. Associated with Pacific silver fir and more moist forest, but has also been documented in shrub-steppe habitat.
FU	*Thaxterogaster pavelekii*	Fungus	CF	Endemic to coastal forests in the Pacific Northwest under mature Sitka spruce and lodgepole pine from sea level (17 ft.) to around 588 ft.in Oregon.
BR	*Anastrophyllum minutum*	Liverwort	CF	Circumboreal on peaty soil at relatively high elev. (>5,500 ft.), ledges of N-facing cliffs of peaks and ridges.
BR	*Andreaea schofieldiana*	Moss	CF, RK	Endemic to the Pacific Northwest from southwestern British Columbia to Siskiyou and Del Norte Counties, California. Forming mats on dry and exposed to moist, shaded igneous rocks, montane to subalpine within Pacific silver fir, subalpine fir, noble fir, Douglas-fir, western hemlock, and mountain hemlock associations.
BR	*Anthelia julacea*	Liverwort	SW	Widespread around the northern hemisphere in boreal and montane regions, reaching its southern limit in western North America in Oregon. Grows on peaty soil, in Oregon associated with low ericaceous shrubs.
BR	*Blepharostoma arachnoideum*	Liverwort	CF	Known from the Pacific Northwest in moist habitats within old growth forests, where it most often grows on rotten logs.
BR	*Bruchia flexuosa*	Moss	MG	Occurs in North America and Europe. In the Pacific Northwest, it is restricted to low elevation prairie and mud flats around reservoirs in the interior valleys west of the Cascade Range.
BR	*Bryum calobryoides*	Moss	RI, RK	Endemic to western North America. Occurs on both acid and basic rocks and soil in shaded to exposed boulder fields, montane to alpine meadows, cliffs, and outcrops from 3000-7,000 ft. elevation.
BR	*Calypogeia sphagnicola*	Liverwort	SW, SE	Circumboreal and bipolar. Occurs in poor fens containing Sphagnum, acidic fen habitats, and in a fen on ultramafic soils.
BR	*Campylopus schmidii*	Moss	CF, RI, SW, MZ	Known from coastal Oregon (Lane County) and northern California (Del Norte and Mendocino Counties), Mexico, Hawaii, Asia, Africa, Australia. Occurs on nutrient-poor sandy substrates near coast.
BR	*Cephaloziella spinigera*	Liverwort	SW	Occurs in bogs and fens around the northern hemisphere in boreal and montane regions. In western North America reaching the southern edge of its range in northern California.
BR	*Codriophorus depressus*	Moss	CF, RI, OHW	Known only from the Sierra Mountains of California and Nevada, and the southern Cascade and Klamath mountains of southwestern Oregon and northwestern California. It forms mats on rocks in perennial or intermittent streams, and in the spray zone of waterfalls at 400-11,000 feet elevation. Habitats are subject to scour at high water.
BR	*Cryptomitrium tenerum*	Liverwort	CF, RK, RI	Known from southwestern Oregon and California, west of the Cascade Range and Sierra Nevada, Mexico, South America, and India. Occurs on bare, usually shaded and humid soil on hillsides, rock outcrops, and streambanks.
BR	*Encalypta brevicollis*	Moss	RK	Known from the Pacific Northwest, Canada, Greenland, and Europe. Occurs on soil in

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				shaded crevices and overhanging rock outcrops.
BR	*Encalypta brevipes*	Moss	RK	Interruptedly circumboreal. In the Pacific Northwest known from Alberta, British Columbia, Washington, and Oregon on soil in shaded crevices in igneous rocks, along ridge tops subject to frequent fog penetration.
BR	*Entosthodon fascicularis*	Moss	RI, MG, OHW, SC, RK	Known from British Columbia, Idaho, Washington, Oregon, California, Arizona, Europe, and North Africa. Occurs on seasonally wet, exposed soil in seeps or along intermittent streams below 3,000 ft.
BR	*Ephemerum crassinervium*	Moss	SW	Known from Oregon, eastern North America, Germany, Japan, and New Zealand. Occurs on damp disturbed soil, often in old fields, paths, river banks or spots of open bare ground.
BR	*Ephemerum serratum*	Moss	SW, ME	Known from North America, Brazil, Sardinia, China, South Africa, and New Zealand. Occurs on damp disturbed soil, often in old fields, pastures, and along the edges of ponds.
BR	*Fissidens fontanus*	Moss	RI	Known from North America, Mexico, West Indies, Central America, Europe, and Africa. It is an aquatic species attached to rocks, logs, sticks in stagnant or slow-moving water or in areas where the water level fluctuates.
BR	*Gymnomitrion concinnatum*	Liverwort	CF, RK	Circumboreal and bipolar, in both eastern and western North America. Occurs on peaty soil of cliffs and rock outcrops.
BR	*Haplomitrium hookeri*	Liverwort	CF	Occurs in both northern and southern hemispheres. In western North American reaches its southern limit in Oregon. Grows on soil in full sun, intermixed with other liverworts and hornworts.
BR	*Harpanthus flotovianus*	Liverwort	SW	Widespread around the northern hemisphere in boreal and montane regions. In western North America reaching the southern edge of its range in Oregon. Occurs in bogs and fens.
BR	*Helodium blandowii*	Moss	CF, SW, MG	Circumboreal, extending south in the Cascade Range and Sierra Nevada to California, and south in the Rocky Mountains to Arizona. Grows in medium to rich montane fens with calcareous groundwater and around the edges of fens from 5,000-6,000 ft. elevation.
BR	*Herbertus aduncus*	Liverwort	CF, RK	Endemic to Pacific coastal area of North America. This species is found only on cliffs in Oregon.
BR	*Limbella fryei*	Moss	CF, RI, MZ	Endemic to the Pacific Northwest and known only from two sites in coastal Oregon (Lane and Curry Counties). On wet rotten wood, leaf litter and lower trunks of tall shrubs, in dense coastal shrub swamps below 200 ft.
BR	*Lophozia gillmanii*	Liverwort	SW, RK	Widespread around the northern hemisphere in boreal and montane regions, in western North America south to Tulare County, California. Occurs on peaty soil, usually associated with cliffs or ledges. It requires lime or alkaline soil.
BR	*Lophozia laxa*	Liverwort	MZ, SW	Interruptedly circumboreal, in North America as far south as Oregon, Michigan, and New Jersey. Occurs in well-developed hummocks of *Sphagnum* in fens and bogs along

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				coast and in Cascades, 0-5,000 ft. elevation.
BR	*Marsupella emarginata* var. *aquatica*	Liverwort	RI	Known from North America, northern Europe, Great Britain, and Greenland. Restricted to streams with relatively fast moving water and rocky bottoms in subalpine, montane situations.
BR	*Meesia uliginosa*	Moss	MG, RI	Circumboreal. In the Pacific Northwest, known from British Columbia, Washington, Montana, Oregon, and California. Occurs in medium to rich montane fens from 5,000-6,000 ft. elevation.
BR	*Metzgeria violacea*	Liverwort	CF, MZ	Known from northwestern and southeastern North America, Europe, and Asia. Occurs on tree trunks and shrubs in coastal rainforest at 0-1,000 ft. elevation.
BR	*Orthodontium pellucens*	Moss	CF, MZ	Known from southeastern and western United States, Central and South America, Caribbean, and the Hawaiian Islands. Occurs on stumps, rotten logs, bark of living redwood trees, confined to redwood groves near the ocean.
BR	*Phymatoceros phymatodes*	Liverwort	SW	Known from the central coast and Sierra Nevada of California to Curry and Douglas Counties, Oregon. Occurs on bare, mineral soil which remains moist until late spring or summer, from near sea level to 650 m.
BR	*Porella bolanderi*	Liverwort	CF, RK, OHW	Endemic to western North America and known only from California, Oregon, and Utah. Occurs on variety of rock types and trunks of oak, California bay laurel, and big leaf maple, 500-3,000 ft. elevation.
BR	*Preissia quadrata*	Liverwort	RK	Circumboreal in temperate to boreal regions. In western North America extending south to California. Occurs on soil with little organic material, typically on ledges on cliffs or in crevices in rocky areas.
BR	*Pseudocalliergon trifarium*	Moss	SW	Circumboreal but rare throughout much of its range. In the Pacific Northwest, known from British Columbia, Alberta, Montana, and Oregon. Occurs in medium to rich montane fens where it grows submerged to emergent in pools or on saturated ground, usually in full sunlight. Elevations range from 5,000-6,000 feet.
BR	*Schistidium cinclidodonteum*	Moss	RK, RI	Known from Washington, Idaho, Oregon, California, Nevada, and Europe. Occurs on wet or dry rocks or on soil in crevices of rocks and boulders, often along intermittent streams, at elevations of 5,000-11,000 feet.
BR	*Schistostega pennata*	Moss	CF	Known from the Pacific Northwest, northeast North America, and China. Grows on mineral soil in crevices on lower, sheltered parts of upturned tree root wads, ceilings of caves, crevices in soil banks, along the upper banks of perennial streams, occasionally on rock (Harpel 2007 - Flora of North America, vol. 27, p. 475).
BR	*Splachnum ampullaceum*	Moss	RI	Circumboreal. In the Pacific Northwest, reported from Alaska, British Columbia, Alberta, Washington, and Oregon. Occurs on old dung or soil enriched by dung, in peatlands or wetland (fens).
BR	*Tetraphis geniculata*	Moss	CF	Known from northern California to Alaska. Grows on rotten stumps and logs in shaded, humid locations (USDA FS and USDI BLM 2005).
BR	*Tomentypnum nitens*	Moss	CF, RI	Circumboreal and in North America south in the Rocky Mountains to New Mexico. In

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				the Pacific Northwest known from Alaska, British Columbia, Washington, Idaho, Montana, and Oregon. Occurs in montane fens, elev. 5,000-6,000 feet.
BR	*Tortula mucronifolia*	Moss	CF, RK	Known throughout the Northern Hemisphere, Turkey, Africa, and New Zealand. Occurs on soil, tree roots, and sheltered ledges and crevices of rock outcrops, 5,000-7,000 ft. elevation.
BR	*Trematodon asanoi*	Moss	RI	Known from British Columbia, California, Oregon, Newfoundland, and Japan. on moist bare soil along the edges of trails, streams and ponds in the subalpine zone.
BR	*Tritomaria exsectiformis*	Liverwort	CF, RI	Circumboreal species that is missing in Eastern Asia. Within Western North America, it is known from Alaska, British Columbia, Colorado, Idaho, Montana, Oregon, Washington, and Wyoming. Occurs on peaty or humic soil, or rotting wood, within riparian zones from 3,200-5,200 feet elevation.
LI	*Bryoria spiralifera*	Lichen	CF	Known from Oregon and California. Occurs on coastal trees, snags, and shrubs within 2 miles of the ocean.
LI	*Bryoria subcana*	Lichen	CF	Known from coastal western North America between south-central Alaska and central California and from Great Britain. Found on bark and wood of conifers in Sitka spruce, western hemlock, wet Douglas-fir, wet noble fir (*Abies procera*), and mixed hardwood-coniferous forests.
LI	*Calicium adspersum*	Lichen	CF	Known from North America, Scandinavia, and Europe. In the Pacific Northwest, known from British Columbia south to California. Grows on bark of living (older than 200 years) grand fir, Douglas-fir, oaks, redwood and western red cedar at or below 2,000 feet elevation.
LI	*Cladidium bolanderi*	Lichen	RK, OHW, SE	Known from along the immediate coast of Alaska, Oregon, and California. On a variety of rock types on coastal bluffs and coastal grasslands from sea level to 1,000 ft. elevation.
LI	*Erioderma sorediatum*	Lichen	CF	Known from New Zealand and North America, where it is rare from southeast Alaska through British Columbia, Washington, and Oregon. Grows on shrubs and trees within the coastal fog zone, in broken shore pine and Sitka spruce or shrub thickets.
LI	*Heterodermia leucomelos*	Lichen	CF	Found in the Americas, Europe, Africa, and Asia, and is widespread in the tropics and subtropics. In North America, it is known from the Pacific coastal fog zone in British Columbia, Oregon, and California. Grows on Sitka spruce and shore pine.
LI	*Hypogymnia pulverata*	Lichen	CF	Interruptedly bipolar. Pacific Northwestern and eastern North America, Japan, Australia, New Zealand, and Argentina. Rare in North America, widespread in Australia and New Zealand. The single known site in the Pacific Northwest is in coastal forest, where it was collected in litter fall from branches of Sitka spruce near the top of a forested dune on BLM property in Tillamook County.
LI	*Hypotrachyna revoluta*	Lichen	CF	Known from coastal Alaska to California in hypermaritime environments and sporadically throughout the rest of North America; also in Europe, South America and China. Occurs on headlands and ridges or in marine estuaries and dune landforms.

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LI	*Leioderma sorediatum*	Lichen	CF	Known mainly from the South Pacific, New Zealand, Australia, Sri Lanka, and mainland India, with disjunct populations on the Pacific coasts of North and South America. In Oregon, it is found in semi-open coastal thickets, and deflation plains and ericaceous shrub thickets of shore pine on stabilized dunes and deflation plains.
LI	*Leptogium cyanescens*	Lichen	CF, OHW	Found worldwide in both temperate and tropical regions. In the Pacific Northwest, known from Alaska to Oregon, but rare throughout the region. Occurs on shaded twigs of deciduous trees and shrubs in humid habitats, rarely in exposed situations. The two Oregon sites are on the immediate coast at elevations of 15-30 feet.
LI	*Lobaria linita*	Lichen	CF	Occurs sporadically in the European Alps, Norway, Siberia, eastern Asia, and North America. It is strongly associated with old-growth and climax forests, prefers the lower boles of conifers, especially Pacific silver fir, but in drier habitats or at higher elevations it may also grow on moss-covered boulders or rock outcrops in cool, shaded, humid microsites.
LI	*Microcalicium arenarium*	Lichen	CF	Found in the Pacific Northwest from Alaska south to California, Scandinavia, Europe, Asia, eastern North America, Australasia, and southern South America. Occurs on free-living green algae or leprose lichens growing in drier microhabitats such as bark, wood, root, and rock faces that are sheltered from precipitation.
LI	*Niebla cephalota*	Lichen	CF	Endemic to western North America, ranging from Baja California, north to Washington along the immediate coast. In the Pacific Northwest, it is found on exposed Sitka spruce, Hooker's willow, Monterey cypress and shore pine in open forests, forest edges, and scrublands along windswept coastal headlands, sand dunes, stabilized deflation plains, and marshy swales of the immediate coast.
LI	*Pannaria rubiginosa*	Lichen	CF	Known from the Americas and western Europe. Grows on wood and bark of trees and shrubs within a few kilometers of ocean at or near sea-level.
LI	*Pilophorus nigricaulis*	Lichen	CF	Occurs in Japan and on the west coast of North America, from Alaska south to Oregon, west of the Cascade crest. Grows on rock substrates primarily in non-forest communities from 130-4,700 ft. elevation.
LI	*Pseudocyphellaria mallota*	Lichen	CF	Known from southwestern South America and northwestern North America. Occurs within humid stands of Douglas-fir and western hemlock including stands as young as 40 years.
LI	*Ramalina pollinaria*	Lichen	CF, MZ, RI	Known in the Pacific Northwest from Alaska south to California and east to the Rocky Mountains, Arizona, New Mexico, Texas, eastern North America, Scandinavia, Europe, and Israel. In the Pacific Northwest, it occurs on bark and wood of various trees and shrubs, shaded rocks at low elevation.
LI	*Stereocaulon spathuliferum*	Lichen	CF	Circumboreal. In the Pacific Northwest from Alaska south to Oregon, in and west of the Cascade Range. Grows on basalt blocks of talus slopes, 3,000-5,000 ft. elevation.
LI	*Teloschistes flavicans*	Lichen	CF, MZ	Known from mostly tropical and subtropical areas. In the Pacific Northwest it occurs in Oregon and California on exposed headlands and dunes of the immediate coast.

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LI	*Texosporium sancti-jacobi*	Lichen	SC, MG	Endemic to western North America and known from only a few extremely small, localized and widely scattered populations in south-central Washington, central Oregon, southern Idaho, and central and southern California. It occurs on soil in arid to semi-arid shrub-steppe, grassland or savannah communities up to 3,281 ft.
LI	*Tholurna dissimilis*	Lichen	CF	Known from western Canada and Washington and Oregon and Scandinavia. In the Pacific Northwest, grows on krummholz or flag-form subalpine fir and Engelmann spruce on windswept ridges in the upper montane and subalpine zones up to timberline.
LI	*Usnea nidulans*	Lichen	CF	Known from the Pacific Northwest and South America. Grows on conifers and deciduous trees exclusively in hypermaritime forests on the immediate coast and in the Coast Ranges.
VA	*Abronia umbellata* ssp. *breviflora*	Pink sand-verbena	MZ	On sandy beaches and foredunes within the Coast Range from California to British Columbia
VA	*Adiantum jordanii*	California maiden-hair	CF	On seasonally moist, shaded, rocky banks, cliffs, canyons, and ravines in the Coast Range and Klamath Mountains in Oregon and California
VA	*Agoseris elata*	Tall agoseris	MG, OHW, CF	Meadows, shrubby slopes and open woodlands, 1,600-3,200 ft. elevation; East Cascade Range and West Cascade Range and Crest
VA	*Agrostis howellii*	Howell's bentgrass	RK, CF	Shady woodlands at base of cliffs; West Cascade Range and Crest and Willamette Valley
VA	*Allium peninsulare*	Peninsular onion	CH	Dry slopes, flats, <1,100 m; Klamath Mountains, West Cascade Range and Crest, and California
VA	*Anemone oregana* var. *felix*	Bog anemone	RI, SW	*Sphagnum* bogs and marshes; Coast Range, West Cascade Range and Crest, and Washington
VA	*Arabis koehleri* var. *koehleri*	Koehler's rockcress	RK	Dry, rocky cliffs, 225-280 m; Klamath Mountains
VA	*Arctostaphylos hispidula*	Hairy manzanita	SE, SC, CF	Rocky serpentine soils or sandstone, open shrub and forests, not fire tolerant; Coast Range, Klamath Mountains, and California
VA	*Arnica viscosa*	Shasta arnica	RK	Scree, talus gullies, and slopes w/ seasonal water runoff, 1,750-2,500 m; West Cascade Range and Crest, and California
VA	*Artemisia pycnocephala*	Coastal sagewort	MZ, RK	Rocky or sandy soils, coastal strand; Coast Range, and California
VA	*Asplenium septentrionale*	Grass-fern	RK	Cliffs of various substrates, 700-2,900 m; West Cascade Range and Crest, and California
VA	*Astragalus californicus*	California milk-vetch	MG	Dry, open areas in scrub, woodland, valleys and canyons, 1,000-2,700 ft.; Klamath Mountains, and California
VA	*Astragalus gambelianus*	Gambel milk-vetch	MG, SC	Open, grassy areas, scrub, 50-900 m; Klamath Mountains, and California
VA	*Astragalus peckii*	Peck's milk-vetch	RK, MG	Very dry sites, on loose sandy soil or pumice, 900-1,100 m; Blue Mountains and East Cascade Range
VA	*Bensoniella oregana*	Bensonia	CF, RI,	Wet meadows, bogs and streams in deep soils under conifer forests; Coast Range,

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			SW	Klamath Mountains, and California
VA	*Botrychium montanum*	Mountain grape-fern	CF, RI	Shady coniferous forest, edges of bogs, cedar swamps, 1,000-2,000 m; Blue Mountains, East Cascade Range, West Cascade Range and Crest; California, Montana, Washington, and British Columbia
VA	*Botrychium pumicola*	Pumice grape-fern	RK, CF	Fine pumice gravel on open slopes, dense lodgepole pine stands, 1,900-2,500 m; East Cascade Range, West Cascade Range and Crest; California
VA	*Brodiaea terrestris*	Dwarf brodiaea	MZ, MG	Grassland, open woodlands, 0-1,500 m; Coast Range; California
VA	*Calamagrostis breweri*	Brewer's reedgrass	RI	Moist subalpine and alpine meadows, lake margins, streambanks, 1,300-3,800 m; West Cascade Range and Crest; California
VA	*Callitriche marginata*	Winged water-starwort	RI	In water or on wet ground; Columbia Basin, Klamath Mountains; British Columbia, and California
VA	*Calochortus coxii*	Crinite mariposa-lily	SE, MG	serpentine open grassy slopes or woods, 200-1,000 m; Klamath Mountains
VA	*Calochortus greenei*	Greene's mariposa-lily	SC, MG	Shrubby hillsides, open woodlands, dry soils and slopes, 700-1,100 m; East Cascade Range, Klamath Mountains; California
VA	*Calochortus howellii*	Howell's mariposa-lily	SE	Dry, rock serpentine soils, 300-500 m; Klamath Mountains
VA	*Calochortus monophyllus*	One-leaved mariposa-lily	RK, MG	Wooded slopes, clay-loam soils, 400-1,200 m; East Cascade Range, West Cascade Range and Crest; California
VA	*Calochortus nitidus*	Broad-fruit mariposa-lily	RK, RI, MG	Low meadows along creeks, 700-900 m; West Cascade Range; Idaho; West Cascade Range; Idaho
VA	*Calochortus umpquaensis*	Umpqua mariposa-lily	SE, MG	Grassland-forest ecotones on serpentine soils, 300-500m; Klamath Mountains, West Cascade Range and Crest
VA	*Camassia howellii*	Howell's camas	SE, OHW, MG	Serpentine open, seasonally wet slopes; Klamath Mountains
VA	*Camissonia graciliflora*	Slender-flowered evening-primrose	MG, SC, OHW	Open or shrubby slopes, grassland, oak; Klamath Mountains; California
VA	*Cardamine pattersonii*	Saddle mountain bittercress	RI, MG	Moss mats over bare rocks, moist cliffs and other rocky slopes, grassy balds, and wet, mossy-gravelly creek banks, 840-960 m; Coast Range
VA	*Carex brevicaulis*	Short stemmed sedge	MZ, RI	Dry, open, sandy or rocky slopes, cliffs, and dunes, 0-90 m; Coast Range; Washington, California
VA	*Carex capitata*	Capitate sedge	RI, SW	Wet places, meadows, slopes, 1,900-3,900 m; Northern Basin and Range, East Cascade Range, West Cascade Range and Crest; Idaho, Nevada, Washington
VA	*Carex comosa*	Bristly sedge	RI, SW	Swamps and wet thickets, stream, pond, and lakeshores, 0-700 m; East Cascade Range, Klamath Mountains, Willamette Valley; California, Idaho, Washington
VA	*Carex crawfordii*	Crawford's sedge	RI, SW	Often in standing water, moist to wet places, open, sandy, disturbed areas, 100-1,500 m; Coast Range, West Cascade Range and Crest; Idaho, Washington
VA	*Carex diandra*	Lesser panicled sedge	RI	Swampy, marshy, or boggy areas, 0-2,800 m; East Cascade Range, West Cascade Range and Crest; California, Nevada, Washington

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VA	*Carex klamathensis*	A sedge	RI	Boreal fens, calcarious floating mats, 0-1,100m; Klamath Mountains; California
VA	*Carex lasiocarpa* var. *americana*	Slender sedge	RI	Bogs, calcareous fens, sedge meadows, and shallow marshes; Blue Mountains, East Cascade Range, West Cascade Range and Crest; California, Idaho, Washington
VA	*Carex livida*	Pale sedge	RI	Boreal fens, calcarious floating mats, 0-1,100m; Coast Range, West Cascade Range and Crest; California, Idaho, Washington
VA	*Carex macrocephala*	Bighead sedge	CD	coastal sand dunes; Coast Range; Washington, Alaska, British Columbia
VA	*Carex macrochaeta*	Large-awn sedge	RI	in spray zone of waterfalls or on seepy, N-facing cliffs; Coast Range, West Cascade Range; Washington
VA	*Carex nervina*	Sierra nerved sedge	MG	Subalpine meadows, 1,200-3,000 m; Klamath Mountains; California, Nevada
VA	*Carex retrorsa*	Retrorse sedge	SW, RI	Swamps, wet thickets, often along streams, marshes, sedge meadows, 0-1,900 m; Blue Mountains, Columbia Basin, West Cascade Range and Crest, Willamette Valley; Idaho, Washington
VA	*Castilleja chlorotica*	Green-tinged paintbrush	CF	In loose sandy soils, often in ponderosa pine woods, 1,400-2,500 m; Blue Mountains, East Cascade Range
VA	*Cheilanthes covillei*	Coville's lip-fern	RK	Rocky slopes, cliffs, and ledges, 100-2,500 m; West Cascade Range and Crest; California, Nevada
VA	*Cheilanthes intertexta*	Coastal lipfern	RK	Rocky slopes and ledges, 500-2,800 m; Klamath Mountains; California
VA	*Chlorogalum angustifolium*	Narrow-leaved amole	MG, OHW	Heavy soils of grassland or woodland, 0-500 m; Klamath Mountains; California
VA	*Cicendia quadrangularis*	Timwort	RI, OHW, SW, MG, RK	Crevices, bases of rocks, coastal wetlands, vernal pools, moist valley grassland and oak woodland, 0-2,700 m; Coast Range, Klamath Mountains, Willamette Valley; California
VA	*Collomia mazama*	Mt. Mazama collomia	CF, RI, MG	Alpine meadows and slopes and dry rocky places in black hemlock, fir, or lodgepole forest, 900-1,850 m; West Cascade Range and Crest
VA	*Coptis trifolia*	Three-leaf goldthread	CF, RI	Wet to mesic, coniferous and mixed forests, bogs, willow scrub, and tundra, 0-1,500 m; West Cascade Range and Crest; British Columbia
VA	*Corydalis aquae-gelidae*	Cold-water corydalis	RI, CF	Perennial streams, seep, and springs; West Cascade Range; Washington
VA	*Cordylanthus maritimus* ssp. *palustris*	Point reyes bird's beak	RI	Coastal salt marshes, inland alkaline flats; Oregon and California
VA	*Cryptantha leiocarpa*	Seaside cryptantha	MZ	Sandy soils, dunes, <200 m; Coast Range; California
VA	*Cryptantha milo-bakeri*	Milo baker's cryptantha	RK	Rocky or gravelly soils, generally coniferous forest; Coast Range, Klamath Mountains; California
VA	*Cryptogramma stelleri*	Steller's rockbrake	RK	Sheltered calcareous cliff crevices and rock ledges, typically in coniferous forest, 0-3,000 m; Blue Mountains; Nevada, Washington
VA	*Cupressus bakeri*	Baker's cypress	CF, SE	Mixed evergreen forests, often serpentine; Klamath Mountains, West Cascade Range and Crest; California

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VA	*Cyperus acuminatus*	Short-pointed cyperus	RI, SW	Wet, often sandy shores, and damp, disturbed soils, 0-1,500 m; Klamath Mountains, Willamette Valley; California, Washington
VA	*Cypripedium fasciculatum*	Clustered lady's-slipper	CF	Coniferous forest, often late-successional; Blue Mountains, East Cascade Range, West Cascade Range and Crest; California, Colorado, Idaho, Montana, Washington, Wyoming
VA	*Delphinium nudicaule*	Red larkspur	RK, OHW	Wooded, rocky slopes, moist talus, cliff faces, 0-2,600 m; Klamath Mountains; California
VA	*Delphinium nuttallii*	Nutall's larkspur	RI, MG	Rock outcrops, rocky meadows, 20-300 m; East Cascade Range, West Cascade Range and Crest, Willamette Valley; Washington, British Columbia
VA	*Dicentra pauciflora*	Few-flowered bleedingheart	RK, CF	Openings in coniferous forests, in volcanic and granitic soils, 1,200-2,700 m; Klamath Range; California
VA	*Dodecatheon austrofrigidum*	Frigid shootingstar	RI	Steep basalt slopes along rivers, 30-915 m; Coast Range; Washington
VA	*Draba howellii*	Howell's whitlow-grass	RK	Rock crevices, 2,000-3,000 m; Klamath Mountains; California
VA	*Epilobium oreganum*	Oregon willow-herb	SW, RI	Ultramafics, bogs, small streams, ditches, 500-1600 m; Klamath Mountains; California
VA	*Ericameria arborescens*	Golden fleece	CF, OHW, SC	Woodland, open forest, chaparral, esp. after fire, <1,200 m; Coast Range, Klamath Mountains; California, Nevada
VA	*Erigeron cervinus*	Siskiyou daisy	SE, MG, RK	Open, rocky slopes, meadows, pine to fir woods, 900-1,900 m; Klamath Mountains; California
VA	*Erigeron howellii*	Howell's daisy	RK, MG	Moist, often rocky places w/in mixed coniferous forest with Columbia River Gorge; West Cascade Range; Washington
VA	*Eriogonum lobbii*	Lobb's buckwheat	RK, MG, SC	Gravelly to rocky or talus slopes, mixed grassland, shrub, and sagebrush communities, montane, subalpine, or alpine conifer woodlands; Klamath Mountains; California, Nevada
VA	*Eriogonum umbellatum* var. *glaberrimum*	Green buckwheat	MG	Sand or gravel, 1,600-2,300 m; East Cascade Range; California
VA	*Eriophorum chamissonis*	Russet cotton-grass	RI	Peat, bogs, marshes, muskegs, 0-3,000 m; Coast Range; British Columbia
VA	*Erythronium elegans*	Coast range fawn-lily	MG, CF, SC, RK	Meadows and open coniferous forest, 800-1,000 m; Coast Range
VA	*Erythronium howellii*	Howell's adder's-tongue	CF, SE, SC, MG	Serpentine influence, meadows, open woodlands, mixed conifer; Klamath Mountains; California
VA	*Eschscholzia caespitosa*	Gold poppy	RK, MG, SC	Open chaparral, rocky slopes, 0-1,500 m; Klamath Mountains; California
VA	*Eucephalus gormanii*	Gorman's aster	RK, CF	Open rocky slopes and exposed cliffs, 1,200-1,900 m; West Cascade Range and Crest
VA	*Eucephalus vialis*	Wayside aster	CF, MG, OHW	Dry open oak or coniferous woods, gen. harsher clay soils, 200-500 m; Klamath Mountains, West Cascade Range and Crest, Willamette Valley; California
VA	*Filipendula occidentalis*	Queen-of-the-forest	CF, RI	Bedrock crevices with water seeping throughout much of the year; Coast Range;

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				Washington
VA	*Frasera umpquaensis*	Umpqua swertia	CF	Coniferous forests dominated by true firs; in damp, shaded sites under forest canopy, forest edges, occasionally in the open,3,000-6,100 (6,500) feet; Klamath Mountains, West Cascade Range and Crest; California
VA	*Fritillaria camschatcensis*	Black lily	MG, RI	Moist areas from near tidal flats to mountain meadows, 0-1000 m; Coast Range, West Cascade Range; Washington
VA	*Gentiana newberryi* var. *newberryi*	Newberry's gentian	SW, MG	sites under forest canopy, forest edges, occasionally in the open; East Cascade Range, West Cascade Range and Crest; California
VA	*Gentiana plurisetosa*	Elegant gentian	SW	Coniferous forest, meadows, mesic, 1,230-1,938 m; Klamath Mountains; California
VA	*Gentiana setigera*	Waldo gentian	SW, SE, MG	Serpentine bogs and wet meadows; Klamath Mountains; California
VA	*Gilia millefoliata*	Seaside gilia	MZ	Stabilized coastal dunes, <10 m; Coast Range; California
VA	*Hackelia bella*	Beautiful stickseed	MG	Streambanks, roadsides, forest opening, 900-2,000 m; Klamath Mountains, West Cascade Range and Crest; California
VA	*Hastingsia bracteosa* var. *atropurpurea*	Purple-flowered rush-lily	SW, SE	Ultramafic riverbeds that have year-round water in rooting horizon and wet, open, sunny bogs, 500-700 m; Klamath Mountains
VA	*Hastingsia bracteosa* var. *bracteosa*	Large-flowered rush-lily	SW, SE	Bogs, moist open meadows, seeps and wetlands often overlying serpentine or peridotite rock formations, <240 m; Klamath Mountains
VA	*Heliotropium curassavicum*	Salt heliotrope	SW	Moist to dry saline soils, <2,100 m; Blue Mountains, Northern Basin and Range, Columbia Basin, East Cascades Range, Willamette Valley; California, Nevada
VA	*Hieracium horridum*	Shaggy hawkweed	RK	Boulders, gravels, meadows, pine forests, 1,500-3,700 m; Klamath Mountains, West Cascade Range and Crest; California
VA	*Horkelia congesta* ssp. *congesta*	Shaggy horkelia	MG, OHW	Grassland and oak savannah remnants, grassy balds; Klamath Mountains, Willamette Valley
VA	*Horkelia tridentata* ssp. *tridentata*	Three-toothed horkelia	MG, OHW, CF	Dry, open coniferous forest, 300-2,500 m; Klamath Mountains; California
VA	*Hydrocotyle verticillata*	Whorled marsh-pennywort	MZ, RI	Along edges of coastal and inland lakes, swampy ground, wetlands, <100 m; Coast Range, Willamette Valley; California
VA	*Iliamna latibracteata*	California globe-mallow	CF, RI	Moist ground and stream sides in conifer forests, 500-2,000 m; Coast Range, Klamath Mountains, West Cascade Range and Crest; California
VA	*Iris tenax* var. *gormanii*	Gorman's iris	MG	Dry soils in fields and open woods; Willamette Valley
VA	*Kalmiopsis fragrans*	Fragrant kalmiopsis	RK, CF	Mixed coniferous forest, commonly on or closely adjacent to talus slopes, boulder piles, or pillars of silicified tuff, 450-1,350 m; West Cascade Range and Crest
VA	*Keckiella lemmonii*	Bush beardtongue	CF, OHW, SC	Rocky slopes, coniferous and mixed forests, chaparral, 200-1,900 m; Klamath Mountains; California, Nevada
VA	*Lasthenia ornduffii*	Large-flowered goldfields	MZ, MG	Seaward slopes, cliff faces; Coast Range

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
VA	*Lathyrus holochlorus*	Thin-leaved peavine	OHW, CF, MG	Open forests and thickets, margins of woods, roadsides; Willamette Valley
VA	*Lewisia columbiana* var. *columbiana*	Columbia lewisia	RK	Rocky slopes and crevices, 500-2,300 m; West Cascade Range and Crest; Washington
VA	*Lewisia leeana*	Lee's lewisia	RK, CF	Sandy, rocky places, pine forests, 1,300-3,300 m; Klamath Mountains; California
VA	*Limnanthes floccosa* ssp. *bellingeriana*	Bellinger's meadow-foam	SW, SC, OHW	Edges of vernal pools or seasonally wet, rocky, open meadows and grassy openings in oak/pine/buckbrush chaparral; East Cascade Range, Klamath Mountains, West Cascade Range and Crest; East Cascade Range, Klamath Mountains, West Cascade Range and Crest; California
VA	*Limnanthes floccosa* ssp. *pumila*	Dwarf meadow-foam	SW	Edges of vernal pools and wet meadows; Klamath Mountains
VA	*Limnanthes gracilis* ssp. *gracilis*	Slender meadow-foam	SW	Wet, open, serpentine valley bottomlands, meadows, intermittent creeks; Klamath Mountains, West Cascade Range; Klamath Mountains, West Cascade Range
VA	*Limonium californicum*	Western marsh-rosemary	SW, RI	Coastal strand, salt marshes, beaches, alkaline flats, 0-50 m; Oregon and California
VA	*Lomatium engelmannii*	Englemann's desert-parsley	SE	Gravelly serpentine slopes w/in conifer forests, usu. Jeffrey pine, 1,150-2,300 m; Klamath Mountains; California
VA	*Lotus stipularis*	Stipuled trefoil	CF, RI, SC	Open pine forests, streambeds, chaparral, mixed conifer forest, chaparral, 0-4,000 ft; Klamath Mountains; California
VA	*Lupinus tracyi*	Tracy's lupine	CF	Dry, open montane forest, 1,500-2,000 m; Klamath Mountains; California
VA	*Lycopodiella inundata*	Bog club-moss	SW, RI	Peat bogs, lakeshores, marshes, 0-2,000 m; Coast Range, East and West Cascade Range; California, Idaho, Montana
VA	*Lycopodium complanatum*	Ground cedar	CF	Moist coniferous forest; Blue Mountains, West Cascade Range; Idaho, Washington
VA	*Meconella oregana*	White fairypoppy	OHW, MG, SW	Open ground, moist sandy, gravelly areas, 0-300 m; East and West Cascade Range, Klamath Mountains; Washington, British Columbia
VA	*Microseris bigelovii*	Coast microseris	MZ, RI, MG	Open sandy soil, grasslands, <100 m; Coast Range; California, Washington
VA	*Mimulus bolanderi*	Bolander's monkeyflower	RK, SC, OHW	Burns, openings in chaparral, foothill woodland, yellow pine forest, <6500 ft.; Klamath Mountains; California
VA	*Mimulus congdonii*	Congdon's monkeyflower	RK	Disturbed areas or seepage, gen. granitic soils, 120-1,100 m; Klamath Mountains; California
VA	*Mimulus evanescens*	Disappearing monkeyflower	SW, RI	Moist gravelly, rocky areas, stream edges, in sagebrush-juniper zones; Blue Mountains, Northern Basin and Range, Columbia Basin, East Cascade Range; California, Idaho
VA	*Mimulus tricolor*	Three-colored monkey-flower	RI, SW	Vernally wet depressions, streambanks, <600 m; Northern Basin and Range, East Cascade Range, Willamette Valley; California
VA	*Nemacladus capillaris*	Slender nemacladus	RK	Dry slopes, burned areas in chaparral, yellow pine forest, 2,000-4,500 ft.; Klamath

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
				Mountains, West Cascade Range; California
VA	*Oenothera wolfii*	Wolf's evening primrose	MZ, MG	Coastal sand, bluffs, gen. moist, <100 m; Coast Range; California
VA	*Ophioglossum pusillum*	Adder's-tongue	MZ, RI, SW	Marsh edges, low pastures, 1,100-2,000 m; Blue Mountains, Coast Range, West Cascade Range; California, Idaho, Washington
VA	*Pellaea andromedifolia*	Coffee fern	RK, SE, OHW, SC	Rocky outcrops or dry areas, 30-1,800 m; Coast Range, Klamath Mountains, Willamette Valley; California
VA	*Pellaea mucronata* ssp. *mucronata*	Bird's-foot fern	RK, OHW, SC	Rocky outcrops, dry areas, yellow pine, foothill woodland, chaparral, coastal sage scrub, 20-2,400 m; Klamath Mountains; California
VA	*Penstemon glaucinus*	Blue-leaved penstemon	CF, RK	Open understory of lodgepole or white-bark pine, occ. Ponderosa; East Cascade Range
VA	*Perideridia erythrorhiza*	Red-rooted yampah	MG, OHW, SW	Moist meadows, poor drained soils, open woodlands and pine forests, <1,525 m; East Cascade Range, Klamath Mountains, West Cascade Range
VA	*Phacelia argentea*	Silvery phacelia	MZ	Coastal sand dunes and sandy bluffs; Coast Range; California
VA	*Phacelia leonis*	Siskiyou phacelia	CF, SE	Moist to wet meadows, gravelly serpentine soils, openings in conifer forests, 1200-1900 m; Klamath Mountains; California
VA	*Pilularia americana*	American pillwort	SW	Vernal pools, mud flats, lake margins, 50-600 m; Blue Mountains, Northern Basin and Range, East Cascade Range, Klamath Mountains; California
VA	*Plagiobothrys austiniae*	Austin's plagiobothrys	SW	Vernal pools, wet sites, <500 m; Klamath Mountains; California
VA	*Plagiobothrys figuratus* ssp. *corallicarpus*	Coral seeded allocarya	SW, RI	Wet meadows, riparian areas, intermittent streams, valley floor; Klamath Mountains, West Cascade Range
VA	*Plagiobothrys greenei*	Greene's popcorn flower	SW, RI	Wet sites, grassland to woodland; Klamath Mountains, West Cascade Range; California
VA	*Poa rhizomata*	Timber bluegrass	CF, MG	Shady, moist slopes in forest, rich, loose soils, <100 m; Klamath Mountains, West Cascade Range; California
VA	*Pogogyne floribunda*	Profuse-flowereed mesa mint	SW	Vernal pools and edges of seasonal ponds and intermittent flooded drainages, <1,500 m; Northern Basin and Range, East Cascade Range; California, Idaho
VA	*Polystichum californicum*	California sword-fern	RI, RK	Woods, streambanks to rocky open slopes w/ moisture, <800 m; Coast Range, Klamath Mountains, West Cascade Range, Willamette Valley; California, Washington
VA	*Potamogeton diversifolius*	Rafinesque's pondweed	RI	Shallow water, ditches, ponds, lakes, <2,500 m; Northern Basin and Range, East Cascade Range; California, Idaho, Nevada, Washington
VA	*Pyrrocoma racemosa* var. *racemosa*	Racemose pyrrocoma	SW, MZ	Coastal valleys and marshes, 0-300 m; Willamette Valley; California
VA	*Rafinesquia californica*	California chicory	CH, OHW	open sites in scrub, woodland; often common after fire; 100-1500 m; Klamath Mountains; California, Nevada
VA	*Ranunculus austrooreganus*	Southern Oregon buttercup	OHW, MG	Open oak savannahs and grasslands and along margins of rocky vernal pools; Klamath Mountains, West Cascade Range
VA	*Rhamnus ilicifolia*	Redberry	SC	Chaparral, montane forests, <2,000m; Klamath Mountains; California

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
VA	*Rhynchospora alba*	White beakrush	RI	Acid, sphagnous, boggy, open sites, 0-2000m; Coast Range, West Cascade Range; California, Idaho, Washington
VA	*Ribes divaricatum* var. *pubiflorum*	Straggly gooseberry	CF	Coastal bluffs, forest edges, <650 m; Coast Range, Klamath Mountains, West Cascade Range; California
VA	*Romanzoffia thompsonii*	Thompson's mistmaiden	MG, SW, RK, RI	Moist rocky areas, wet cliffs, 750-6,000 ft.; Coast Range, Klamath Mountains, West Cascade Range, Willamette Valley
VA	*Rorippa columbiae*	Columbia cress	RI, SW	Meadows, playas, river margins; Blue Mountains, Northern Basin and Range, Columbia Basin, East and West Cascade Range, Willamette Valley; California, Washington
VA	*Rotala ramosior*	Lowland toothcup	RI, SW	Wet places, lake and pond margins, streams, <1900 m; Northern Basin and Range, East Cascade Range, Willamette Valley; California, Washington
VA	*Saxifragopsis fragarioides*	Joint-leaved saxifrage	RK	Rock crevices, 1,500-3,000 m; Klamath Mountains; California, Washington
VA	*Scheuchzeria palustris* ssp. *americana*	Scheuchzeria	RI, SW	Bogs, lake margins, Cascades, 1400-2,000m; East Cascade Range, West Cascade Range; California, Idaho, Washington
VA	*Schoenoplectus subterminalis*	Water clubrush	RI, SW	Submerged to emergent in water, 10-2,200 m; Coast Range, East Cascade Range, Klamath Mountains, West Cascade Range; California, Idaho, Washington
VA	*Scirpus pendulus*	Drooping bulrush	RI, SW	Marshes, wet meadows, 0-600 m; East Cascade Range, Klamath Mountains, West Cascade Range, Willamette Valley; California
VA	*Sedum moranii*	Rogue river stonecrop	RK, SE	Open, dry serpentine outcrops and cliffs, 180-830 m; Klamath Mountains
VA	*Sericocarpus rigidus*	White-topped aster	MG	Open grassland in lowlands of WV-Puget Trough, 100-550 ft.; Willamette Valley; Washington, British Columbia
VA	*Sidalcea hendersonii*	Henderson's sidalcea	RI	Tidally influenced areas; Coast Range, Marine; Washington, British Columbia
VA	*Sidalcea hickmanii* ssp. *nov. (hickman's)*	Hickman's checkerbloom	MG, RK, SC	Where fresh water from lakes or streams; Klamath Mountains
VA	*Sidalcea malviflora* ssp. *patula*	Coast checker bloom	MZ, MG	Open coniferous forest, coastal prairie, and coastal bluff scrub. Below 2,300 ft.; Coast Range, Klamath Mountains; California
VA	*Silene hookeri* ssp. *bolanderi*	Bolander's catchfly	SE, OHW	Serpentine, rocky slopes, northern oak woodlands to yellow pine forests, <5,000 ft.; Klamath Mountains; California
VA	*Sisyrinchium hitchcockii*	Hitchcock's blue-eyed grass	MG	Grassy areas, openings in woods, WV and Umpqua V, 200-1,000 m; Klamath Mountains, Willamette Valley; California
VA	*Sisyrinchium sarmentosum*	Pale blue-eyed grass	MG, SW	Wet meadows in forest openings, primarily Pacific Silver and Grand Fir zones, 490-1,200 m; West Cascade Range; Washington
VA	*Solanum parishii*	Parish's horse-nettle	CF, OHW, SC	Dry chaparral, oak/pine woodland, pine forest, <2,000 m; Klamath Valley, West Cascade Range; California
VA	*Sophora leachiana*	Western sophora	OHW, CF	Open, disturbed sites (often in clearcuts) w/in mixed conifer/oak, often serpentine; Klamath Mountains
VA	*Streptanthus*	Common jewel flower	SW, CF,	Dry, open grasslands, chaparral, open conifer/oak woodland, sometimes on serpentine,

Taxon Group[i]	Scientific Name	Common Name	Habitat Group[ii]	Habitat[iii]
	glandulosus		OHW, MG, SC	15-1,300 m; Klamath Mountains; California
VA	*Streptanthus howellii*	Howell's streptanthus	SE, OHW	Rocky serpentine in open conifer/hardwood forest, 600-1,500 m; Klamath Mountains; California
VA	*Streptopus streptopoides*	Kruhsea	CF	Dense, damp coniferous forests, 0-1600 m; West Cascade Range; British Columbia
VA	*Sullivantia oregana*	Oregon sullivantia	RK	Moist cliffs, esp. near waterfalls, 250-1,600 ft.; West Cascade Range, Willamette Valley; Washington
VA	*Thelypodium brachycarpum*	Short-podded thelypody	MG, SW, SE	Damp meadows and open flats, 800-2,320 m; East Cascade Range; California
VA	*Trillium kurabayashii*	Siskiyou trillium	CF, RI, SC, OHW	Moist conifer/hardwood forest, predominantly deciduous flat woods along streams, 20-500 m; Coast Range, Klamath Mountains; California
VA	*Utricularia gibba*	Humped bladderwort	SW, RI	Shallow water, mud, 10-2,300 m; Coast Range, West Cascade Range, Willamette Valley; California, Idaho, Washington
VA	*Utricularia minor*	Lesser bladderwort	SW, RI	Shallow acidic waters, 800-2,900 m; Blue Mountains, North Basin and Range, Coast Range, East Cascade Range, Klamath Mountains, West Cascade Range; California, Idaho, Nevada, Washington
VA	*Utricularia ochroleuca*	Northern bladderwort	RI	Shallow acidic waters, 1,300-2,400 m; West Cascade Range; California, Washington, British Columbia
VA	*Viola primulifolia* ssp. *occidentalis*	Western bog violet	SE, SW	Serpentine bogs, fens, swamps, or marshes, below 800 m; Klamath Mountains; California
VA	*Wolffia borealis*	Dotted water-meal	RI, SW	Freshwater wetlands, ponds, sloughs, <1,000m; West Cascade Range, Willamette Valley; Washington
VA	*Wolffia columbiana*	Columbia water-meal	RI, SW	Freshwater wetlands, ponds, sloughs, <200 m; Klamath Mountains, West Cascade Range, Willamette Valley; California
VA	*Zigadenus fontanus*	Small-flowered death camas	MG, SW, SE	Vernally moist or marshy areas, often on serpentine, <500 m; Klamath Mountains; California

[i] Taxon Groups: FU = Fungi, BR = Bryophyte, LI = Lichen, VA = Vascular Plant

[ii] Habitat Groups: MG = Meadows/Grassland, SC = Shrub Community, OHW = Oak/Hardwood Woodlands, CF = Conifer/Mixed Evergreen Forest, SW = Seasonal Wetland Fens/Vernal Pools, RI = Riparian and Aquatic, SE = Serpentine Areas, RK = Rocky Areas Outcrops/Scree, MZ = Maritime Zone

[iii] Habitat Descriptions from: Interagency Special Status/Sensitive Species Program Species Fact Sheets and Conservation Planning Documents http://www.fs.fed.us/r6/sfpnw/issssp/planning-documents/species-guides.shtml

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Appendix N - Recreation

Table N-287. Decision Area Recreation Management Areas information.

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
Coos Bay	1	Bastendorff Beach	SRMA	39	39	39	39
	2	Blue Ridge Trail System	ERMA	-	1,405	1,405	1,405
	3	Coos Head	ERMA	-	-	11	11
	4	Dean Creek Elk Viewing Area	SRMA	14	14	14	1,146
	5	Doerner Fir Trail	ERMA	-	17	17	17
	6	Edson Creek Campground	SRMA	46	45	45	45
	7	Euphoria Ridge Trail	ERMA	-	-	-	473
	8	Fawn Creek Campground	SRMA	3	3	3	3
	9	Flores Lake	ERMA	-	50	50	50
	10	Hinsdale Garden	SRMA	11	11	11	11
	11	Hunter Creek Trail System	ERMA	-	1,408	198	198
	12	Loon Lake Recreation Area	SRMA	77	76	76	76
	13	Lost Lake	SRMA	-	14	-	-
	14	North Spit Beach and Ponds Unit	ERMA	-	-	336	336
	15	North Spit Boat Ramp	SRMA	5	5	5	5
	16	North Spit Trail System	ERMA	-	1,317	1,317	-
	17	Park Creek Campground	SRMA	4	4	4	4
	18	Rocky Peak Trail	ERMA	-	1,948	1,948	1,948
	19	Sixes River Campground	SRMA	27	27	27	27
	20	Smith River Corridor	ERMA	-	-	9,505	9,505
	21	Smith River Falls Campground	SRMA	4	4	4	4
	22	Storm Ranch	SRMA	235	236	236	236
	23	Vincent Creek Campground	SMRA	4	4	4	4
	24	Wasson Creek	ERMA	-	-	-	5,813
Eugene	25	Barlow Creek Trail and Trailhead	ERMA	-	-	-	100
	26	Calapooya Divide Backcountry Byway	ERMA	-	-	270	270
	27	Carpenter Bypass Mountain Bike Trail	ERMA	-	1,160	1,160	1,160
	28	Carpenter Bypass Staging Area	SRMA	1	1	1	1
	29	Cascade View OHV Complex	SRMA	6	6	6	6
	30	Clay Creek Recreation Site	SRMA	10	10	10	10
	31	Clay Creek Trail	ERMA	-	14	14	14
	32	Coburg Hiking Trail System	ERMA	-	-	2,019	2,019
	33	Coburg Hills Backcountry Byway	ERMA	-	-	79	79
	34	Crooked Creek OHV Staging Site	SRMA	1	1	1	1
	35	Culp Creek Expansion Site	SRMA	-	-	-	<1
	36	Culp Creek Trailhead	SRMA	1	<1	<1	<1
	37	Dorena Dam Trail Access Site	SRMA	3	1	1	1
	38	Eagles Rest Hiking/Biking Trail	ERMA	-	3	3	3
	39	Esmond Lake Trailhead and Trail	ERMA	-	-	-	158
	40	Hult Equestrian Staging Area	SRMA	-	1	1	1
	41	Hult Reservoir Non-motorized Trail	ERMA	-	213	213	213
	42	Hult Reservoir Recreation Area	SRMA	21	21	21	21
	43	Lost Creek Backcountry Byway	ERMA	-	-	145	145
	44	Lost Creek Trails	ERMA	-	20	20	20
	45	Low Pass OHV Emphasis Area	ERMA	-	-	511	511
	46	Lower Lake Creek Falls	SRMA	2	2	2	2
	47	Martin Rapids Overlook	SRMA	3	3	3	3

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	48	McGowan Creek Environmental Education Area Trail	ERMA	-	80	80	80
	49	McGowan Creek Environmental Education Area	SRMA	1	1	1	1
	50	McKenzie River Campground	SRMA	-	-	146	146
	51	McKenzie River Dispersed Recreation Corridor	ERMA	-	-	276	276
	52	McKercher Park	SRMA	2	<1	<1	<1
	53	Mosby Creek Trailhead	SRMA	10	10	10	10
	54	North Bowl Campground	ERMA	-	-	83	83
	55	Rennie Boat Landing	SRMA	1	1	1	1
	56	Row River Trail	ERMA	-	67	67	67
	57	Row River Trail Expansion	ERMA	-	-	3	3
	58	Sharps Creek Expansion Site	ERMA	-	-	-	5
	59	Sharps Creek Recreation Site	SRMA	3	3	3	3
	60	Shotgun Creek Backcountry Byway	ERMA	-	-	169	169
	61	Shotgun Creek Recreation Site	SRMA	16	16	16	16
	62	Shotgun Non-Motorized Trail System	ERMA	-	64	64	64
	63	Shotgun OHV Trail System	ERMA	-	5,755	5,753	5,753
	64	Silver Creek Boat and McKenzie River Watchable Wildlife Site	SRMA	2	1	1	1
	65	Siuslaw Bend Campground	ERMA	-	-	-	483
	66	Siuslaw River	SRMA	-	-	-	8,403
	67	Smith Creek	SRMA	3	1	1	1
	68	Taylor Landing Recreation Site	SRMA	3	3	3	3
	69	Tyrrell Seed Orchard Interpretive Trail	ERMA	-	8	8	8
	70	Upper Lake Creek	ERMA	-	13,021	13,021	13,021
	71	Whitewater Day Use Area	SRMA	8	6	6	6
	72	Whittaker Creek Recreation Area	SRMA	2	2	2	2
	73	Whittaker Creek Trail	ERMA	-	13	13	13
	74	Willamalane Non-Motorized Trails	ERMA	-	-	-	1,057
	75	Willamette River Greenway	SRMA	4	4	4	4
	76	Wolf Creek Environmental Education Site and Trail	ERMA	-	-	-	549
Klamath Falls	77	Barnes Valley Boat Ramp	ERMA	8	8	8	8
	78	Bryant Mountain	ERMA	-	-	9,086	9,094
	79	Frog Camp	SRMA	7	7	7	7
	80	Gerber	ERMA	-	41,332	41,332	39,917
	81	Gerber Recreation Area	SRMA	473	272	272	272
	82	Hogback Mountain	SRMA	-	2,284	2,284	-
	83	KFRA	ERMA	-	-	-	140,576
	84	Klamath River Campground	SRMA	38	26	26	26
	85	Klamath River WSR	ERMA	-	2,663	2,663	2,663
	86	Lower Klamath Hills	B=E, CD=S	-	1,596	1,596	1,596
	87	Miller Creek Camp	SRMA	2	2	2	2
	88	North Bryant Mountain	SRMA	-	-	5	-
	89	Pacific Crest Trail Corridor	SRMA	7	7	7	7
	90	Potholes Camp	SRMA	8	8	8	8
	91	South Bryant Mountain	SRMA	-	-	3	-
	92	Spring Island River Access	SRMA	6	2	2	2
	93	Stan H Spring	SRMA	6	2	2	-

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	94	Stukel Mountain	C=E, D=S	-	-	9,622	9,622
	95	Surveyor Campground	SRMA	28	28	28	28
	96	Surveyor Mountain	ERMA	-	18,033	18,033	-
	97	Swan Lake Rim	ERMA	-	-	9,106	9,106
	98	Topsy Recreation Site	SRMA	14	14	14	14
	99	Willow Valley Reservoir Boat Ramp	SRMA	12	12	12	12
	100	Wood River Wetland	A,C,D=S, B=E	1	3,174	3,174	3,174
Medford	101	Anderson-Little Apple	ERMA	-	-	7,483	7,483
	102	Anderson Addition	ERMA	-	-	10,076	10,076
	103	Armstrong Gulch Trailhead	SRMA	1	1	1	1
	104	Baker Cypress Trail	ERMA	-	3	3	3
	105	Bald-Wagon	ERMA	-	-	3,124	-
	106	Beacon Hill Trail	ERMA	-	12	12	12
	107	Bear Gulch Trailhead	SRMA	<1	<1	<1	<1
	108	Bell Forest	ERMA	-	-	3,800	-
	109	Bolt Mountain Trail	ERMA	-	10	392	392
	110	Buck-Berry Rock	ERMA	-	-	6,504	6,504
	111	Buck Prairie II XC Ski Trailhead	SRMA	1	1	1	1
	112	Buck Prairie II XC Ski Trails	SRMA	-	967	-	-
	113	Buck Prairie Toilet	SRMA	<1	<1	<1	<1
	114	Buck Prairie XC Ski Trails	SRMA	-	967	-	-
	115	Buck Prairie/Hyatt	ERMA	-	-	11,845	16,817
	116	Buckhorn Mountain	ERMA	-	-	8,284	8,284
	117	Bunny Meadows	A=S, BCD=E	8	8	8	8
	118	Burma Pond Campground and Trailhead	SRMA	2	2	2	2
	119	Burma Pond Trail	ERMA	-	4	4	4
	120	Cathedral Hills Trail System	B=E, CD=S	-	545	546	546
	121	Chicken Foot	SRMA	<1	-	-	-
	122	China Gulch	SRMA	<1	-	-	-
	123	Cow Creek Backcountry Byway	ERMA	-	88	-	-
	124	Coyote Creek OHV Area	ERMA	-	-	-	14,569
	125	Deer Creek Education/Interpretive Area	SRMA	-	-	41	41
	126	Deming Gulch Equestrian Trailhead	SRMA	1	1	-	-
	127	Deming Gulch Trailhead	SRMA	<1	<1	-	-
	128	East Applegate Ridge Trail	ERMA	-	-	44	44
	129	East Fork Illinois Trails	C=E, D=S	-	-	1,441	1,441
	130	Eight Dollar Accessible Boardwalk Trailhead	SRMA	<1	-	-	-
	131	Eight Dollar Mountain	ERMA			C=2,095	C=2,134
	132	Eight Dollar Mountain Boardwalk Trail	ERMA	-	1	-	-
	133	Eight Dollar Mountain Interpretive Site	ERMA	-	-	-	39
	134	Eight Dollar Mountain Parking Area	SRMA	<1	<1	-	-
	135	Elderberry Flat Campground	SRMA	23	23	23	23
	136	Enchanted-Timber	ERMA	-	-	-	13,774
	137	Enchanted Forest and Felton Trails	ERMA	-	36	37	37
	138	Enchanted Forest Trailhead	SRMA	2	2	-	-
	139	Enchanted Well	ERMA	-	-	-	8,641
	140	Espy Trailhead	SRMA	1	1	-	-
	141	Evans Creek Hang Gliding Launch site	ERMA	-	-	-	26
	142	Galice Hellgate Backcountry Byway	ERMA	-	258	258	258

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	143	Gold Nugget Waysides	SRMA	11	11	49	49
	144	Grants Pass Peak Non-motorized Trails	ERMA	-	-	11,927	11,834
	145	Grave Creek to Marial Backcountry Byway	ERMA	-	348	348	348
	146	Grayback Mountain Trail	ERMA	-	76	76	76
	147	Grayback Mountain Trailhead	SRMA	<1	<1	<1	<1
	148	Green Springs Mtn. Loop Trailhead	SRMA	<1	<1	-	-
	149	Green Top Mountain	ERMA	-	-	-	5,316
	150	Grizzly Peak	SRMA	-	-	-	3,593
	151	Grizzly Peak Trail	SRMA	-	-	2,954	-
	152	Grizzly Peak Trailhead	SRMA	1	506	-	-
	153	Hidden Creek Trail	ERMA	-	7	7	7
	154	Hidden Creek Trailhead	SRMA	<1	-	-	-
	155	Hyatt Lake Campground	SRMA	37	149	149	149
	156	Hyatt Watchable Wildlife Site	SRMA	-	2	2	2
	157	Illinois Forks Park	ERMA	-	-	79	79
	158	Isabella	SRMA	<1	-	-	-
	159	Jack Ash Trail and Connector Trail	ERMA	-	-	203	203
	160	Jackson Creek	ERMA	-	-	507	-
	161	Jacksonville Woodlands Trailhead	SRMA	1	1	-	-
	162	Jacksonville Woodlands Trails	ERMA	-	105	103	103
	163	Jeffrey Pine Loop Trail	ERMA	-	4	-	-
	164	Kane Creek	SRMA	<1	-	-	-
	165	Kenney Meadows Recreation Site	SRMA	20	20	20	20
	166	Kerby	ERMA	-	-	654	654
	167	Kerby Peak Trail	ERMA	-	36	36	36
	168	Kerby Peak Trailhead	SRMA	<1	<1	<1	<1
	169	King Mountain Trail	SRMA	-	5	5	5
	170	King Mountain Trailhead	SRMA	1	1	1	1
	171	Lake Selmac Trails	B=E, CD=S	-	440	443	443
	172	Layton Ditch Trail	ERMA	-	43		
	173	Layton Ditch Trailhead	SRMA	<1	-	-	-
	174	Left Right Center Foots	ERMA	-	-	7,657	7,657
	175	Little Applegate Trailhead	SRMA	1	1	-	-
	176	Lodgepole	SRMA	<1	<1	<1	<1
	177	Logan Cut	ERMA	-	-	527	527
	178	London Peak Trail	ERMA	-	14	14	14
	179	Lower Table Rock Trailhead	SRMA	2	-	-	-
	180	Medco RR Trail	ERMA	-	-	-	106
	181	Mount Bolivar Trailhead	SRMA	<1	<1	<1	<1
	182	Mountain of the Rogue	SRMA	-	-	5,069	5,069
	183	Mungers Butte	ERMA	-	-	11,873	11,873
	184	Northwest Hills	ERMA	-	-	480	2,620
	185	Nugget Falls	ERMA	-	5	-	-
	186	Pacific Crest Trail 1 and 2	SRMA	1,094	955	951	951
	187	Pacific Crest Trailhead at Little Hyatt Lake	SRMA	<1	-	-	-
	188	Provolt Seed Orchard	SRMA	-	-	295	295
	189	Quartz Creek OHV Area	SRMA	-	-	8,344	8,344
	190	Rainie Falls Overlook	SRMA	1	1	<1	<1
	191	Rattlesnake	ERMA	-	21	56	56

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	192	Rock Creek Trails	ERMA	-	-	6,793	6,793
	193	Rockydale	ERMA	-	-	186	186
	194	Rogue Greenway	ERMA	-	-	370	370
	195	Rogue Timber	ERMA	-	-	7,906	-
	196	Rogue Wild and Scenic River	SRMA	15,949	11,409	11,409	11,409
	197	Rough and Ready Trail	ERMA	-	2	2	2
	198	Roundtop Mountain	SRMA	-	-	13,168	13,168
	199	Section 29	ERMA	-	-	203	203
	200	Silver Creek	ERMA	-	-	57	57
	201	Skull Creek Campground	SRMA	8	7	7	7
	202	Skycrest Trailhead	SRMA	<1	<1	-	-
	203	Sterling Mine Ditch Trail	SRMA	-	1,322	1,279	1,279
	204	Table Mountain Snow Play Area	SRMA	9	9	9	9
	205	Table Rock Trailheads	SRMA	-	4	-	-
	206	Table Rock Trails	ERMA	-	52	-	-
	207	Table Rocks	SRMA	-	-	1,329	1,329
	208	Thompson-Cantrall	ERMA	-	-	23,317	23,317
	209	Timber Mountain Recreation Area	ERMA	-	10,160	-	-
	210	Tucker Flat Campground	SRMA	9	8	8	8
	211	Tunnel Ridge Trailhead	SRMA	1	1	-	-
	212	Upper Table Rock Trailhead	SRMA	2	-	-	-
	213	Wagner Creek Trail	ERMA	-	2	2	2
	214	Wagner Creek Trailhead	SRMA	<1	<1	-	-
	215	Wellington Mine Trail	ERMA	-	-	44	44
	216	West Applegate Ridge Trail	ERMA	-	-	-	210
	217	West Fork Evans Creek	ERMA	-	-	3,042	3,042
	218	Whiskey Creek Overlook	SRMA	<1	<1	<1	<1
	219	Wild Rogue Canyon	ERMA	-	-	-	50,451
	220	Wildcat Campground and Horse Camp	SRMA	-	47	47	47
	221	Williams Creek Wayside	SRMA	1	1	-	-
	222	Wolf Gap Trailhead	SRMA	1	1	-	-
	223	Woodrat	ERMA	-	-	3,876	3,876
	224	Woodrat Mtn. Gliding Sites	SRMA	7	7	-	-
Roseburg	225	Baker Park	SRMA	12	12	12	12
	226	Bohemia Trail	ERMA	-	-	-	16
	227	Boomer Hill OHV	ERMA	-	-	4,635	4,635
	228	Cavitt Creek Falls Recreation Site	SRMA	16	16	16	16
	229	China Ditch	ERMA	-	62	62	62
	230	Cow Creek Backcountry Byway	ERMA	-	-	88	88
	231	Cow Creek Backcountry Byway Kiosk	SRMA	1	1	1	1
	232	Cow Creek Recreation Gold Panning Area	SRMA	4	4	4	4
	233	E-Mile Day-Use Area	SRMA	5	5	5	5
	234	Eagleview Group Campground	SRMA	12	12	12	12
	235	Emerald Trail	B=E, CD=S	-	17	17	17
	236	Hill Creek Trail	B=E, CD=S	-	2	2	2
	237	Hill Creek Wayside	SRMA	1	1	1	1
	238	Honeycombs	ERMA	-	-	-	63
	239	Hubbard Creek OHV	ERMA	-	-	11,587	11,587
	240	Island Creek Day-Use Area	SRMA	1	1	28	28
	241	Lone Pine Group Campground	SRMA	9	9	9	9

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	242	Lone Rock Drift Boat Launch	SRMA	2	<1	<1	<1
	243	Millpond/Lone Pine Recreation Site	SRMA	-	-	23	23
	244	Millpond Recreation Site	SRMA	21	21	-	-
	245	Narrows	ERMA	-	-	16	16
	246	North Bank-Western Trailhead	SRMA	1	1	1	1
	247	North Bank-Comstock Day Use Area	SRMA	2	2	2	2
	248	North Bank Habitat Management Area	ERMA	-	6,586	6,586	6,586
	249	North Umpqua Trail-Swiftwater	B=E, CD=S	-	65	65	65
	250	North Umpqua Trail-Tioga	B=E, CD=S	-	33	33	33
	251	North Umpqua Wild Scenic River Corridor	SRMA	-	-	2,058	2.058
	252	Olalla Creek OHV	ERMA	-	-	4,752	4,752
	253	Osprey Boat Ramp	SRMA	2	3	3	3
	254	Red Top Pond	ERMA	-	11	11	11
	255	Rock Creek Recreation Site	SRMA	19	19	21	21
	256	Rock Creek Trail	ERMA	-	-	-	14
	257	Sawmill Trail	B=E, CD=S	-	20	20	20
	258	Scaredman Recreation Site	SRMA	10	10	10	10
	259	Smith River Corridor-Roseburg	ERMA	-	-	140	140
	260	South Fork Deer Creek OHV	ERMA	-	-	1,402	1,402
	261	South Umpqua	ERMA	-	-	-	4
	262	Stick Beach	B=E, CD=S	-	1	1	1
	263	Susan Creek Day Use Area	SRMA	2	2	2	2
	264	Susan Creek Falls Trail	B=E, CD=S	-	8	8	8
	265	Susan Creek Falls Trailhead	SRMA	1	1	1	1
	266	Susan Creek Recreation Site	SRMA	25	25	25	25
	267	Swiftwater Day-Use Area	SRMA	4	4	4	4
	268	Swiftwater Trailhead	SRMA	2	2	2	2
	269	Tinhat Pond	ERMA	-	-	-	5
	270	Tyee Recreation Area	SRMA	14	14	14	14
	271	Upper Susan Creek Falls Trail	ERMA	-	-	-	1,318
	272	White Rock OHV Area	ERMA	-	-	9,846	9,846
	273	Wolf Creek Falls Trail	B=E, D=S	-	14	-	14
	274	Wolf Creek Falls Trailhead	SRMA	2	2	-	2
	275	Wolf Creek Falls Trailhead and Trail	SRMA	-	-	16	-
Salem	276	Alder Glen	SRMA	5	-	-	-
	277	Alder Glen Campground	SRMA	-	4	4	4
	278	Alsea Falls Hiking Trails	ERMA	-	272	272	272
	279	Alsea Falls Recreation Site	SRMA	36	31	31	31
	280	Alsea Falls Shared Use Trail System	ERMA	-	1,510	2,923	2,923
	281	Aquila Vista	SRMA	178	178	178	178
	282	Baty Butte Trail	ERMA	-	551	-	-
	283	Canyon Creek	SRMA	13	13	13	13
	284	Cedar Grove	SRMA	5	5	5	5
	285	Crabtree Valley	ERMA	-	-	914	914
	286	Crazy Cougar	ERMA	-	-	1,444	1,444
	287	Crooked Finger	ERMA	-	-	-	451
	288	Crown Zellerbach Trail (CZ Mainline)	ERMA	-	-	23	23
	289	Dogwood	SRMA	6	6	6	6
	290	Dovre	SRMA	4	4	4	4

District/ Field Office	Map No.	RMA Name	RMA Type	Alt. A	Alt. B	Alt. C	Alt. D
	291	Eagle Creek Trail	ERMA	-	160	160	160
	292	Elk Bend	SRMA	4	4	4	4
	293	Elkhorn Creek WSR	ERMA	-	-	-	1,103
	294	Elkhorn Valley Campground	SRMA	78	78	78	78
	295	Fan Creek	SRMA	3	3	3	3
	296	Fishermen's Bend Recreation Site	SRMA	183	184	184	184
	297	Green Peter Peninsula	ERMA	-	-	1,557	2,056
	298	High Peak-Grindstone	ERMA	-	-	-	976
	299	Highland	ERMA	-	-	-	844
	300	Ivors Wayside	SRMA	2	2	2	2
	301	Kilchis Glider Launch Site	ERMA	-	-	38	38
	302	Little North Fork Wilson	ERMA	-	-	1,160	1,160
	303	Marmot Recreation Site	SRMA	-	26	92	92
	304	Marmot Trail System	ERMA	-	-	576	-
	305	Mary's Peak	ERMA	-	-	-	3,774
	306	Mill Creek	SRMA	6	6	469	6
	307	Mill Creek-Gooseneck	ERMA	-	-	7,416	7,878
	308	Missouri Bend	SRMA	3	3	3	3
	309	Table Rock Fork – Molalla River	ERMA	-	5,907	13,997	19,906
	310	Monument Peak Trail System	ERMA	-	909	909	909
	311	Nasty Rock Trail	ERMA	-	135	135	135
	312	Nestucca Backcountry Byway	ERMA	-	323	322	322
	313	North Fork Eagle Creek Campground	SRMA	-	-	-	68
	314	North Fork Santiam County Park	SRMA	12	12	12	12
	315	Old Miner's Meadow	SRMA	3	3	-	3
	316	Oxbow Regional Park	SRMA	265	260	260	260
	317	Pacific City	ERMA	-	-	79	79
	318	Quartzville Backcountry Byway	ERMA	-	34	34	34
	319	Quartzville Creek and Yellowstone Trail	ERMA	-	-	2,731	2,727
	320	Quartzville Creek Corridor	ERMA	-	2,060	-	-
	321	Salmon/Sandy WSR Corridor	ERMA	-	785	-	-
	322	Salmonberry Rail to Trail	ERMA	-	-	14	14
	323	Sandy-Salmon River Corridor	ERMA	-	-	1,824	2,400
	324	Sandy Ridge Trail System	ERMA	-	1,260	2,239	3,802
	325	Sandy Ridge Trailhead	SRMA	29	29	52	52
	326	Scaponia Park	SRMA	8	8	8	8
	327	Shellburg Trail System	ERMA	-	-	283	283
	328	Sheridan Peak Overlook	SRMA	4	3	3	3
	329	Silver Falls State Park	SRMA	237	237	237	237
	330	Snow Peak/Neal Creek	ERMA	-	-	-	6,763
	331	South Fork Alsea Backcountry Byway	ERMA	-	88	88	88
	332	South Fork Clackamas Waterfalls	ERMA	-	-	-	1,116
	333	Table Rock Wilderness-Pechuck Lookout	ERMA	-	6,171	6,171	6,171
	334	Three Bears-Hardy Creek	SRMA	14	14	14	14
	335	Upper Nestucca OHV Trail System	ERMA	-	6,713	6,494	10,663
	336	Wildcat Creek	ERMA	-	-	-	2,444
	337	Wildcat Creek Trail System	ERMA	-	-	2,444	-
	338	Wildwood Recreation Site	SRMA	311	553	553	553
	339	Wilhoit Springs	ERMA	-	-	-	571
	340	Yaquina Head ONA	SRMA	91	91	91	91
	341	Yellowbottom	SRMA	13	13	13	13

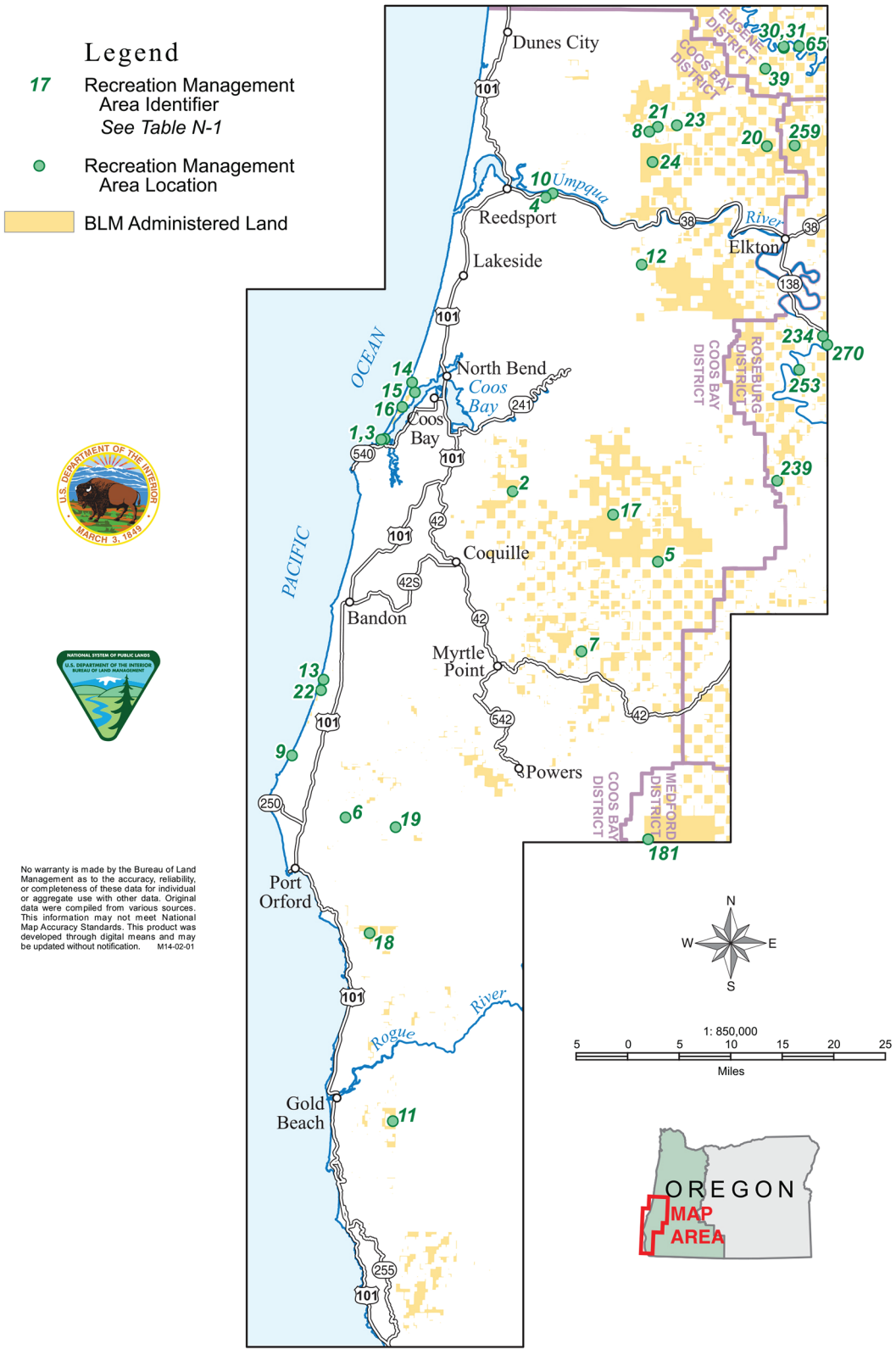


Figure N-1: Coos Bay District Recreation Management Areas

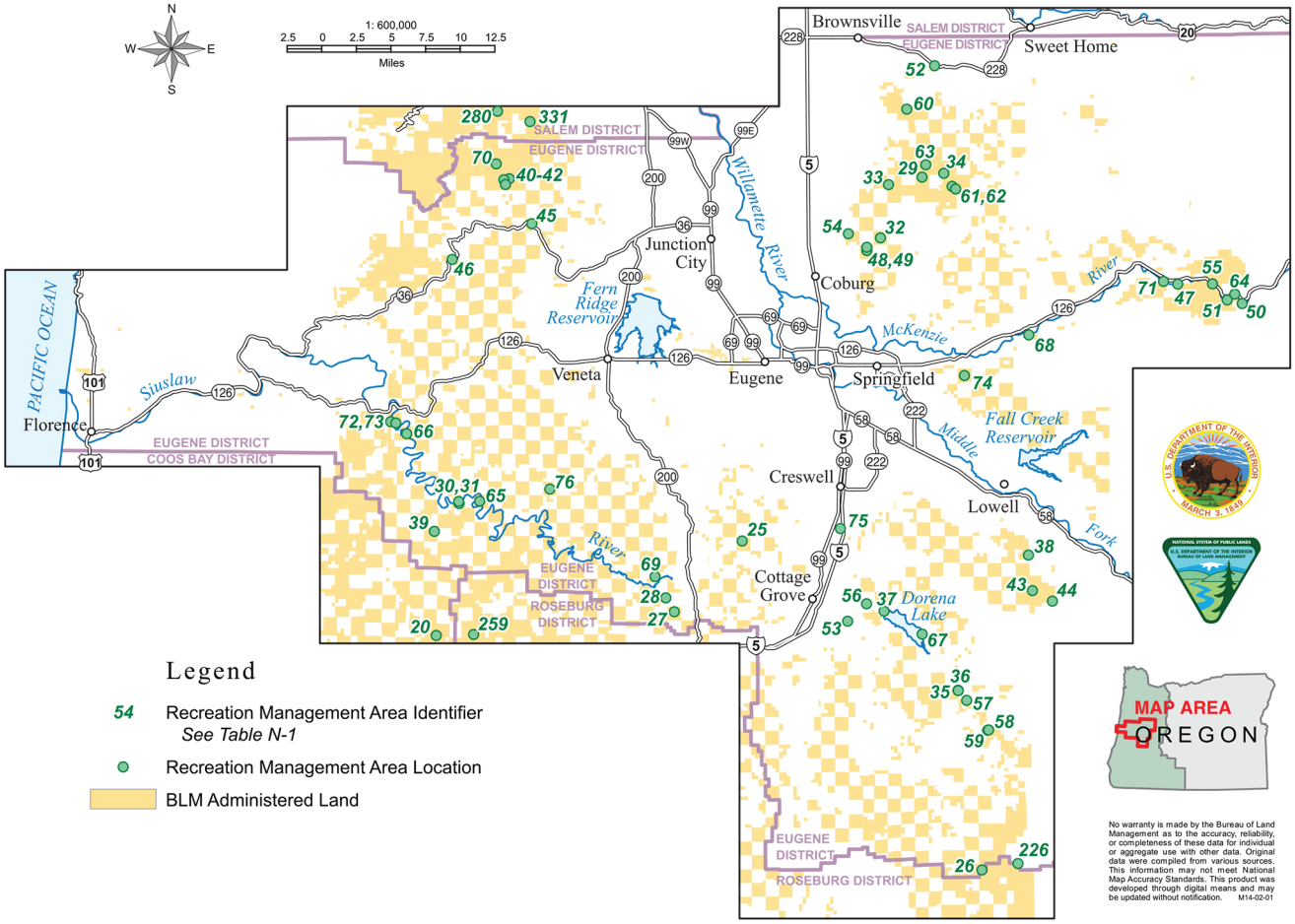


Figure N-2: Eugene District Recreation Management Areas

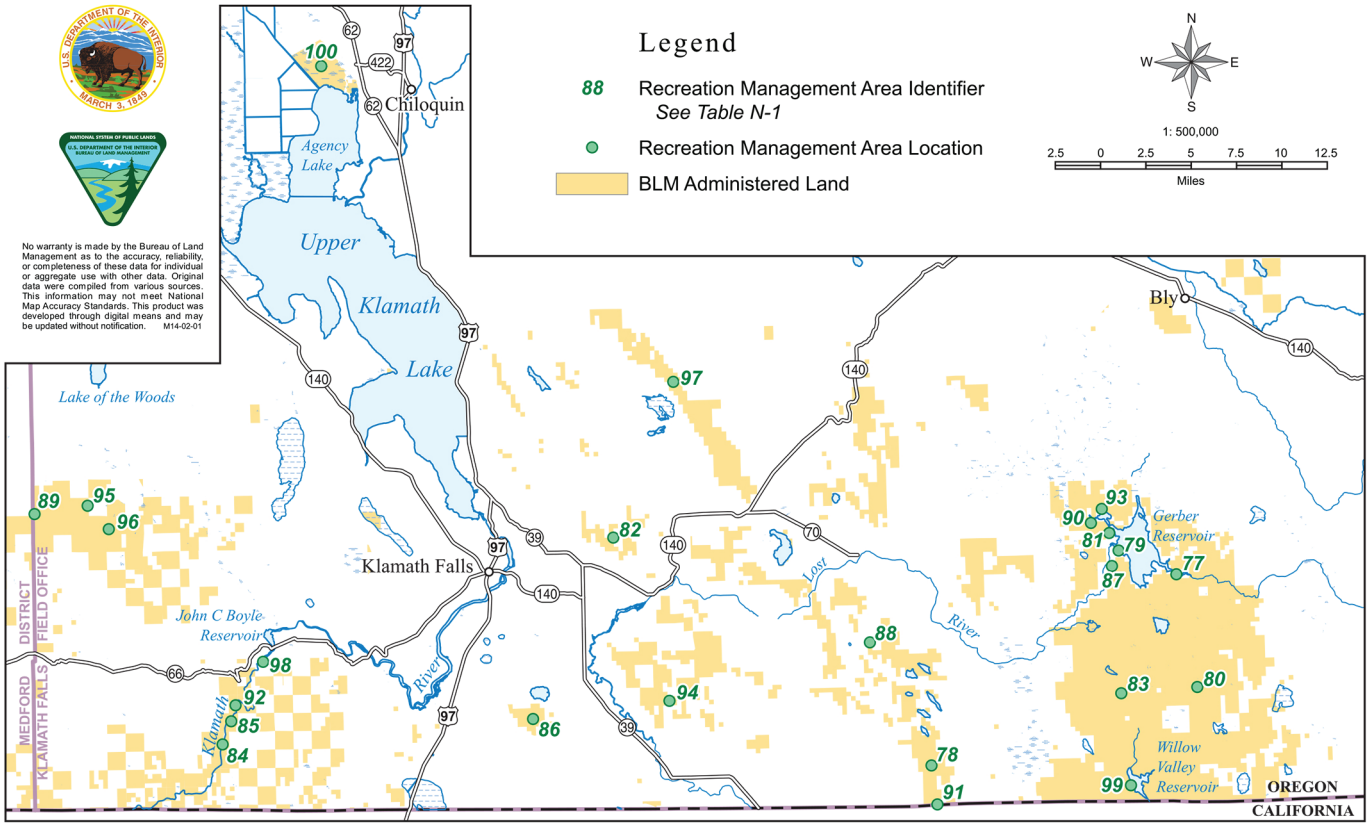
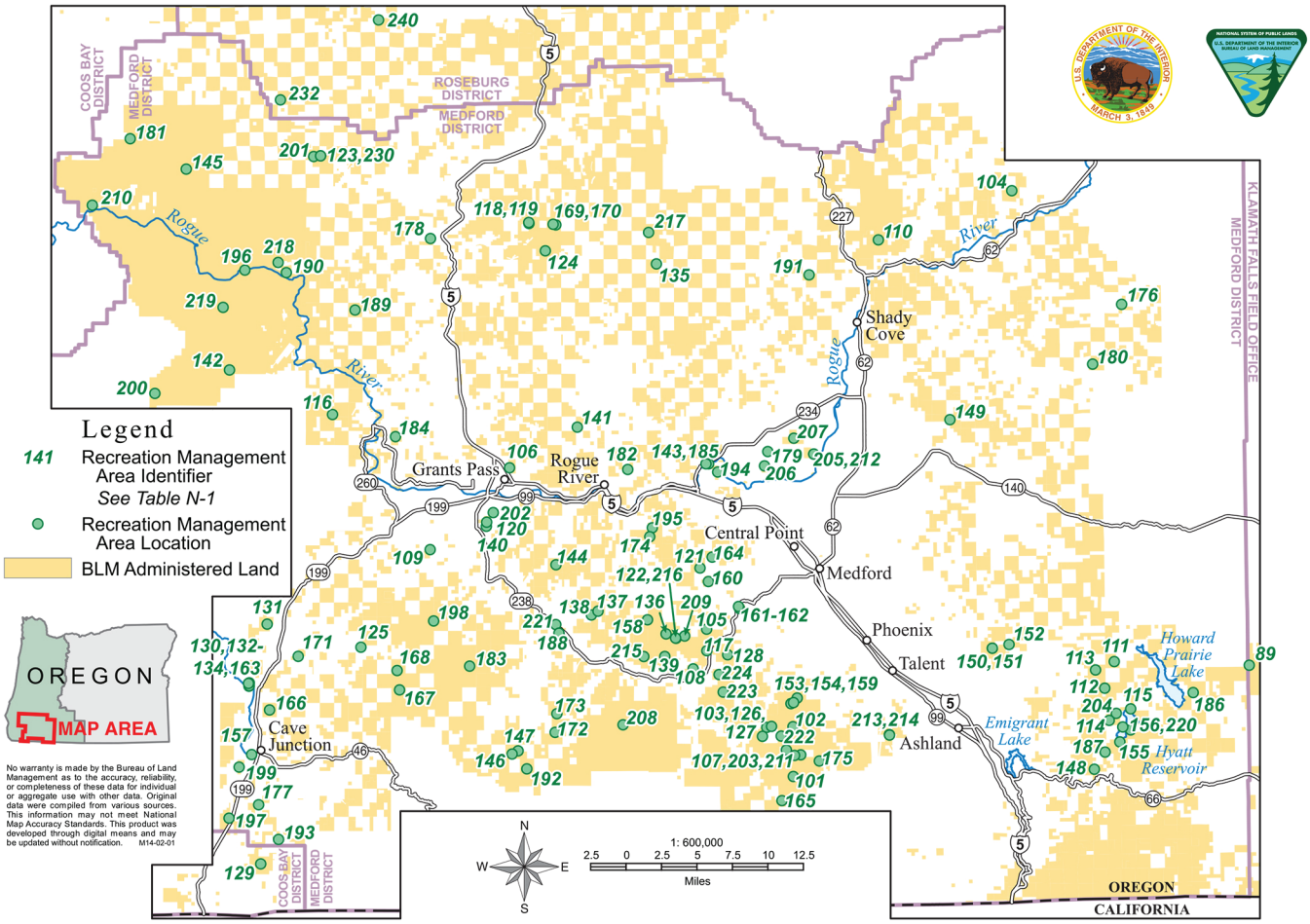


Figure N-3: Klamath Falls Field Office Recreation Management Areas



Map N-4: Medford District Recreation Management Areas

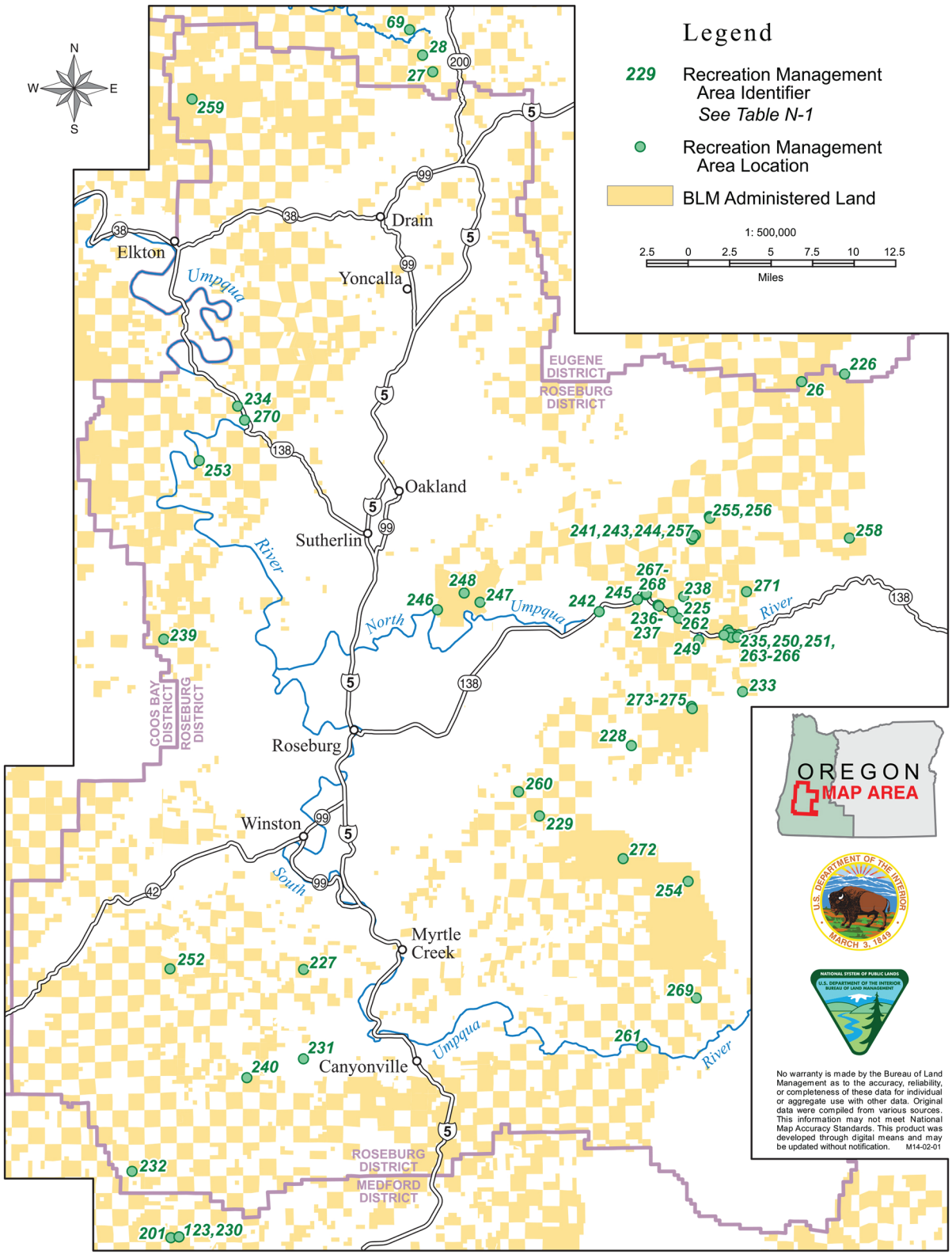


Figure N-5: Roseburg District Recreation Management Areas

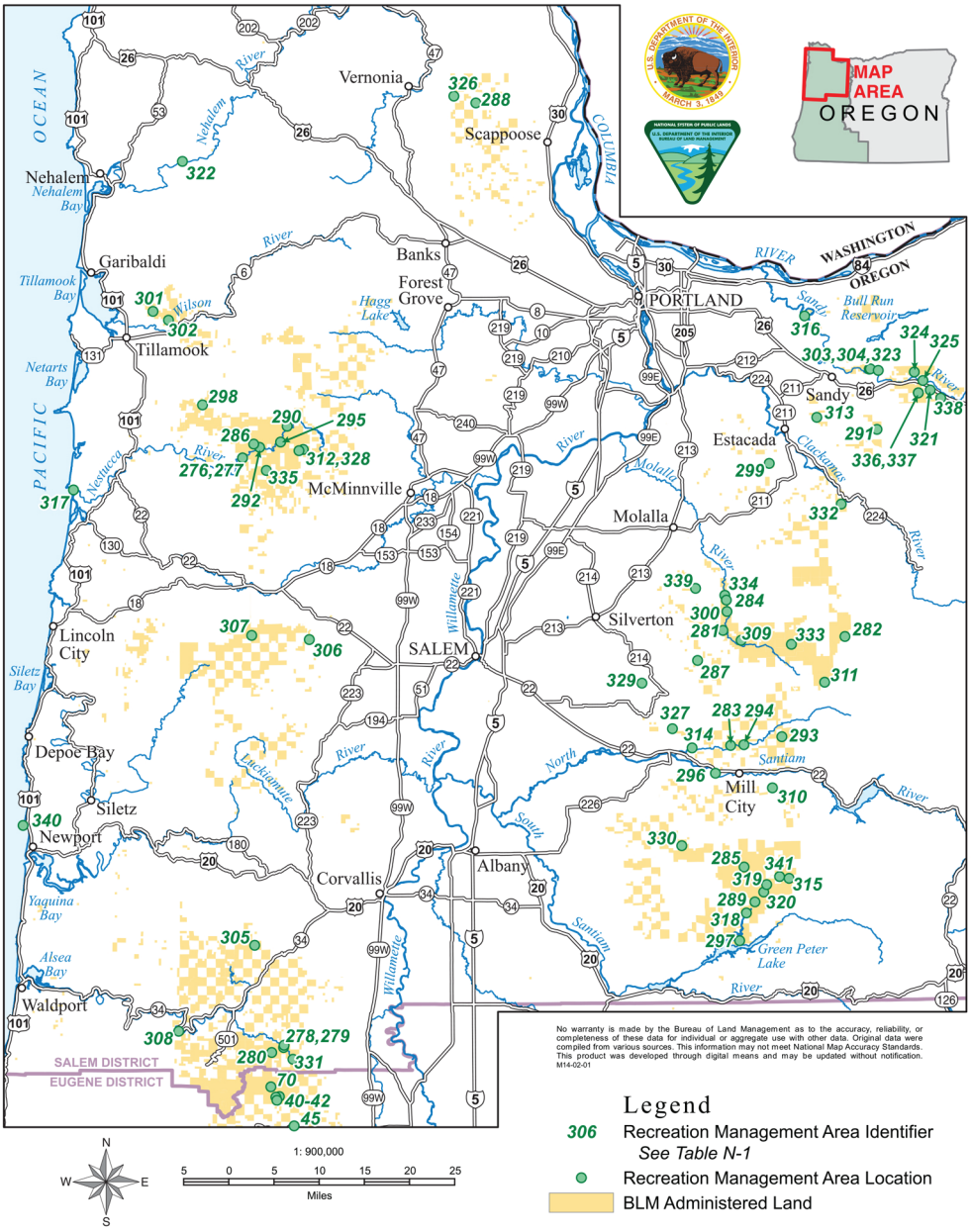


Figure N-6: Salem District Recreation Management Areas

The remainder of Appendix N is located on the BLM website at http://www.blm.gov/or/plans/rmpswesternoregon/recreation.php .

At this location is a description of each Recreation Management Area using the RMA Frameworks. Each RMA description includes the recreation values, what type of visitors are targeted, the outcome objectives, the Recreation Setting Characteristics, and the applicable management actions and allowable use restrictions

Appendix O – Socioeconomics

The socioeconomic analysis and this appendix were prepared for the BLM by a team of specialists at Environmental Resources Management (ERM) and subcontractors, under the project management of Clive Graham, ERM, and the direction of Stewart Allen of the interdisciplinary team.

Issue 1

How would the alternatives affect the supply, demand, and value of goods and services derived from BLM-administered lands?

Western Oregon Timber Market Model

The BLM modeled timber markets[136] in western Oregon using stumpage supply and demand functions that incorporate existing information, linear functions, and the economic constructs of supply, derived demand, and market arbitrage. In this analysis, the BLM described the stumpage market using linear equations for demand (Q_d) and supply (Q_s):

$$Q_d = a_1 - a_2 * P \quad (1)$$
$$Q_s = b_1 + b_2 * P \quad (2)$$

The parameters a_1, a_2 , $b_1, and\ b_2$ can be estimated from the observed market price, quantity, estimates of the stumpage supply, and demand elasticities. Key is the relation for estimating elasticity ($\in$) as:

$$\in = \frac{\Delta Q}{\Delta P} \times \frac{p}{q} \quad (3)$$

Equation 3 can be rewritten to solve for the slope of equations 1 and 2 (a_2, b_2) as:

$$slope = \in \times \frac{q}{p} \quad (4)$$

The intercept terms of equations 1 and 2 (a_1, b_1) can be solved as:

$$intercept = \frac{q}{slope \times p} \quad (5)$$

The development of the supply and demand relations each involve additional steps described in the following paragraphs. Once the equations are parameterized, they can be solved as simultaneous equations for market equilibrium (where $q_s = q_d$ and $p_s = p_d$). In this analysis, the BLM assumed that market arbitrage following changes in BLM timber harvest would lead to new market equilibrium prices and private harvest levels.

[136] Timber markets are regional in nature defined by available species and mix of manufacturing facilities. Traditionally western Oregon is considered part of the larger Douglas-fir region, or the Pacific Northwest, Westside. For more detailed discussion, see Haynes (2008).

Stumpage Supply

The supply curve is constructed as a composite of the behavior of different groups of timberland owners. In this case, it represents the timber harvest behavior of five different timberland owners/agencies: private entities, State agencies, the U.S. Forest Service, the BLM, and other public entities. Of these five owner groups, only the private timberland owners are known to be responsive to different price levels. The BLM assumed in this analysis that the four public owner groups set harvest levels through various planning processes that are generally unresponsive to price levels. In the context of equation 2, this means that the slope coefficient is based solely on the elasticity of private timberland owners. Public owners contribute only to the intercept term; the q in equation 5 includes both public and private timber harvest.

Stumpage Demand

In the case of sawtimber, the largest product markets are for solidwood products like lumber and panel products.[137] In this case, the BLM derived stumpage demand function from product demand. In agricultural literature,[138] factor and product markets are linked through a concept called the "elasticity of price transmission" (∂), defined as:

$$\partial = \frac{\Delta P^p}{\Delta P^s} \times \frac{P^s}{P^p} \quad (6)$$

where P^p is product price and P^s is the stumpage price. The elasticity of price transmission is calculated in two steps. First, a marketing margin can be estimated as:

$$P^s = c_1 + c_2 \times P^p \quad (7)$$

Second, using the results from equation 7, ∂ is calculated as:

$$\partial = \frac{1}{c_2} \times \frac{P^s}{P^p} \quad (8)$$

The elasticity of price transmission is necessary to estimate the elasticity of demand for stumpage, consistent with product markets as shown in equation 9.

$$\in_s = \in_p \times \partial \quad (9)$$

With $\in_s$, equation 4 can estimate the slope of the stumpage demand function, and equation 5 can estimate the slope coefficient.

Parameterizing the Model

In this analysis, the BLM estimated the model using data for 2012. Price data ($/Mbf) and harvest volume data (MMbf) are in long log scale, and were collected from the 2012 Production, Prices, Employment and Trade report (Zhou 2013).

[137] See the discussion in Adams and Haynes (1980). Also see Adams and Haynes (2007).
[138] See George and King (1971) for a summary of derived demand as it is used here.

Table O-288. Price data and harvest volume data.

Owner	Harvest (MMbf)	Price ($/Mbf)	Weights	Weighted Price
Private	2,664.2	-	-	-
State	234.4	$301.55	0.362	$109.28
USFS	268.1	$94.65	0.414	$39.23
BLM	144.3	$146.41	0.223	$28.74
Other Public	43.2	-	-	-
Total/Average	**3,354.2**	**$180.87**	**1.000**	**177.26**

In this analysis, the BLM estimated ∂ as 0.838[139] and, from the literature, used values for $\in$ of 0.277 for private timber supply and 0.685[140] for softwood lumber and panels. Using this information, the BLM developed the following supply and demand functions:

$q_s = 2{,}615.84 + 4.1655\ P$
$q_d = 5{,}279.59 - 10.8619\ P$

The solution of these two equations is the equilibrium price and quantity observed in 2012.

Issue 2

How would the alternatives affect economic activity in the planning area derived from BLM-administered lands?

[139] The BLM estimated this by estimating the market margin (Equation 7) using lumber price data (**Table O-7**) and BLM stumpage price (Table 96) from PPET, 1986-2011. The elasticity of price transmission was computed using equation 8.
[140] Both elasticity estimates are weighted averages taken from Table 3.4 and 3.3 in Adams and Haynes (2007).

Table O-289. Employment by industry by district model area, 2012 (jobs).

Industry (Sector)	District Model Area Name and Counties							Planning Area Totals	Oregon Totals
	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA		
	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill		
Accommodation and Food Services	3,548	13,739	2,319	11,155	3,038	27,496	80,764	142,059	160,824
Administrative and Waste Services	2,246	10,172	1,587	7,786	2,668	16,440	66,660	107,560	117,952
Agriculture	3,237	5,462	2,511	5,479	3,330	23,169	19,389	62,577	90,083
Arts, Entertainment, and Recreation Services	902	3,825	858	5,014	626	8,245	25,709	45,178	51,711
Construction	2,089	8,085	1,505	8,154	2,203	17,348	53,287	92,671	105,523
Education Services	361	3,598	391	2,048	509	7,108	36,728	50,742	53,762
Finance and Insurance	935	6,041	996	5,722	1,851	9,432	59,627	84,604	92,582
Governments	7,286	25,283	4,643	14,346	7,275	65,321	116,243	240,396	288,801
Health and Social Services	4,605	25,433	3,670	21,741	5,276	46,972	121,260	228,956	257,275
Information	297	4,209	206	2,612	330	3,114	24,267	35,034	38,482
Management of Companies	341	1,884	624	1,703	434	2,380	22,639	30,005	30,783
Manufacturing	3,781	12,422	2,132	9,029	4,820	25,976	104,812	162,973	181,427
Mining	58	104	46	141	117	1,641	2,686	4,793	5,066
Other Personal Services	2,295	11,722	2,237	9,162	2,966	19,309	58,908	106,599	119,825
Professional Services	1,465	10,986	1,159	8,046	1,649	17,638	88,560	129,504	143,216
Real Estate and Leasing	525	9,080	492	4,165	1,928	10,394	68,062	94,646	104,672
Retail Trade	4,629	24,783	4,288	20,422	4,845	37,659	108,402	205,027	231,382
Transportation and Warehousing	1,012	2,885	1,251	4,802	1,724	11,998	32,363	56,036	62,888
Utilities	95	135	118	342	172	573	2,326	3,760	4,759
Wholesale Trade	569	6,201	848	3,659	766	7,196	54,798	74,037	80,548
Totals	**40,276**	**186,049**	**31,881**	**145,525**	**46,527**	**359,408**	**1,147,490**	**1,957,157**	**2,221,563**

Sources: MIG, Inc. (2013); Oregon Forest Resources Institute (2012) (forest products industries within greater Agriculture and Manufacturing throughout planning area).

Table O-290. Earnings by industry by district model area, 2012 (millions of 2012$).

Industry (Sector)	District Model Area Name and Counties							Planning Area Totals	Oregon Totals
	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA		
	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill		
Accommodation and Food Services	$73.1	$295.0	$45.0	$234.9	$62.1	$581.3	$2,022.5	$3,313.9	$3,703.4
Administrative and Waste Services	$52.8	$318.6	$43.4	$200.7	$75.9	$462.7	$2,489.2	$3,643.3	$4,004.7
Agriculture	$117.3	$152.5	$89.2	$139.6	$85.4	$822.9	$753.0	$2,160.0	$2,750.4
Arts, Entertainment, and Recreation Services	$10.6	$47.6	$8.9	$63.6	$9.2	$96.6	$592.8	$829.3	$920.4
Construction	$73.6	$443.2	$52.8	$432.9	$89.2	$839.7	$3,756.2	$5,687.7	$6,253.7
Education Services	$4.5	$73.4	$4.6	$34.5	$7.0	$160.8	$1,057.4	$1,342.4	$1,390.8
Finance and Insurance	$42.2	$323.0	$33.3	$222.8	$59.1	$432.4	$3,866.1	$4,978.8	$5,264.0
Governments	$393.1	$1,315.2	$251.1	$742.6	$357.7	$3,433.6	$7,471.2	$13,964.4	$16,573.0
Health and Social Services	$175.4	$1,343.0	$170.0	$1,083.3	$265.3	$2,382.9	$7,184.5	$12,604.4	$14,006.6
Information	$13.7	$243.5	$8.9	$117.3	$17.0	$182.5	$2,011.3	$2,594.1	$2,769.1
Management of Companies	$22.2	$160.1	$44.1	$126.6	$30.6	$166.9	$2,488.9	$3,039.4	$3,086.4
Manufacturing	$148.6	$802.8	$122.4	$493.2	$261.0	$1,621.9	$9,827.7	$13,277.7	$14,212.3
Mining	$3.8	$6.2	$2.5	$5.2	$3.6	$37.0	$70.6	$129.1	$140.7
Other Personal Services	$66.5	$349.6	$55.1	$267.4	$78.7	$576.4	$2,564.4	$3,958.3	$4,380.6
Professional Services	$54.1	$459.8	$36.5	$253.0	$80.6	$779.7	$6,486.0	$8,149.7	$8,741.6
Real Estate and Leasing	$17.1	$127.2	$14.6	$101.4	$23.5	$285.3	$1,118.3	$1,687.4	$1,910.4
Retail Trade	$144.2	$726.6	$108.4	$633.7	$145.0	$1,103.7	$3,713.7	$6,575.1	$7,374.1
Transportation and Warehousing	$51.7	$163.1	$51.9	$209.7	$84.6	$584.9	$1,722.7	$2,868.5	$3,243.2
Utilities	$12.6	$15.3	$16.6	$51.2	$21.8	$76.6	$435.8	$629.8	$766.7
Wholesale Trade	$30.6	$368.1	$38.7	$190.5	$32.3	$483.9	$5,434.7	$6,578.9	$6,920.3
Totals	**$1,507.7**	**$7,733.7**	**$1,198.0**	**$5,604.1**	**$1,789.7**	**$15,111.7**	**$65,067.0**	**$98,012.0**	**$108,412.3**

Sources: MIG, Inc. (2013); Oregon Forest Resources Institute (2012) (forest products industries within greater Agriculture and Manufacturing throughout planning area)

Table O-291. Employment contribution of BLM programs to district model areas by industry, 2012 (jobs).

Industry (Sector)	District Model Area Name and Counties							Planning Area Totals
	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Accommodation and Food Services	135	225	29	165	201	72	340	1,167
Administrative and Waste Services	17	27	3	32	25	12	35	151
Agriculture	420	272	73	265	272	255	230	1,788
Arts, Entertainment, and Recreation Services	72	87	12	81	92	38	115	498
Construction	6	6	1	9	8	4	8	42
Education Services	13	18	2	14	12	14	19	92
Finance and Insurance	6	9	2	18	8	5	22	70
Governments	195	227	63	429	287	214	48	1,464
Health and Social Services	21	46	8	62	33	27	37	234
Information	14	10	1	16	9	9	17	75
Management of Companies	11	14	1	12	8	9	17	72
Manufacturing	132	113	7	70	141	76	88	626
Mining	31	6	0	16	16	12	10	92
Other Personal Services	27	34	5	35	26	21	28	177
Professional Services	18	52	4	52	23	30	33	213
Real Estate and Leasing	8	25	3	21	19	11	28	113
Retail Trade	17	25	5	33	27	13	34	153
Transportation and Warehousing	87	141	20	135	126	58	150	717
Utilities	1	0	0	2	1	1	2	7
Wholesale Trade	19	25	4	31	27	10	36	153
Totals	**1,249**	**1,363**	**245**	**1,496**	**1,362**	**891**	**1,297**	**7,904**

Note: Totals may not add due to rounding.

Table O-292. Earnings contribution of BLM programs to district model areas by industry, 2012 (millions of 2012$).

Industry (Sector)	District Model Area Name and Counties							Planning Area Totals
	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem-Other	Salem-Portland MSA	
	Coos, Curry	Lane	Klamath	Jackson, Josephine	Douglas	Benton, Clatsop, Lincoln, Linn, Marion, Polk, Tillamook	Clackamas, Columbia, Multnomah, Washington, Yamhill	
Accommodation and Food Services	$2.8	$4.8	$0.6	$3.4	$4.1	$1.5	$9.1	$26.3
Administrative and Waste Services	$0.5	$1.0	$0.1	$0.9	$0.8	$0.4	$1.6	$5.2
Agriculture	$20.4	$12.7	$1.6	$10.1	$13.1	$12.6	$12.2	$82.6
Arts, Entertainment, and Recreation Services	$1.6	$2.6	$0.3	$2.0	$2.5	$1.3	$3.6	$14.0
Construction	$0.3	$0.4	$0.1	$0.5	$0.4	$0.2	$0.7	$2.6
Education Services	$0.3	$0.5	$0.0	$0.3	$0.3	$0.3	$0.6	$2.4
Finance and Insurance	$0.3	$0.5	$0.1	$0.7	$0.3	$0.3	$1.4	$3.6
Governments	$13.9	$18.0	$4.2	$28.3	$19.2	$16.8	$4.0	$104.4
Health and Social Services	$0.8	$2.4	$0.4	$3.0	$1.6	$1.3	$2.1	$11.6
Information	$0.6	$0.5	$0.1	$0.7	$0.4	$0.4	$1.1	$3.8
Management of Companies	$0.5	$0.7	$0.1	$0.6	$0.4	$0.4	$1.5	$4.0
Manufacturing	$7.1	$6.6	$0.4	$3.7	$7.6	$4.6	$5.3	$35.2
Mining	$1.0	$0.2	$0.0	$0.5	$0.2	$0.5	$0.3	$2.7
Other Personal Services	$0.6	$1.0	$0.1	$1.0	$0.7	$0.5	$1.1	$5.1
Professional Services	$1.4	$1.5	$0.3	$2.4	$1.1	$1.3	$2.0	$10.1
Real Estate and Leasing	$0.3	$0.5	$0.1	$0.5	$0.3	$0.3	$0.8	$2.7
Retail Trade	$0.8	$1.2	$0.2	$1.3	$1.0	$0.7	$2.1	$7.2
Transportation and Warehousing	$2.5	$4.2	$0.6	$4.1	$3.5	$1.7	$4.8	$21.4
Utilities	$0.1	$0.0	$0.0	$0.2	$0.1	$0.1	$0.2	$0.8
Wholesale Trade	$1.1	$1.5	$0.2	$1.7	$1.2	$0.7	$3.3	$9.7
Totals	**$56.8**	**$60.7**	**$9.4**	**$66.0**	**$58.9**	**$45.9**	**$57.8**	**$355.3**

Note: Totals may not add due to rounding.

Table O-293. Employment and earnings in the Coos Bay District model area by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	276	295	295	295	295	295	$7.0	$7.5	$7.5	$7.5	$7.5	$7.5
Grazing	-	-	-	-	-	-	-	-	-	-	-	-
Timber	710	701	446	458	981	228	$33.3	$33.0	$21.0	$21.5	$46.2	$10.7
Minerals	-	-	-	-	-	-	-	-	-	-	-	-
Agency Expenditures	192	186	135	139	251	82	$13.1	$12.7	$9.2	$9.5	$17.1	$5.6
Federal Payments to Counties[1]	20	50	30	39	73	20	$1.0	$2.5	$1.5	$2.0	$3.6	$1.0
Payments to Coos	13	32	20	25	47	13	$0.6	$1.6	$0.9	$1.2	$2.3	$0.6
Payments to Curry	7	18	11	14	26	7	$0.4	$0.9	$0.6	$0.7	$1.3	$0.4
Totals	**1,198**	**1,232**	**906**	**931**	**1,600**	**625**	**$54.4**	**$55.6**	**$39.1**	**$40.5**	**$74.4**	**$24.8**
Timber-Related Industries												
Forestry, Logging, and Support Activities	232	208	146	146	291	74	$13.6	$12.1	$8.5	$8.5	$17.0	$4.3
Wood Products Manufacturing	131	150	83	89	210	43	$7.3	$8.3	$4.6	$5.0	$11.7	$2.4
Paper Manufacturing	0	0	0	0	0	0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Totals	**363**	**358**	**229**	**235**	**501**	**117**	**$20.8**	**$20.5**	**$13.1**	**$13.5**	**$28.7**	**$6.7**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	71	74	65	66	84	58	$1.6	$1.7	$1.3	$1.3	$2.0	$1.0
Accommodation and Food Services	133	142	137	137	148	133	$2.7	$2.9	$2.8	$2.8	$3.0	$2.8
Totals	**204**	**216**	**202**	**203**	**232**	**190**	**$4.4**	**$4.6**	**$4.2**	**$4.2**	**$5.1**	**$3.8**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-294. Employment and earnings in the Eugene District model area by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	527	563	563	563	563	563	$16.2	$17.3	$17.3	$17.3	$17.3	$17.3
Grazing	-	-	-	-	-	-	-	-	-	-	-	-
Timber	480	1,190	891	1,188	2,083	660	$23.2	$57.6	$43.2	$57.5	$100.8	$32.0
Minerals	3	3	3	3	3	3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
Agency Expenditures	259	411	336	393	601	288	$15.2	$24.1	$19.7	$23.1	$35.3	$16.9
Federal Payments to Lane County[1]	28	70	42	55	102	28	$1.9	$4.9	$2.9	$3.8	$7.1	$2.0
Totals	**1,297**	**2,237**	**1,835**	**2,202**	**3,352**	**1,541**	**$56.6**	**$104.0**	**$83.3**	**$101.8**	**$160.6**	**$68.2**
Timber-Related Industries												
Forestry, Logging, & Support Activities	118	266	200	255	463	153	$6.8	$15.4	$11.6	$14.8	$26.9	$8.9
Wood Products Manufacturing	81	212	156	221	376	110	$4.5	$11.7	$8.6	$12.2	$20.8	$6.1
Paper Manufacturing	13	39	30	39	67	22	$1.2	$3.6	$2.8	$3.6	$6.2	$2.1
Totals	**212**	**517**	**386**	**515**	**907**	**286**	**$12.5**	**$30.7**	**$23.0**	**$30.6**	**$53.8**	**$17.0**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	87	125	110	124	167	99	$2.6	$4.4	$3.7	$4.4	$6.6	$3.1
Accommodation and Food Services	222	249	243	248	265	238	$4.8	$5.3	$5.2	$5.3	$5.6	$5.1
Totals	**309**	**374**	**353**	**372**	**432**	**338**	**$7.4**	**$9.7**	**$8.9**	**$9.7**	**$12.2**	**$8.3**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-295. Employment and earnings in the Klamath Falls Field Office model area by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	60	64	64	64	64	64	$1.6	$1.7	$1.7	$1.7	$1.7	$1.7
Grazing	55	55	55	55	55	-	$0.8	$0.8	$0.8	$0.8	$0.8	-
Timber	40	78	25	64	79	49	$1.9	$3.6	$1.2	$3.0	$3.7	$2.3
Minerals	-	-	-	-	-	-	-	-	-	-	-	-
Agency Expenditures	71	81	68	78	85	73	$4.2	$4.8	$4.0	$4.6	$5.0	$4.3
Federal Payments to Klamath County[1]	4	11	7	9	17	5	$0.2	$0.6	$0.3	$0.5	$0.8	$0.2
Totals	**231**	**289**	**219**	**270**	**299**	**190**	**$8.7**	**$11.4**	**$8.0**	**$10.5**	**$11.9**	**$8.5**
Timber-Related Industries												
Forestry, Logging, & Support Activities	15	24	10	21	26	17	$0.9	$1.4	$0.6	$1.2	$1.5	$1.0
Wood Products Manufacturing	6	16	4	12	15	8	$0.3	$0.9	$0.2	$0.7	$0.8	$0.5
Paper Manufacturing	0	0	0	0	0	0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Totals	**21**	**40**	**13**	**33**	**41**	**26**	**$1.2**	**$2.3**	**$0.8**	**$1.9**	**$2.3**	**$1.5**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	12	14	12	14	14	13	$0.3	$0.3	$0.2	$0.3	$0.3	$0.3
Accommodation and Food Services	28	31	30	31	31	30	$0.6	$0.6	$0.6	$0.6	$0.6	$0.6
Totals	**40**	**45**	**42**	**44**	**46**	**42**	**$0.8**	**$1.0**	**$0.8**	**$0.9**	**$1.0**	**$0.9**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-296. Employment and earnings in the Medford District model area by alternative.

Program/Industry	Employment (Jobs)						Earnings (millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	425	454	454	454	454	454	$12.2	$13.0	$13.0	$13.0	$13.0	$13.0
Grazing	40	40	40	40	40	-	$0.6	$0.6	$0.6	$0.6	$0.6	-
Timber	340	1,391	599	936	1,010	470	$15.8	$65.0	$28.0	$43.7	$47.2	$22.0
Minerals	1	1	1	1	1	1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Agency Expenditures	454	621	493	548	568	468	$27.2	$37.2	$29.5	$32.8	$34.1	$28.1
Federal Payments to Counties[1]	66	169	102	132	244	68	$2.9	$7.3	$4.4	$5.8	$10.7	$3.0
Payments to Jackson	44	113	68	89	164	46	$1.6	$4.0	$2.4	$3.2	$5.9	$1.6
Payments to Josephine	22	55	33	43	80	22	$1.3	$3.3	$2.0	$2.6	$4.8	$1.3
Totals	**1,326**	**2,675**	**1,688**	**2,110**	**2,318**	**1,461**	**$58.6**	**$123.1**	**$75.5**	**$95.8**	**$105.5**	**$66.0**
Timber-Related Industries												
Forestry, Logging, & Support Activities	80	273	123	187	207	95	$4.6	$15.9	$7.2	$10.9	$12.1	$5.6
Wood Products Manufacturing	59	290	121	192	204	96	$3.3	$16.1	$6.7	$10.7	$11.3	$5.3
Paper Manufacturing	0	0	0	0	0	0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Totals	**139**	**563**	**244**	**379**	**411**	**191**	**$7.9**	**$32.0**	**$13.9**	**$21.6**	**$23.4**	**$10.9**
Recreation-Related Industries												
Arts, Entertainment, & Recreation Services	80	133	96	112	116	90	$2.0	$4.4	$2.6	$3.4	$3.5	$2.3
Accommodation & Food Services	159	187	173	179	184	170	$3.3	$3.8	$3.6	$3.7	$3.8	$3.5
Totals	**239**	**320**	**269**	**291**	**300**	**259**	**$5.3**	**$8.2**	**$6.2**	**$7.0**	**$7.3**	**$5.8**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-297. Employment and earnings in the Roseburg District model area by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	507	541	541	541	541	541	$13.6	$14.6	$14.6	$14.6	$14.6	$14.6
Grazing	-	-	-	-	-	-	-	-	-	-	-	-
Timber	488	790	327	467	915	264	$23.5	$38.0	$15.7	$22.5	$44.0	$12.7
Minerals	2	2	2	2	2	2	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
Agency Expenditures	176	245	132	179	286	117	$12.0	$16.8	$9.0	$12.3	$19.6	$8.0
Federal Payments to Douglas County[1]	51	131	79	102	189	52	$2.6	$6.6	$4.0	$5.2	$9.6	$2.7
Totals	**1,225**	**1,709**	**1,081**	**1,292**	**1,933**	**977**	**$51.8**	**$76.1**	**$43.4**	**$54.6**	**$87.8**	**$38.0**
Timber-Related Industries												
Forestry, Logging, and Support Activities	147	213	88	139	246	77	$8.6	$12.4	$5.1	$8.0	$14.3	$4.5
Wood Products Manufacturing	133	241	100	131	279	75	$7.4	$13.4	$5.6	$7.3	$15.6	$4.2
Paper Manufacturing	-	-	-	-	-	-	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Totals	**280**	**454**	**188**	**270**	**526**	**152**	**$16.0**	**$25.8**	**$10.7**	**$15.4**	**$29.8**	**$8.7**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	92	108	91	96	113	88	$2.5	$3.2	$2.3	$2.6	$3.4	$2.2
Accommodation and Food Services	197	215	208	211	219	206	$4.0	$4.4	$4.2	$4.3	$4.4	$4.2
Totals	**289**	**324**	**299**	**307**	**332**	**295**	**$6.5**	**$7.6**	**$6.6**	**$6.9**	**$7.9**	**$6.4**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-298. Employment and earnings in the Salem-Other district model area[1] by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	133	141	141	141	141	141	$3.8	$4.1	$4.1	$4.1	$4.1	$4.1
Grazing	-	-	-	-	-	-	-	-	-	-	-	-
Timber	432	391	467	529	700	418	$21.3	$19.4	$23.2	$26.2	$34.7	$20.7
Minerals	-	-	-	-	-	-	-	-	-	-	-	-
Agency Expenditures	271	311	294	341	467	255	$17.4	$20.0	$18.9	$21.9	$30.0	$16.4
Federal Payments to Counties[2]	15	37	22	29	54	15	$0.9	$2.4	$1.4	$1.9	$3.5	$1.0
Totals	**851**	**881**	**925**	**1,041**	**1,362**	**829**	**$43.5**	**$45.8**	**$47.5**	**$54.1**	**$72.2**	**$42.1**
Timber-Related Industries												
Forestry, Logging, and Support Activities	125	112	134	154	202	119	$7.4	$6.6	$7.9	$9.0	$11.9	$7.0
Wood Products Manufacturing	56	42	53	60	79	46	$3.1	$2.3	$2.9	$3.4	$4.4	$2.5
Paper Manufacturing	15	18	21	22	31	20	$1.3	$1.7	$1.9	$2.1	$2.8	$1.8
Totals	**196**	**173**	**208**	**237**	**311**	**184**	**$11.8**	**$10.6**	**$12.7**	**$14.5**	**$19.1**	**$11.3**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	38	38	41	44	53	38	$1.3	$1.3	$1.4	$1.6	$2.0	$1.3
Accommodation and Food Services	71	77	76	79	87	74	$1.5	$1.6	$1.6	$1.6	$1.8	$1.5
Totals	**109**	**115**	**117**	**123**	**139**	**112**	**$2.8**	**$2.9**	**$3.0**	**$3.2**	**$3.8**	**$2.9**

[1] Includes Benton, Clatsop, Lincoln, Linn, Marion, Polk, and Tillamook Counties.
[2] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

Table O-299. Employment and earnings in the Salem-Portland MSA district model area[1] by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	854	911	911	911	911	911	$32.8	$35.0	$35.0	$35.0	$35.0	$35.0
Grazing	-	-	-	-	-	-	-	-	-	-	-	-
Timber	407	328	404	444	591	366	$22.8	$18.4	$22.7	$24.9	$33.2	$20.6
Minerals	-	-	-	-	-	-	-	-	-	-	-	-
Agency Expenditures	-	-	-	-	-	-	-	-	-	-	-	-
Federal Payments to Counties[2]	14	37	22	29	53	15	$1.0	$2.4	$1.5	$1.9	$3.5	$1.0
Totals	**1,275**	**1,276**	**1,337**	**1,384**	**1,555**	**1,292**	**$56.5**	**$55.8**	**$59.1**	**$61.8**	**$71.7**	**$56.6**
Timber-Related Industries												
Forestry, Logging, and Support Activities	78	69	83	95	125	73	$4.4	$3.9	$4.7	$5.4	$7.1	$4.2
Wood Products Manufacturing	51	34	44	47	63	40	$2.8	$1.8	$2.4	$2.6	$3.4	$2.2
Paper Manufacturing	13	12	15	16	22	14	$1.2	$1.1	$1.4	$1.5	$2.0	$1.3
Totals	**142**	**115**	**142**	**158**	**209**	**127**	**$8.5**	**$6.9**	**$8.5**	**$9.4**	**$12.5**	**$7.6**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	115	119	122	123	129	120	$3.6	$3.6	$3.8	$3.9	$4.2	$3.7
Accommodation and Food Services	339	362	362	362	365	361	$9.1	$9.7	$9.7	$9.7	$9.8	$9.7
Totals	**454**	**481**	**484**	**486**	**494**	**482**	**$12.7**	**$13.3**	**$13.5**	**$13.6**	**$14.0**	**$13.4**

[1] Includes Clackamas, Columbia, Multnomah, Washington, and Yamhill Counties.

[2] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.

Note: Totals may not add due to rounding.

Table O-300. Employment and earnings in the planning area by alternative.

Program/Industry	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified	No Action	Alt. A	Alt. B	Alt. C	Alt. D
BLM Program												
Recreation	2,782	2,969	2,969	2,969	2,969	2,969	$87.2	$93.0	$93.0	$93.0	$93.0	$93.0
Grazing	95	95	95	95	95	-	$1.4	$1.4	$1.4	$1.4	$1.4	-
Timber	2,897	4,868	3,158	4,086	6,358	2,454	$141.7	$235.1	$154.8	$199.3	$309.7	$121.0
Minerals	6	6	6	6	6	6	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
Agency Expenditures	1,423	1,855	1,458	1,679	2,259	1,283	$89.2	$115.5	$90.3	$104.2	$141.0	$79.2
Federal Payments to Counties[1]	198	505	305	395	732	203	$10.5	$26.7	$16.2	$20.9	$38.8	$10.7
Totals	**7,403**	**10,298**	**7,992**	**9,230**	**12,419**	**6,915**	**$330.1**	**$471.8**	**$355.9**	**$419.0**	**$584.1**	**$304.2**
Timber-Related Industries												
Forestry, Logging, and Support Activities	795	1,165	783	995	1,559	609	$46.2	$67.8	$45.6	$57.9	$90.7	$35.4
Wood Products Manufacturing	518	985	560	755	1,226	418	$28.7	$54.6	$31.0	$41.8	$67.9	$23.1
Paper Manufacturing	41	70	66	77	120	56	$3.8	$6.4	$6.0	$7.1	$11.0	$5.2
Totals	**1,354**	**2,221**	**1,409**	**1,827**	**2,905**	**1,083**	**$78.7**	**$128.9**	**$82.6**	**$106.8**	**$169.6**	**$63.7**
Recreation-Related Industries												
Arts, Entertainment, and Recreation Services	495	611	537	579	676	506	$13.9	$18.9	$15.4	$17.5	$22.1	$14.0
Accommodation and Food Services	1,150	1,263	1,229	1,247	1,299	1,212	$25.9	$28.3	$27.7	$28.0	$29.0	$27.4
Totals	**1,645**	**1,874**	**1,766**	**1,826**	**1,975**	**1,718**	**$39.9**	**$47.2**	**$43.1**	**$45.5**	**$51.1**	**$41.4**

[1] Federal payments include only those that would be paid under the O&C formula. Current has been modified as if O&C payments had been made in lieu of SRS payments.
Note: Totals may not add due to rounding.

For Cumulative Effects Analysis

Only metric projected by and available from state of Oregon at this level of detail is total area employment.

Table O-301. Current and projected employment by district model area by alternative (average annual jobs, percent).

District Model Area	Area Total Employment (Average Annual Jobs)		BLM-Based Total Employment (Average Annual Jobs)					BLM-Based Share of Area Total Employment (Percent)				
	2012	2018	2018					2018				
	Current	Projected[1]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Action	Alt. A	Alt. B	Alt. C	Alt. D
Coos Bay	40,276	33,235	1,232	906	931	1,600	625	3.7%	2.7%	2.8%	4.8%	1.9%
Eugene	186,049	203,072	2,237	1,835	2,202	3,352	1,541	1.1%	0.9%	1.1%	1.7%	0.8%
Klamath Falls	31,881	33,997	289	219	270	299	190	0.9%	0.6%	0.8%	0.9%	0.6%
Medford	145,525	156,964	2,675	1,688	2,110	2,318	1,461	1.7%	1.1%	1.3%	1.5%	0.9%
Roseburg	46,527	50,422	1,709	1,081	1,292	1,933	977	3.4%	2.1%	2.6%	3.8%	1.9%
Salem-Other	359,408	388,098	881	925	1,041	1,362	829	0.2%	0.2%	0.3%	0.4%	0.2%
Salem-Portland MSA	1,147,490	1,258,230	1,276	1,337	1,384	1,555	1,292	0.1%	0.1%	0.1%	0.1%	0.1%
Planning Area Totals	**1,957,157**	**2,124,018**	**10,298**	**7,992**	**9,230**	**12,419**	**6,915**	**0.5%**	**0.4%**	**0.4%**	**0.6%**	**0.3%**

[1] Based on total employment projections by Oregon Employment Department (Krumenauer 2014).
Note: May not add due to rounding.

Table O-302. Current and projected employment by district model area by alternative (average annual jobs, percent).

District Model Areas	Area Total Employment (Average Annual Jobs)		BLM-Based Total Employment (Average Annual Jobs)					BLM-Based Share of Area Total Employment (Percent)				
	2012	2018	2018					2018				
	Current	Projected[1]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Action	Alt. A	Alt. B	Alt. C	Alt. D
				Incremental Change from No Action								
Coos Bay	40,276	33,235	1,232	-326	-301	368	-607	3.7%	2.8%	2.8%	4.8%	1.9%
Eugene	186,049	203,072	2,237	-402	-35	1,115	-696	1.1%	0.9%	1.1%	1.6%	0.8%
Klamath Falls	31,881	33,997	289	-70	-19	10	-99	0.9%	0.6%	0.8%	0.9%	0.6%
Medford	145,525	156,964	2,675	-987	-565	-357	-1,214	1.7%	1.1%	1.3%	1.5%	0.9%
Roseburg	46,527	50,422	1,709	-628	-417	224	-732	3.4%	2.2%	2.6%	3.8%	2.0%
Salem-Other	359,408	388,098	881	44	160	481	-52	0.2%	0.2%	0.3%	0.4%	0.2%
Salem-Portland MSA	1,147,490	1,258,230	1,276	61	108	279	16	0.1%	0.1%	0.1%	0.1%	0.1%
Planning Area Totals	**1,957,157**	**2,124,018**	**10,298**	**-2,306**	**-1,068**	**2,121**	**-3,383**	**0.5%**	**0.4%**	**0.4%**	**0.6%**	**0.3%**

[1] BLM estimates based on total employment projections by Oregon Employment Department (Krumenauer 2014).
Note: Totals may not add due to rounding.

Table O-303. BLM-based employment and earnings by district model area by alternative.

District Model Areas	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified[1]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified[1]	No Action	Alt. A	Alt. B	Alt. C	Alt. D
Coos Bay	1,198	1,232	906	931	1,600	625	$54.4	$55.6	$39.1	$40.5	$74.4	$24.8
Eugene	1,297	2,237	1,835	2,202	3,352	1,541	$56.6	$104.0	$83.3	$101.8	$160.6	$68.2
Klamath Falls	231	289	219	270	299	190	$8.7	$11.4	$8.0	$10.5	$11.9	$8.5
Medford	1,326	2,675	1,688	2,110	2,318	1,461	$58.6	$123.1	$75.5	$95.8	$105.5	$66.0
Roseburg	1,225	1,709	1,081	1,292	1,933	977	$51.8	$76.1	$43.4	$54.6	$87.8	$38.0
Salem-Other	851	881	925	1,041	1,362	829	$43.5	$45.8	$47.5	$54.1	$72.2	$42.1
Salem-Portland MSA	1,275	1,276	1,337	1,384	1,555	1,292	$56.5	$55.8	$59.1	$61.8	$71.7	$56.6
Planning Area Totals	**7,403**	**10,298**	**7,992**	**9,230**	**12,419**	**6,915**	**$330.1**	**$471.8**	**$355.9**	**$419.0**	**$584.1**	**$304.2**

[1] Current has been modified as if O&C payments had been made in lieu of SRS payments. PILT payments are excluded.
Note: Totals may not add due to rounding.

Table O-304. BLM-based employment and earnings in timber-related[1] industries and recreation-related[2] industries by district model area by alternative.

Industry/District Model Area	Employment (Jobs)						Earnings (Millions of 2012 Constant Dollars)					
	2012	2018					2012	2018				
	Current-Modified[3]	No Action	Alt. A	Alt. B	Alt. C	Alt. D	Current-Modified[3]	No Action	Alt. A	Alt. B	Alt. C	Alt. D
Timber-Related[1] Industries												
Coos Bay	363	358	229	235	501	117	$20.8	$20.5	$13.1	$13.5	$28.7	$6.7
Eugene	212	517	386	515	907	286	$12.5	$30.7	$23.0	$30.6	$53.8	$17.0
Klamath Falls	21	40	13	33	41	26	$1.2	$2.3	$0.8	$1.9	$2.3	$1.5
Medford	139	563	244	379	411	191	$7.9	$32.0	$13.9	$21.6	$23.4	$10.9
Roseburg	280	454	188	270	526	152	$16.0	$25.8	$10.7	$15.4	$29.8	$8.7
Salem-Other	196	173	208	237	311	184	$11.8	$10.6	$12.7	$14.5	$19.1	$11.3
Salem-Portland MSA	142	115	142	158	209	127	$8.5	$6.9	$8.5	$9.4	$12.5	$7.6
Planning Area Totals	**1,354**	**2,221**	**1,409**	**1,827**	**2,905**	**1,083**	**$78.7**	**$128.9**	**$82.6**	**$106.8**	**$169.6**	**$63.7**
Recreation-Related[2] Industries												
Coos Bay	204	216	202	203	232	190	$4.4	$4.6	$4.2	$4.2	$5.1	$3.8
Eugene	309	374	353	372	432	338	$7.4	$9.7	$8.9	$9.7	$12.2	$8.3
Klamath Falls	40	45	42	44	46	42	$0.8	$1.0	$0.8	$0.9	$1.0	$0.9
Medford	239	320	269	291	300	259	$5.3	$8.2	$6.2	$7.0	$7.3	$5.8
Roseburg	289	324	299	307	332	295	$6.5	$7.6	$6.6	$6.9	$7.9	$6.4
Salem-Other	109	115	117	123	139	112	$2.8	$2.9	$3.0	$3.2	$3.8	$2.9
Salem-Portland MSA	454	481	484	486	494	482	$12.7	$13.3	$13.5	$13.6	$14.0	$13.4
Planning Area Totals	**1,645**	**1,874**	**1,766**	**1,826**	**1,975**	**1,718**	**$39.9**	**$47.2**	**$43.1**	**$45.5**	**$51.1**	**$41.4**

[1] Timber-related industries include forestry, logging and support activities, wood products manufacturing, and paper manufacturing.
[2] Receation-related industries include arts, entertainment, and recreation services, and accommodation and food services. Totals include local resident spending whose earnings may be associated with non-recreation BLM programs.
[3] Current has been modified as if O&C payments had been made in lieu of SRS payments. PILT payments are excluded.
Note: Totals may not add due to rounding.

Issue 5

How would the RMP alternatives affect the capacity and resiliency of different types of communities in the planning area?

Census Places Random Selection

Census Places Random Selection for Community Capacity and Resiliency
May 29, 2014

Table O-305. Stratified random sample of communities by population (selected cities highlighted).

Coos Bay	**47,218**
Powers	689
Port Orford	1,133
Lakeside	1,699
Gold Beach	2,253
Myrtle Point	2,514
Bandon	3,066
Coquille	3,866
Brookings	6,336
North Bend	9,695
Coos Bay	15,967
Eugene	**39,724**
Coburg	1,035
Lowell	1,045
Dunes City	1,303
Oakridge	3,205
Veneta	4,561
Creswell	5,031
Junction City	5,392
Florence	8,466
Cottage Grove	9,686
Lakeview	**23,223**
Chiloquin	734
Malin	805
Merrill	844
Klamath Falls	20,840
Medford	**101,776**
Gold Hill	1,220
Cave Junction	1,883
Rogue River	2,131
Jacksonville	2,785
Shady Cove	2,904
Phoenix	4,538
Talent	6,066
Eagle Point	8,469
Central Point	17,169
Ashland	20,078
Grants Pass	34,533
Roseburg	**49,031**
Glendale	874
Oakland	927
Yoncalla	1,047
Drain	1,151
Riddle	1,185
Canyonville	1,884
Myrtle Creek	3,439
Reedsport	4,154
Winston	5,379

Roseburg	**661,130**
Sutherlin	7,810
Roseburg	21,181
Salem	**661,130**
Johnson City	566
Manzanita	598
Monroe	617
Gaston	637
Yachats	690
Maywood Park	752
Garibaldi	779
Scio	838
Adair Village	840
Halsey	904
Aurora	918
Falls City	947
Donald	979
Yamhill	1,024
Lyons	1,161
Tangent	1,164
Siletz	1,212
Bay City	1,286
Rockaway Beach	1,312
Millersburg	1,329
Durham	1,351
Depoe Bay	1,398
Gearhart	1,462
Amity	1,614
Brownsville	1,668
Cannon Beach	1,690
Clatskanie	1,737
Banks	1,777
Turner	1,854
Mill	1,855
Rainier	1,895
Columbia City	1,946
North Plains	1,947
Carlton	2,007
Willamina	2,025
Waldport	2,033
Vernonia	2,151
Gervais	2,464
Dayton	2,534
Sublimity	2,681
Estacada	2,695
Jefferson	3,098
King City	3,111
Dundee	3,162

Salem	
Hubbard	3,173
Mount Angel	3,286
Toledo	3,465
Harrisburg	3,567
Aumsville	3,584
Lafayette	3,742
Wood Village	3,878
Philomath	4,584
Tillamook	4,935
Warrenton	4,989
Sheridan	6,127
Seaside	6,477
Scappoose	6,592
Stayton	7,644
Lincoln City	7,930
Molalla	8,108
Independence	8,590
Fairview	8,920
Sweet Home	8,925
Silverton	9,222
Astoria	9,477
Monmouth	9,534
Sandy	9,570
Newport	9,989
Damascus	10,539
Gladstone	11,497
Cornelius	11,869
St. Helens	12,883
Happy Valley	13,903
Dallas	14,583
Lebanon	15,518
Canby	15,829
Troutdale	15,962
Sherwood	18,194
Wilsonville	19,509
Milwaukie	20,291
Forest Grove	21,083
Newberg	22,068
Woodburn	24,080
West Linn	25,109
Tualatin	26,054
Oregon City	31,859
McMinnville	32,187
Keizer	36,478
Lake Oswego	36,619
Grand Total	**922,102**

Community Capacity/Resiliency Baseline

Table O-306. Community capacity/resiliency baseline inputs.

Data Set	What Does This Tell Us?	Community Base Data Availability	
		County	Sub County
Population 2010, 2012	Size, generally = more community capacity	Y	Y
Population change 2000 to 2010/2012	Growing pop, generally = more capacity	Y	Y
Employment/Unemployment, 2012	High employment/low unemployment, generally = more capacity	Y	Y
Employment volatility (diversity) current at place empt by industry (possibly including change over time)	More employment, employment access = more capacity More diversity in disconnected industries (not all in one sector) = more resiliency	Y	Y
Household income 2010 or most recent from American Community Survey (number of households) Median household income or share in plus 3 to 5 $ income brackets ($20-34, 35-50 etc.)	Higher incomes, generally = more capacity, more resiliency.	Y	Y
Poverty rate	Lower poverty = more capacity	Y	Y
Education (% population with High School certificate; with a 4 year degree)	Higher = more capacity, more resiliency.	Y	Y
Community Health Population with health insurance (available from census)	Healthy Communities have more capacity, more resiliency	Y	Y
Community wealth: Assessable tax base? (needs to be expressed in relative terms (e.g., per capita))	More wealth = more capacity, more resiliency	Y	If available
Recreation indicator? Recreation demand/scarcity? (per Rec. Planning Criteria)	Lower scarcity = more capacity	Y - Specifics to be determined	If available

Selected Socioeconomic Characteristics

Table O-307. Selected socioeconomic characteristics for selected cities in western Oregon.

Characteristic	Oregon		Coquille		Drain		Florence	
	#	%	#	%	#	%	#	%
Population								
Total Population, 2012	3,836,628		3,874		1,142		8,412	
Population, 2000	3,421,399		4,184		1,012		7,263	
Population Change 2000-2012	415,229	12%	-310	-8%	130	13%	1,149	16%

Characteristic	Oregon		Coquille		Drain		Florence	
	#	%	#	%	#	%	#	%
Age Distribution (2012)								
Population 19 years and under	967,636	25%	756	20%	296	26%	1,036	12%
Population 20 to 64 years	2,328,465	61%	2,312	60%	594	52%	4,293	51%
Population 65 years and older	540,527	14%	806	21%	252	22%	3,083	37%
Totals	**3,836,628**	**100%**	**3,874**	**100%**	**1,142**	**100%**	**8,412**	**100%**
Median age (years)	38.4		47.4		42.2		57.6	
Race								
White alone, 2012	3,272,707	85%	3,460	89%	1,084	95%	7,820	93%
Minority	563,921	15%	414	11%	58	5%	592	7%
Housing								
Total housing units	1,673,593	N/A	1,953	50%	433	38%	5,207	62%
Occupied housing units	1,512,718	100%	1,592	82%	418	97%	4,438	85%
Vacant housing units	160,875	11%	361	18%	15	4%	769	15%
Owner-occupied	945,824	63%	1,104	57%	253	61%	2,766	62%
Renter-occupied	566,894	37%	488	25%	165	39%	1,672	38%
Median housing unit value ($)	246,100		154,100		133,100		201,200	
Median gross rent ($)	854		478		151		1,606	
Employment								
Workers 16 years and over	3,072,774	80%	3,281	85%	921	81%	7,600	90%
In labor force	1,957,085	67%	1,794	46%	501	44%	3,244	39%
Unemployed	210,379	7%	71	2%	115	10%	258	3%
Occupation								
Civilian employed population 16 years and over	1,743,524	57%	1,723	44%	386	34%	2,967	35%
Management, business, science and arts occupations	627,719	36%	399	23%	62	16%	653	22%
Service occupations	315,529	18%	474	28%	82	21%	689	23%
Sales and office occupations	426,554	25%	409	24%	96	25%	637	21%
Natural resources, construction, and maintenance occupations	164,625	9%	343	20%	38	10%	347	12%
Production, transportation, and material moving occupations	209,097	12%	98	6%	108	28%	641	22%
Jobs in a 5-Mile Radius of the Community by Sector			**2,086**		**559**		**3,651**	
Accommodation and Food Services	145,131	9%	81	4%	33	6%	1,008	28%
Administration and Support, Waste Management and Remediation	84,402	5%	50	2%	20	4%	141	4%
Agriculture, Forestry, Fishing and Hunting	40,859	3%	182	9%	16	3%	86	2%
Arts, Entertainment, and Recreation	26,407	2%	4	0%	2	0%	89	2%
Construction	71,050	4%	85	4%	46	8%	142	4%
Educational Services	158,758	10%	115	6%	124	22%	171	5%
Finance and Insurance	57,164	4%	87	4%	10	2%	103	3%
Health Care and Social Assistance	230,433	14%	254	12%	8	1%	702	19%
Information	33,677	2%	12	1%	0	0%	110	3%
Management of Companies and Enterprises	32,692	2%	64	3%	13	2%	21	1%
Manufacturing	167,695	10%	378	18%	139	25%	39	1%
Mining, Quarrying, and Oil and Gas Extraction	1,596	0%	1	0%	8	1%	0	0%

Characteristic	Oregon		Coquille		Drain		Florence	
	#	%	#	%	#	%	#	%
Other Services (excluding Public Administration)	60,136	4%	81	4%	13	2%	154	4%
Professional, Scientific, and Technical Services	77,910	5%	27	1%	2	0%	70	2%
Public Administration	91,242	6%	480	23%	29	5%	93	3%
Real Estate and Rental and Leasing	25,259	2%	5	0%	0	0%	102	3%
Retail Trade	181,165	11%	125	6%	61	11%	525	14%
Transportation and Warehousing	52,036	3%	45	2%	31	6%	43	1%
Utilities	8,692	1%	9	0%	4	1%	27	1%
Wholesale Trade	74,290	5%	1	0%	0	0%	25	1%
Jobs Distribution Variability Compared to Oregon (3)				608%		267%		130%
Jobs by Earnings								
$1,250 per month or less	395,867	24%	458	22%	163	29%	1,240	34%
$1,251 to $3,333 per month	621,915	38%	865	41%	257	46%	1,675	46%
More than $3,333 per month	602,812	37%	763	37%	139	25%	736	20%
Income								
Median household income ($)	50,036		47,714		36,964		35,000	
Persons below poverty level	584,059	15%	185	5%	97	8%	995	12%
Health Insurance Coverage								
Civilian noninstitutionalized population	3,796,881	99%	3,704	96%	1,142	100%	8,377	100%
With health insurance coverage	3,191,034	84%	3,240	84%	911	80%	6,996	83%
No health insurance coverage	605,847	16%	464	12%	231	20%	1,381	16%
Education (highest level obtained)								
High School certificate	635,670	17%	2,371	61%	466	41%	3,541	42%
4 year degree	760,816	20%	682	18%	0	0%	0	0%
Assessed Value of Property								
Total assessed value for tax year 2013-14 ($)			202,372,480		52,373,224		837,548,331	
Assessed Value Per Capita (dollars)			52,239		45,861		99,566	
Recreation								
Outdoor recreation land in the county where the community is located (acres per 1,000 population)	8,605		5,012		16,069		5,098	

Characteristic	Gold Beach		Grants Pass		Junction City		Klamath Falls	
	#	%	#	%	#	%	#	%
Population								
Total Population, 2012	2,563		34,454		5,445		20,943	
Population, 2000	1,897		23,003		4,721		19,462	
Population Change 2000-2012	666	35%	11,451	50%	724	15%	1,481	8%
Age Distribution (2012)								
Population 19 years and under	664	26%	8,918	26%	1,551	28%	5,425	26%
Population 20 to 64 years	1,401	55%	18,533	54%	3,110	57%	12,989	62%
Population 65 years and older	498	19%	7,003	20%	784	14%	2,529	12%
Totals	**2,563**	**100%**	**34,454**	**100%**	**5,445**	**100%**	**20,943**	**100%**
Median age (years)	41.1		40		36.3		35	
Race								
White alone, 2012	2,334	91%	32,246	94%	5,032	92%	17,985	86%
Minority	229	9%	2,178	6%	413	8%	2,958	14%
Housing								
Total housing units	1,327	52%	15,760	46%	2,250	41%	10,190	49%
Occupied housing units	1,029	78%	14,545	92%	2,049	91%	9,054	89%
Vacant housing units	298	22%	1,215	8%	201	9%	1,136	11%
Owner-occupied	674	66%	7,308	50%	990	48%	4,280	47%
Renter-occupied	355	34%	7,237	50%	1,059	52%	4,774	53%
Median housing unit value ($)	220,100		196,900		179,400		148,600	
Median gross rent ($)	336		6,959		984		4,551	
Employment								
Workers 16 years and over	2,103	82%	27,321	79%	4,188	77%	16,844	80%
In labor force	1,195	47%	14,892	55%	2,747	50%	10,539	50%
Unemployed	123	5%	1,771	6%	386	7%	1,354	6%
Occupation								
Civilian employed population 16 years and over	1,072	42%	13,092	38%	2,361	43%	9,118	44%
Management, business, science and arts occupations	284	26%	3,138	24%	443	19%	2,836	31%
Service occupations	257	24%	3,273	25%	461	20%	2,213	24%
Sales and office occupations	304	28%	3,687	28%	565	24%	2,002	22%
Natural resources, construction, and maintenance occupations	134	13%	1,108	8%	498	21%	937	10%
Production, transportation, and material moving occupations	93	9%	1,886	14%	394	17%	1,130	12%
Jobs in a 5-Mile Radius of the Community by Sector	**1,394**		**17,216**		**12,205**		**18,710**	
Accommodation and Food Services	229	16%	2,012	12%	690	6%	1,644	9%
Administration and Support, Waste Management and Remediation	6	0%	778	5%	413	3%	1,143	6%
Agriculture, Forestry, Fishing and Hunting	37	3%	45	0%	488	4%	377	2%
Arts, Entertainment, and Recreation	4	0%	165	1%	86	1%	284	2%
Construction	49	4%	390	2%	641	5%	669	4%
Educational Services	93	7%	848	5%	1,218	10%	2,172	12%
Finance and Insurance	25	2%	690	4%	149	1%	561	3%
Health Care and Social Assistance	154	11%	3,977	23%	912	7%	3,455	18%
Information	42	3%	292	2%	27	0%	195	1%
Management of Companies and Enterprises	0	0%	77	0%	44	0%	506	3%
Manufacturing	103	7%	1,358	8%	3,053	25%	1,497	8%

Characteristic	Gold Beach		Grants Pass		Junction City		Klamath Falls	
	#	%	#	%	#	%	#	%
Mining, Quarrying, and Oil and Gas Extraction	0	0%	0	0%	13	0%	1	0%
Other Services (excluding Public Administration)	38	3%	726	4%	448	4%	660	4%
Professional, Scientific, and Technical Services	60	4%	473	3%	251	2%	563	3%
Public Administration	295	21%	982	6%	202	2%	1,262	7%
Real Estate and Rental and Leasing	15	1%	243	1%	175	1%	201	1%
Retail Trade	188	13%	2,978	17%	2,055	17%	2,506	13%
Transportation and Warehousing	35	3%	228	1%	397	3%	355	2%
Utilities	17	1%	76	0%	42	0%	143	1%
Wholesale Trade	4	0%	878	5%	901	7%	516	3%
Jobs Distribution Variability Compared to Oregon (3)		183%		96%		123%		117%
Jobs by Earnings								
$1,250 per month or less	467	34%	5,043	29%	2,911	24%	5,292	28%
$1,251 to $3,333 per month	565	41%	8,087	47%	5,538	45%	8,219	44%
More than $3,333 per month	362	26%	4,086	24%	3,756	31%	5,199	28%
Income								
Median household income (dollars)	50,958		32,991		35,067		31,971	
Persons below poverty level	370	14%	7,132	21%	1,239	23%	5,131	24%
Health Insurance Coverage								
Civilian non-institutionalized population	2,516	98%	33,614	98%	5,342	98%	20,538	98%
With health insurance coverage	1,865	73%	28,272	84%	4,320	79%	16,245	78%
No health insurance coverage	651	25%	5,342	16%	1,022	19%	4,338	21%
Education (highest level obtained)								
High School certificate	1,176	46%	30,251	88%	1,770	33%	5,634	27%
4 year degree	90	4%	4,617	13%	87	2%	1,173	6%
Assessed Value of Property								
Total assessed value for tax year 2013-14 ($)	226,856,877		2,624,936,968		355,651,839		1,264,904,779	
Assessed Value Per Capita ($)	88,512		76,187		65,317		60,397	
Recreation								
Outdoor recreation land in the county where the community is located (acres per thousand population)	31,208		8,612		5,098		34,321	

Characteristic	Lincoln City		Molalla		Rogue River		St. Helens City	
	#	%	#	%	#	%	#	%
Population								
Total Population, 2012	7,926		8,039		2,265		12,807	
Population, 2000	7,437		5,647		1,847		10,019	
Population Change 2000-2012	489	6%	2,392	42%	418	23%	2,788	22%
Age Distribution (2012)								
Population 19 years and under	1,729	21.8%	2,598	32%	500	22%	3,737	29%
Population 20 to 64 years	4,575	57.7%	4,654	58%	1,158	51%	8,043	63%
Population 65 years and older	1,622	20.5%	787	10%	607	27%	1,027	8%
Totals	**7,926**	**100%**	**8,039**	**100%**	**2,265**	**100%**	**12,807**	**100%**
Median age (years)	44.6		32		45.6		33.3	
Race								
White alone, 2012	6,931	87.4%	7,520	94%	2,103	93%	11,512	89.9
Minority	995	13%	519	6%	162	7%	1,295	10%
Housing								
Total housing units	5,720	5,720	3,010	37%	1,132	50%	5,123	40%
Occupied housing units	3,932	69%	2,966	99%	997	88%	4,725	92%
Vacant housing units	1,788	31%	44	1%	135	12%	398	8%
Owner-occupied	1,929	49%	2,077	70%	567	57%	3,007	59%
Renter-occupied	2,003	51%	889	30%	430	43%	1,718	34%
Median housing unit value ($)	233,700		204,600		177,900		186,000	
Median gross rent ($)	717		889		420		1,701	
Employment								
Workers 16 years and over	6,500	82%	5,813	72%	1,838	81%	9,842	77%
In labor force	3,963	61%	4,006	69%	877	39%	6,742	53%
Unemployed	505	8%	444	8%	100	4%	1,202	9%
Occupation								
Civilian employed population 16 years and over	3,458	44%	3,562	44%	777	34%	5,540	43%
Management, business, science and arts occupations	649	19%	683	19%	195	25%	1,371	25%
Service occupations	1,091	32%	696	20%	146	19%	852	15%
Sales and office occupations	1,268	37%	819	23%	236	30%	1,669	30%
Natural resources, construction, and maintenance occupations	253	7%	650	18%	102	13%	829	15%
Production, transportation, and material moving occupations	197	6%	714	20%	98	13%	819	15%
Jobs in a Five Mile Radius of the Community by Sector	**5,709**		**3,804**		**1,304**		**3,729**	
Accommodation and Food Services	1,721	30%	266	7%	104	8%	358	10%
Administration and Support, Waste Management and Remediation	240	4%	54	1%	58	4%	151	4%
Agriculture, Forestry, Fishing and Hunting	12	0%	710	19%	62	5%	52	1%
Arts, Entertainment, and Recreation	661	12%	66	2%	19	1%	47	1%
Construction	226	4%	260	7%	117	9%	85	2%
Educational Services	159	3%	427	11%	202	15%	479	13%
Finance and Insurance	48	1%	36	1%	19	1%	126	3%
Health Care and Social Assistance	674	12%	253	7%	141	11%	705	19%
Information	53	1%	47	1%	32	2%	28	1%
Management of Companies and Enterprises	1	0%	5	0%	0	0%	23	1%
Manufacturing	47	1%	680	18%	198	15%	512	14%

Characteristic	Lincoln City		Molalla		Rogue River		St. Helens City	
	#	%	#	%	#	%	#	%
Mining, Quarrying, and Oil and Gas Extraction	0	0%	16	0%	19	1%	0	0%
Other Services (excluding Public Administration)	168	3%	203	5%	52	4%	176	5%
Professional, Scientific, and Technical Services	66	1%	51	1%	49	4%	93	2%
Public Administration	244	4%	102	3%	40	3%	417	11%
Real Estate and Rental and Leasing	233	4%	24	1%	20	2%	58	2%
Retail Trade	1,030	18%	385	10%	132	10%	345	9%
Transportation and Warehousing	46	1%	121	3%	25	2%	45	1%
Utilities	23	0%	0	0%	0	0%	0	0%
Wholesale Trade	57	1%	98	3%	15	1%	29	1%
Jobs Distribution Variability Compared to Oregon (3)		217%		157%		49%		81%
Jobs by Earnings								
$1,250 per month or less	2,147	38%	1,170	31%	465	36%	799	21%
$1,251 to $3,333 per month	2,575	45%	1,653	43%	523	40%	2,079	56%
More than $3,333 per month	987	17%	981	26%	316	24%	851	23%
Income								
Median household income ($)	29,686		52,926		32,426		53,151	
Persons below poverty level	1,616	20%	868	11%	398	18%	2,267	18%
Health Insurance Coverage								
Civilian non-institutionalized population	7,886	99%	7,992	99%	2,265	100%	12,621	99%
With health insurance coverage	6,299	80%	6,664	83%	1,884	83%	10,706	84%
No health insurance coverage	1,587	20%	1,328	17%	381	17%	1,915	15%
Education (highest level obtained)								
High School certificate	1,745	22%	6,930	86%	695	31%	2,420	19%
4 year degree	1,119	14%	780	10%	0	0%	1,288	10%
Assessed Value of Property								
Total assessed value for tax year 2013-14 ($)	1,521,308,480		490,884,897		135,999,651		815,441,324	
Assessed Value Per Capita ($)	191,939		61,063		60,044		63,672	
Recreation								
Outdoor recreation land in the county where the community is located (acres per 1,000 population)	4,906		1,682		4,416		565	

Characteristic	Sublimity		Winston	
	#	%	#	%
Population				
Total Population, 2012	2,683		5,352	
Population, 2000	2,148		4,613	
Population Change 2000-2012	535	25%	739	16%
Age Distribution (2012)				
Population 19 years and under	495	18%	1,674	31%
Population 20 to 64 years	1,346	50%	3,012	56%
Population 65 years and older	842	31%	666	12%
Totals	**2,683**	**100%**	**5,352**	**100%**
Median age (years)	51		31.9	
Race				
White alone, 2012	2,623	98%	4,980	93%
Minority	60	2%	372	7%
Housing				
Total housing units	1,134	42%	1,927	36%
Occupied housing units	1,085	96%	1,809	94%
Vacant housing units	49	4%	118	6%
Owner-occupied	731	67%	1,074	59%
Renter-occupied	354	33%	735	41%
Median housing unit value ($)	247,300		154,400	
Median gross rent ($)	347		723	
Employment				
Workers 16 years and over	2,292	85%	3,961	74%
In labor force	1,089	48%	2,208	41%
Unemployed	61	3%	388	7%
Occupation				
Civilian employed population 16 years and over	1,016	38%	1,820	34%
Management, business, science and arts occupations	370	36%	335	18%
Service occupations	156	15%	337	19%
Sales and office occupations	276	27%	680	37%
Natural resources, construction, and maintenance occupations	115	11%	183	10%
Production, transportation, and material moving occupations	99	10%	285	16%
Jobs in a Five Mile Radius of the Community by Sector	**17,216**		**4,032**	
Accommodation and Food Services	2,012	12%	264	7%
Administration & Support, Waste Management and Remediation	778	5%	72	2%
Agriculture, Forestry, Fishing and Hunting	45	0%	136	3%
Arts, Entertainment, and Recreation	165	1%	45	1%
Construction	390	2%	252	6%
Educational Services	848	5%	293	7%
Finance and Insurance	690	4%	35	1%
Health Care and Social Assistance	3,977	23%	196	5%
Information	292	2%	6	0%
Management of Companies and Enterprises	77	0%	319	8%
Manufacturing	1,358	8%	1,325	33%
Mining, Quarrying, and Oil and Gas Extraction	0	0%	17	0%
Other Services (excluding Public Administration)	726	4%	106	3%
Professional, Scientific, and Technical Services	473	3%	42	1%
Public Administration	982	6%	48	1%
Real Estate and Rental and Leasing	243	1%	30	1%

Characteristic	Sublimity		Winston	
	#	%	#	%
Retail Trade	2,978	17%	316	8%
Transportation and Warehousing	228	1%	301	7%
Utilities	76	0%	89	2%
Wholesale Trade	878	5%	140	3%
Jobs Distribution Variability Compared to Oregon (3)		96%		174%
Jobs by Earnings				
$1,250 per month or less	5,043	29%	846	21%
$1,251 to $3,333 per month	8,087	47%	1,542	38%
More than $3,333 per month	4,086	24%	1,644	41%
Income				
Median household income ($)	58,708		31,627	
Persons below poverty level	150	6%	1,584	30%
Health Insurance Coverage				
Civilian non-institutionalized population	2,432	91%	5,345	100%
With health insurance coverage	2,229	92%	4,589	86%
No health insurance coverage	203	8%	756	14%
Education (highest level obtained)				
High School certificate	2,519	94%	1,295	24%
4 year degree	816	30%	417	8%
Assessed Value of Property				
Total assessed value for tax year 2013-14 ($)	187,046,485		223,555,844	
Assessed Value Per Capita ($)	69,715		41,771	
Recreation				
Outdoor recreation land in the county where the community is located (acres per 1,000 population)	828		16,069	

Sources:

U.S. Census Bureau; American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; http://factfinder2.census.gov ; (May 2014).

U.S. Census Bureau; American Community Survey, 2009 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; http://factfinder2.census.gov ; (May 2014).

U.S. Census Bureau; Census 2000, Summary File 1, Table DP05; generated by Joan Huston; using American FactFinder; http://factfinder2.census.gov ; (May 2014).

U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. http://onthemap.ces.census.gov/; generated by Clive Graham July 3, 2014.

Assessed Property Value derived from individual County Assessors Offices Summary of Assessment and Tax Rolls.

Oregon Parks and Recreation Department. 2011. Oregon Statewide Outdoor Recreation Resource/Facility Bulletin Final Report. A Component of the 2013-2017 Oregon Statewide Comprehensive Outdoor Recreation Plan.

Notes:

(1) All data are for 2012 with the exception of the Coquille Indian Tribe and Cow Creek Band of Umpqua Tribe of Indians. For these two tribes the most recent available data in all categories are the from 2009 five-year estimates.
(2) The population that is 16 years or older and available to work.
(3) A measure of difference in the distribution of jobs by sector in the 5-mile radius compared to the distribution of jobs for the State. A higher number means a larger difference in distribution.
The American Community Survey data is derived from a sample of American households that contains a greater level of detailed socioeconomic data than the decennial census. Where available, we used American Community Survey data from 2012, which is informed by data collected over the prior 5 years and extrapolated for each community (for two tribes, data was only available from 2009). Since the American Community Survey uses data derived from a sample of the population, and is not a true count of the population like the decennial census, margins of error are associated with the extrapolated data. These margins of error vary across the geography sampled; however, smaller populations generally experience larger margins of error when compared to more populated geographies.

Table O-308. Selected socioeconomic characteristics: Federally-recognized Tribes with land in the planning area, 2009 and 2012 (1).

Characteristic	Oregon		Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians		Confederated Tribes of the Grand Ronde		Confederated Tribes of the Siletz Indians	
	#	%	#	%	#	%	#	%
Population								
Population, 2012, 2009 (1)	3,836,628		24		473		476	
Population, 2000	3,421,399		25		55		308	
Population Change	415,229	12%	-1	-4%	418	760%	168	55%
Age Distribution								
Population 19 years and under	967,636	25%	4	17%	164	35%	193	41%
Population 20 to 64 years	2,328,465	61%	13	54%	278	59%	243	51%
Population 65 years and older	540,527	14%	7	29%	31	7%	40	8%
Median age (years)	38		62		28		29	
Race								
White alone	3,272,707	85%	12	50%	92	19%	56	12%
Minority (Non-white) population	563,921	15%	12	50%	381	81%	420	88%
Housing								
Total housing units	1,673,593		15		193		173	
Occupied housing units	1,512,718	90%	15	100%	185	96%	160	93%
Owner-occupied	945,824	57%	3	20%	13	7%	88	55%
Renter-occupied	566,894	34%	12	80%	172	93%	72	45%
Vacant housing units	160,875	10%	0	0%	8	4%	13	8%
Median value owner-occupied units ($)	246,100				91,700		79,100	
Median gross rent ($)	854		450		833		458	
Employment								
Population in the labor force (2)	1,953,903	67%	2	10%	176	56%	224	71%
Unemployed	210,379	7%	18	90%	139	44%	40	13%
Occupation								
Civilian employed population 16 years and over	1,743,524	57%	0	0%	37	12%	184	58%
Management, business, science and arts occupations	627,719	36%	0	0%	47	35%	55	30%
Service occupations	315,529	18%	0	0%	58	43%	44	24%
Sales and office occupations	426,554	25%	0	0%	25	19%	45	25%
Natural resources, construction, and maintenance occupations	164,625	9%	0	0%	2	2%	29	16%
Production, transportation, and material moving occupations	209,097	12%	0	0%	2	2%	11	6%
Jobs in a 5-Mile Radius of the Community by Sector			**18,273**	**100%**	**2,168**	**100%**	**6,642**	**100%**
Accommodation and Food Services	145,131	9%	2,727	15%	1,331	61%	1,489	22%
Administration & Support, Waste Management and Remediation	84,402	5%	1,347	7%	21	1%	245	4%
Agriculture, Forestry, Fishing and Hunting	40,859	3%	509	3%	107	5%	163	2%
Arts, Entertainment, and Recreation	26,407	2%	214	1%	-	0%	679	10%
Construction	71,050	4%	609	3%	10	0%	266	4%
Educational Services	158,758	10%	1,195	7%	50	2%	280	4%
Finance and Insurance	57,164	4%	415	2%	8	0%	58	1%
Health Care and Social Assistance	230,433	14%	4,169	23%	26	1%	715	11%
Information	33,677	2%	331	2%	2	0%	46	1%
Management of Companies and Enterprises	32,692	2%	184	1%	-	0%	1	0%
Manufacturing	167,695	10%	612	3%	77	4%	419	6%
Mining, Quarrying, and Oil and Gas	1,596	0%	27	0%	-	0%	4	0%

Characteristic	Oregon		Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians		Confederated Tribes of the Grand Ronde		Confederated Tribes of the Siletz Indians	
	#	%	#	%	#	%	#	%
Extraction								
Other Services (excluding Public Administration)	60,136	4%	598	3%	17	1%	190	3%
Professional, Scientific, and Technical Services	77,910	5%	427	2%	7	0%	81	1%
Public Administration	91,242	6%	1,062	6%	370	17%	536	8%
Real Estate and Rental and Leasing	25,259	2%	291	2%	3	0%	160	2%
Retail Trade	181,165	11%	2,439	13%	86	4%	1,035	16%
Transportation and Warehousing	52,036	3%	686	4%	35	2%	200	3%
Utilities	8,692	1%	137	1%	13	1%	13	0%
Wholesale Trade	74,290	5%	294	2%	5	0%	62	1%
Jobs Distribution Concentration Compared to Oregon (3)				51%		554%		99%
Jobs by Earnings								
$1,250 per month or less	395,867	24%	5,611	31%	245	11%	2,272	34%
$1,251 to $3,333 per month	621,915	38%	8,030	44%	1,121	52%	2,728	41%
More than $3,333 per month	602,812	37%	4,632	25%	802	37%	1,642	25%
Income								
Median household income ($)	50,036		15,938		24,861		39,000	
Persons below poverty level	584,059	15%	6	25%	130	28%	81	18%
Health Insurance Coverage								
With health insurance coverage	3,191,034	84%	22	92%	379	80%	335	70%
No health insurance coverage	605,847	16%	2	8%	94	20%	141	30%
Education (highest level obtained)								
High School certificate	635,670	17%	7	29%	157	33%	97	20%
4 year degree	760,816	20%	0	0%	18	4%	25	5%
Recreation								
Outdoor recreation land in the county where the community is located (acres per 1,000 population)	8,605		5,012		18,487		4,906	

Characteristic	Confederated Tribes of Warm Springs Reservation of Oregon		Coquille Indian Tribe		Cow Creek Band of Umpqua Tribe of Indians		Klamath Tribes	
	#	%	#	%	#	%	#	%
Population								
Population, 2012, 2009 (1)	3,960		297		21		17	
Population, 2000	3,314		258		22		9	
Population Change	646	19%	39	15%	-1	-5%	8	89%
Age Distribution								
Population 19 years and under	1,473	37%	103	35%	3	14%	0	0%
Population 20 to 64 years	2,235	56%	156	53%	12	57%	7	41%
Population 65 years and older	252	6%	38	13%	6	29%	10	59%
Median age (years)	27		30		62		70	
Race								
White alone	303	8%	131	44%	21	100%	6	35%
Minority (Non-white) population	3,657	92%	166	56%	0	0%	11	65%
Housing								
Total housing units	1,157		112		9		14	
Occupied housing units	1,037	90%	102	91%	9	100%	14	100%
Owner-occupied	650	63%	52	16%	7	78%	4	29%
Renter-occupied	387	37%	50	49%	2	22%	10	71%
Vacant housing units	120	10%	10	9%	0	0%	0	0%
Median value owner-occupied units ($)	103,200		152,800		387,500		275,000	
Median gross rent ($)	673		483		N/A		371	
Employment								
Population in the labor force (2)	1,748	64%	108	51%	7	33%	5	29%
Unemployed	474	17%	14	7%	0	0%	1	6%
Occupation								
Civilian employed population 16 years and over	1,274	47%	94	44%	7	33%	4	24%
Management, business, science and arts occupations	267	21%	24	23%	0	0%	2	50%
Service occupations	433	34%	30	28%	5	71%	0	0%
Sales and office occupations	287	23%	22	24%	2	29%	0	0%
Natural resources, construction, and maintenance occupations	86	7%	1	20%	0	0%	0	0%
Production, transportation, and material moving occupations	201	16%	14	15%	0	0%	2	50%
Jobs in a 5- Mile Radius of the Community by Sector	**2,250**	**100%**	**17,768**	**100%**	**27,040**	**100%**	**17,418**	**100%**
Accommodation and Food Services	331	15%	2,661	15%	2,682	10%	1,516	9%
Administration & Support, Waste Management and Remediation	29	1%	1,240	7%	1,377	5%	1,076	6%
Agriculture, Forestry, Fishing and Hunting	189	8%	601	3%	899	3%	222	1%
Arts, Entertainment, and Recreation	6	0%	136	1%	222	1%	383	2%
Construction	51	2%	627	4%	954	4%	550	3%
Information	4	0%	221	1%	299	1%	193	1%
Educational Services	102	5%	1,205	7%	1,930	7%	1,447	8%
Finance and Insurance	22	1%	375	2%	760	3%	557	3%
Health Care and Social Assistance	43	2%	3,891	22%	5,051	19%	3,414	20%
Information	4	0%	221	1%	299	1%	193	1%
Management of Companies and Enterprises	-	0%	164	1%	532	2%	499	3%
Manufacturing	273	12%	940	5%	3,106	11%	1,419	8%
Mining, Quarrying, and Oil and Gas Extraction	1	0%	44	0%	91	0%	1	0%

Characteristic	Confederated Tribes of Warm Springs Reservation of Oregon		Coquille Indian Tribe		Cow Creek Band of Umpqua Tribe of Indians		Klamath Tribes	
	#	%	#	%	#	%	#	%
Other Services (excluding Public Administration)	11	0%	538	3%	874	3%	620	4%
Professional, Scientific, and Technical Services	31	1%	414	2%	658	2%	552	3%
Public Administration	890	40%	1,067	6%	2,558	9%	1,404	8%
Real Estate and Rental and Leasing	-	0%	218	1%	339	1%	189	1%
Retail Trade	39	2%	2,343	13%	3,120	12%	2,523	14%
Transportation and Warehousing	13	1%	696	4%	887	3%	313	2%
Utilities	101	4%	83	0%	198	1%	112	1%
Wholesale Trade	114	5%	304	2%	503	2%	428	2%
Jobs Distribution Concentration Compared to Oregon (3)		267%		55%		39%		117%
Jobs by Earnings								
$1,250 per month or less	407	18%	5,351	30%	7,077	26%	4,903	28%
$1,251 to $3,333 per month	1,199	53%	7,779	44%	11,693	43%	7,835	45%
More than $3,333 per month	644	29%	4,638	26%	8,270	31%	4,680	27%
Income								
Median household income ($)	47,526		39,346		22,250		6,944	
Persons below poverty level	1,069	28%	67	23%	0	0%	9	53%
Health Insurance Coverage								
With health insurance coverage	2,535	65%	N/A	N/A	N/A	N/A	14	82%
No health insurance coverage	1,369	35%	N/A	N/A	N/A	N/A	3	18%
Education (highest level obtained)								
High School certificate	664	17%	69	23%	7	33%	0	0%
4 year degree	193	5%	15	5%	2	10%	9	53%
Recreation								
Outdoor recreation land in the county where the community is located (acres per 1,000 population)	1,682		5,012		16,069		34,321	

Sources:

U.S. Census Bureau; American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; http://factfinder2.census.gov ; (May 2014).

U.S. Census Bureau; American Community Survey, 2009 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; generated by Joan Huston; using American FactFinder; http://factfinder2.census.gov ; (May 2014).

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U.S. Census Bureau. 2013. OnTheMap Application. Longitudinal-Employer Household Dynamics Program. http://onthemap.ces.census.gov/; generated by Clive Graham July 3, 2014.

Oregon Parks and Recreation Department. 2011. Oregon Statewide Outdoor Recreation Resource/Facility Bulletin Final Report. A Component of the 2013-2017 Oregon Statewide Comprehensive Outdoor Recreation Plan.

Notes:

(1) All data are for 2012 with the exception of the Coquille Indian Tribe and Cow Creek Band of Umpqua Tribe of Indians. For these two tribes the most recent available data in all categories are the from 2009 five-year estimates.
(2) The population that is 16 years or older and available to work.
(3) A measure of difference in the distribution of jobs by sector in the 5-mile radius compared to the distribution of jobs for the State. A higher number means a larger difference in distribution.

The American Community Survey data is derived from a sample of American households that contains a greater level of detailed socioeconomic data than the decennial census. Where available, we used American Community Survey data from 2012, which is informed by data collected over the prior 5 years and extrapolated for each community (for two tribes, data was only available from 2009). Since the American Community Survey uses data derived from a sample of the population, and is not a true count

of the population like the decennial census, margins of error are associated with the extrapolated data. These margins of error vary across the geography sampled; however, smaller populations generally experience larger margins of error when compared to more populated geographies.

Community Profiles

The BLM developed brief, introductory geographic and economic profiles of the selected communities to have some familiarity with the communities prior to the interviews. For the tribes, the section contains profiles only for those that opted to participate in the interviews.

Coquille

Coquille is the county seat of Coos County, and is located on Oregon Route 42 along the Coquille River approximately 20 miles downstream from the Pacific Ocean. Deriving its name from the Coquille Indian Tribe, the city's primary economic driver is the timber industry. Other economic activities include healthcare and tourism.
Area: 2.80 square miles. 2012 population: 3,874. http://cityofcoquille.org/

Drain

Drain is in Douglas County, approximately 20 miles south of Eugene on Oregon Routes 99 and 38 at a pass in the coast range created by Pass Creek, a tributary of the Umpqua River. Drain is named after town founder and politician Charles J. Drain. The North Douglas School District is one of the major employers in the city, which is home to both the combined elementary/middle school and the high school.
Area: 0.61 square miles. 2012 population: 1,142. http://www.drainoregon.org/

Florence

Florence is located in Lane County on the Oregon coast at the mouth of the Siuslaw River roughly due east of Eugene, is located along U.S. Highway 101. The Siuslaw Tribe of Native Americans formerly inhabited the Florence area. The city's traditional economy was based on timber and fishing, but both have declined, and the city now focuses on tourism. The Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians own the Three Rivers Casino located just east of the city.
Area: 5.87 square miles. 2012 population: 8,412. http://www.ci.florence.or.us/

Gold Beach

Gold Beach is the county seat of Curry County and is located on the Oregon coast approximately 50 miles north of the California border. The community was originally named Ellensburg in the 1850s, but later took the name Gold Beach after a beach near the mouth of the Rogue River where placer mines extracted gold. Gold Beach is a center for fishing, ocean charters, and outdoor recreation. The primary industries in the city are tourism and government.
Area: 2.76 square miles. Population 2012: 2,563. http://www.goldbeachoregon.gov/

Grants Pass

Grants Pass is the county seat of Josephine County and is located on Interstate 5, northwest of Medford. Incorporated in 1887, the city was named in honor of General Ulysses S. Grant. Attractions include the Rogue River and the nearby Oregon Caves National Monument. Once a timber-based community, the economy is currently a mix of light manufacturing, secondary wood products, retail trade, tourism, recreation, and service-based industries.
Area: 11.03 square miles. Population 2012: 34,454. https://www.grantspassoregon.gov/

Klamath Falls

Klamath Falls is the county seat of Klamath County, and is located on the southeast shore of the Upper Klamath Lake, about 25 miles north of California. Founded in 1867 under the name Linkville, the city

was renamed Klamath Falls in 1893. Logging was Klamath Falls' first major industry, while tourism and recreation have become current economic mainstays. The nearby Lava Beds National Monument and Crater Lake National Park are common tourist destinations.
Area: 20.66 square miles. Population 2012: 20,943. http://ci.klamath-falls.or.us/

Junction City

Junction City is located in Lane County on U.S. Route 99 west of the Willamette River, approximately 15 miles northwest of Eugene. Agricultural land surrounds the city, which has a strong manufacturing base including historic ties with the recreational vehicle industry. Incorporated in 1872, Junction City is also a gateway to Oregon wine country.
Area: 2.36 square miles. 2012 population: 5,445. http://www.junctioncityoregon.gov/

Lincoln City

Lincoln City is located in Lane County on the Oregon coast approximately 60 miles from Salem and 90 miles from Portland. Lincoln City incorporated in 1965, uniting the cities of Delake, Oceanlake and Taft, and the unincorporated communities of Cutler City and Nelscott. It is a beach and resort community; tourism is the city's primary industry. Lincoln City is also home to the Chinook Winds Casino operated by the Confederated Tribes of the Siletz.
Area: 5.68 square miles. Population 2012: 7,926. http://www.lincolncity.org/

Molalla

Molalla is located in Clackamas County, 30 miles southeast of Portland. The city was named after the Molalla River, which in turn was named for the Molalla, a Native American tribe that inhabited the area. Descendants of the Molalla tribe are members of the Confederated Tribes of Grand Ronde. Historically, lumber production was the community's biggest industry. In recent years, the city has diversified its economic base with manufacturing, commercial, tourism, and recreation, with Molalla as the gateway to the Molalla River Recreation Corridor.
Area: 2.26 square miles. Population 2012: 8,039. http://www.cityofmolalla.com/

Rogue River

Rogue River is located in the western edge of Jackson County along U.S. Route 5. Formerly known as Woodville the settlement changed to Rogue River. During the 1830s and 1840s, the area had become a stopover for trappers and traders traveling from Fort Vancouver on the Columbia River south to California along the Siskiyou Trail. Today's Interstate 5 traces the route of that trail. Rogue River was closely tied to the timber industry but is now seeing a shift to service and retail jobs.
Area: 0.97 square miles. Population 2012: 2,265. http://cityofrogueriver.org/

St. Helens

St. Helens is the county seat of Columbia County and is located about 30 miles north of Portland along the Oregon-Washington border. Bounded by the Columbia River to the east, St. Helens is named for its view of Mount St. Helens in Washington, approximately 40 miles away. The city has a strong focus on business development, especially in its Downtown Historic District and through its Main Street Program. St. Helens also offers a variety of tourism and recreation activities along the Columbia River.
Area: 5.51 square miles. Population 2012: 12,807. http://www.ci.st-helens.or.us/

Sublimity

Sublimity is located in Marion County, about 15 miles east of Salem on a plateau on the western foothills of the Oregon Cascades. The town incorporated in 1903. Sublimity was a center for the timber industry through the 1980s but is now a bedroom community for Salem.
Area: 0.93 square miles. Population 2012: 2,683. http://www.cityofsublimity.org/

Winston

Winston is located in Douglas County less than 10 miles south of Roseburg along the South Umpqua River. Although separated by the river, Winston is often regarded as part of a single entity with nearby Dillard and Willis Creek. Winston experienced significant growth when lumber mills began to open towards the middle of the twentieth century, and it remains timber-dependent today.
Area: 2.65 square miles. Population 2012: 5,352. http://www.winstoncity.org/

Confederated Tribes of the Grand Ronde Community of Oregon

The Confederated Tribes of the Grand Ronde's reservation and other owned lands cover approximately 10,700 acres in Yamhill and Polk Counties. The population on these lands is approximately 470 (2012 Census), but tribal membership across Western Oregon is 5,000 to 6,000.

The Tribes' vision is to be a tribal community providing responsible stewardship of human and natural resources http://www.grandronde.org/ikanum/index.html (6-27-14). The Tribes' sources of income include the Spirit Mountain Casino, timber sales from tribal lands, and tourism. The Grand Ronde is involved in community building functions such as housing, education, and health care.
http://www.grandronde.org/

Coquille Indian Tribe of Coos County, Oregon

The Coquille Indian Tribe's reservation and its tribal service area covers approximately 15,600 square miles of Coos, Curry, Douglas, and Lane counties, with its main tribal campus in Southeastern Coos County.

The Tribe is the second largest employer in Coos County, Oregon, with successful business ventures in forestry, arts and exhibits, gaming and hospitality, assisted living and memory care, high-speed telecommunications, and renewable energy. The Tribe also operates the Mill Resort & Casino in Coos Bay and manages the Coquille Forest, comprised of 14 separate parcels of formerly BLM-administered timberlands in eastern Coos County, totaling 5,410 acres. http://www.coquilletribe.org/

Environmental
Resources
Management

200 Harry S Truman Parkway
Annapolis, MD 21401
410 266 0006
410 266 8912 (fax)

June 18, 2014

To: City Officials, Selected Cities in Western Oregon

Re: Bureau of Land Management Resource Management Plans
Environmental Impact Statement for Western Oregon

This letter is a follow up to a recent telephone call between Environmental Resources Management (ERM) and an official from your City. As discussed during that call, Environmental Resources Management, an environmental consulting firm, is assisting the Bureau of Land Management (BLM) with the socio-economic component of its Resource Management Plans (RMPs) for Western Oregon planning process. This process will revise the six RMPs that currently guide the management of BLM-administered lands in western Oregon, and will address the many resources on BLM-owned lands such as forests, timber, wildlife habitat, minerals, recreation and roads.

As part of that process the BLM would like to improve its understanding of how its Resource Management Plans affect communities in Western Oregon. For purposes of this analysis, a community means a city or a federally recognized tribe. We are unable to analyze all 161 cities in Western Oregon, so we developed a sample of 13 cities to represent the broader set of communities. Your city is one of the 13 selected.

In reaching out to you, the specific question the BLM is seeking to explore is, *"How will the RMP alternatives affect the capacity and resiliency of different types of communities in the planning area?"* What the BLM learns will be used in helping select the final Resource Management Plan for each district[i].

ERM has begun to explore the question by gathering publicly available data and information about each community. However, to add depth, perspective and personal experience to our understanding, ERM, on behalf of the BLM would like to conduct an informal interview with representatives of each city (one interview per

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[i] For more information about the question and the methodology we are using to explore it, please see pages 140 -148 of the RMP Planning Criteria http://www.blm.gov/or/plans/rmpswesternoregon/files/rmp-criteria.pdf

city). There is no set time length for the interview. We anticipate it could last anywhere from 1 to 2 hours, or longer if necessary. The interview would be conducted by phone. If desired, ERM can set up a toll free conference call line so that participants could call in from different locations.

There will be no set agenda for the interview, but the types of questions we would like to explore during the interview include:

- How do you view your community's "capacity", that is your community's ability to face changes, respond to external and internal stresses, create and take advantage of opportunities, and meet its needs?
- How do you view your community's "resiliency", that is your community's ability to adapt to change over time?
- How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?
- Have changes in the BLM's resource management over time affected your community? In what ways?
- Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?

Each city would decide who it would like to invite to participate. There is no set number of participants, but we anticipate a small group of perhaps up to four or five. We would like to complete the interviews by mid- to late-July.

The BLM believes that your community's input will help ensure that the RMPs express management direction that is responsive to all affected communities, and ERM looks forward to your participation.

Please let us know who we may speak with to set up a convenient time for the interview. Please contact Jill Bellenger, who will be making the arrangements, at 410 266 0006 or via email at jill.bellenger@erm.com. If you have any questions please do not hesitate to call me at 410 266 0006 or at clive.graham@erm.com.

Thank you for your time and attention. We look forward to hearing from you.

Clive Graham

Clive Graham,
Principal

Environmental
Resources
Management

200 Harry S Truman Parkway
Annapolis, MD 21401
410 266 0006
410 266 8912 (fax)

June 16, 2014

To: Tribal Working Group of the Cooperating Agencies Advisory Group
Through: Heather Ulrich, Bureau of Land Management Tribal Liaison

Re: Bureau of Land Management Resource Management Plan
Environmental Impact Statement for Western Oregon

Environmental Resources Management, an environmental consulting firm, is assisting the Bureau of Land Management (BLM) with the socio-economic component of its Resource Management Plans (RMPs) for Western Oregon planning process. This process will revise the six RMPs that currently guide the management of BLM-administered lands in western Oregon, and will address the many resources on BLM-owned lands such as forests, timber, wildlife habitat, minerals, recreation and rare plants.

As part of that process the BLM would like to improve its understanding of how its Resource Management Plans affect communities in Western Oregon. The BLM would like to include the seven federally recognized tribes with interest and land in the planning area as affected communities.

In reaching out to you in this letter, the specific question the BLM is seeking to explore is, *"How will the RMP alternatives affect the capacity and resiliency of different types of communities in the planning area?"* What the BLM learns will be used in helping select the final Resource Management Plan for each district.

ERM has begun to explore the question by gathering publicly available data and information about each community, speaking with Heather Ulrich (BLM Tribal Liaison) and by reviewing background information such as the BLM's Report on Tribal Listening Sessions (November 2013). However, to add depth, perspective and personal experience to our understanding, ERM, on behalf of the BLM would like to conduct an informal interview with members of each community (one interview per tribe). There is no set time length for the interview. We anticipate it could last anywhere from 1 to 2 hours, or longer if necessary. The interview would be conducted by phone. If desired, ERM can set up a toll free conference call line so that participants could call in from different locations.

There will be no set agenda for the interview, but the types of questions we would like to explore during the interview include:

- How do you view your community's "capacity", that is your community's ability to face changes, respond to external and internal stresses, create and take advantage of opportunities, and meet its needs?
- How do you view your community's "resiliency", that is your community's ability to adapt to change over time?
- How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?
- Have changes in the BLM's resource management over time affected your community? In what ways?
- Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?

Each tribe would decide who it would like to invite to participate. There is no set number of participants, but we anticipated a small group of perhaps up to four or five per tribe. The analysis will not be limited to residents of tribal lands but can also include other tribal members. We would like to complete the interviews by mid-July.

ERM recognizes that, unless explicitly told otherwise, participants would not be speaking for the tribal leadership or for the tribe as a whole. In reporting the interview results we would be clear that participants were speaking as individuals and not as representatives of or on behalf of a larger group.

The BLM believes that your community's input will help ensure that the RMPs express management direction that is responsive to all affected communities, and ERM looks forward to your participation.

Please let us know who we may speak with to set up a convenient time for the interview. Please contact Jill Bellenger, who will be making the arrangements, at 410 266 0006 or via email at jill.bellenger@erm.com. If you have any questions please do not hesitate to call me at 410 266 0006 or at clive.graham@erm.com.

Thank you for your time and attention. We look forward to hearing from you.

Clive Graham

Clive Graham,
Principal

Interview Summaries

This appendix contains summaries of the interviews that the BLM conducted with communities in the planning area.

Please note that, while the interviewees participated as representatives of their city or Tribe, they spoke as individuals and not formally on behalf of the city elected officials or of the Tribal leaderships.

City of Coquille

Date: July 16, 2014

Participants:
Ben Marchant, City Manager; Coquille
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-309. City of Coquille interview.

Question	Discussion/ Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Coquille is challenged because its capacity is bound up with the economy of southwestern Oregon, which has been in malaise since the mid-1980s. Ben has been City Manager for two years and was hired in part to increase the city's capacity by, for example, diversifying the economy and attracting families with children to move to the city. His sense of the history is that the city's economic heyday was in the early1980s; there were three mills, car dealers, large retail stores. Now there is only one mill and many of the stores are gone – in that sense the city is depressed. For a while, the city was under development moratorium, but has since expanded its sewer treatment plant. The capacity data are somewhat inconsistent. The city lost population (approximately 8%) between 2000 and 2012. The population is older and there has been a decline in the 18 and under age cohort. Coquille had the third lowest assessed value per capita among the 13 cities surveyed. On the other hand, Ben said the tax base was healthy and household incomes are relatively high such that the city does not meet the criteria for State Community Development Block Grant funding because the city is above the 50% low- to moderate-income threshold for eligibility. Ben feels that the growing elderly and retiree population require expensive services from the city and that this has affected the schools budget (he commented that the physics program had been cut).

Question	Discussion/ Response
	The city's remaining mill is a major employer (between 1/3 to ½ of all jobs in the city). The other major employment sectors are government (Coquille is the county seat) and institutional - employment at the area's hospital. Although Coquille is 10 miles off U.S. 101 (the coast highway), it does attract visitors. The city offers a variety of options including summer festivals, theatre, and antiquing.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Ben feels that Coquille has a great sense of community with very strong volunteer programs and ability to raise funds for charity. This undercurrent of community is a testament to the city's capacity to weather economic challenges and work together to find solutions to problems. As timber production has declined, the community is somewhat divided between those who see the potential for a timber-based economy to come back, and others who think that timber is not coming back and that the city needs to adapt to the "new normal." The latter group sees some hope in the proposed Jordan Cove Energy Project in Coos Bay to export liquefied natural gas. Ben feels that Oregon's citizen-driven tax cap initiatives (Measure 5 and Measure 50) limit government revenues and, as a result cities' capacity to provide services. For example, Ben said that important services like the ambulance program were operating in the red. Coquille needs to become less dependent on property tax revenues. Ben said that Curry County was in the worst financial condition, with Coos, Josephine, and Douglas close behind. The city's one timber mill is sustained by logging on private land. The City of Coquille owns approximately 800 acres of forestland on two parcels in separate locations east and west of the city. The city plans a timber sale on part of this land. All cities in Coos County are members of watershed associations to sustain and improve water quality. The associations focus on habitat restoration, preventing silt and runoff, and best practices around the watershed. Ben sees a sociopolitical divide between rural and urban areas in Western Oregon; the urban areas progressing economically and the rural areas much less. This could impact the resiliency of cities like Coquille in the future.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Ben said that the BLM's management has a great effect on the community. Coquille, like many cities in Western Oregon, sees restoring the O&C lands to local management or to be managed for the benefit of local communities as a major issue, because they see the effects of millions of dollars of potential income that are lost every year. Local management would benefit communities by helping to offset the property

Question	Discussion/ Response
	tax revenue caps.
Have changes in the BLM's resource management over time affected your community? In what ways?	Ben said he had seen harvest studies from the 1930s that would have allowed for 10% of the forest to be harvested at a sustainable rate. In his view, the steep decline in harvest since the 1990s has resulted in forests that are overgrown, begging questions about how to manage this enormous resource.
Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Ben feels that there has been a transition within the BLM from a pragmatic management approach to a more "idealistic" (let the forest be) mindset. He sees this as flawed and somewhat inconsistent, for example, managed hunts for some species and protections for others. Ben said that if the BLM opened up more timberland for harvest it would have positive direct and spillover effects on the local economy. BLM has very few trails and campgrounds near Coquille – Ben felt there are more in the eastern part of the planning area. Ben feels that Coquille residents would benefit from the availability of more access into the forest. It could also be another attractor for tourists. The Coquille River provides opportunities for recreational fishing.

City of Gold Beach

Date: July 10, 2014

Participants:
Jodi Fritts-Matthey, City Administrator; City of Gold Beach
Will Newdall, Public Works Superintendent; City of Gold Beach
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-310. City of Gold Beach interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Gold Beach is a small city with limited capacity. Its population is approximately 2,500 and it is located in Curry County, which has the smallest population among Western Oregon counties – 22,300. Gold Beach is the County seat, which provides some stability but, overall, there are only approximately 1,400 jobs in a 5-mile radius of the city. According to the Census, the city added approximately 660 people between 2000 and 2012. Jodi Fritts (Jodi) stated that Gold Beach used to be totally timber dependent. In the mid-1980s, the city

Question	Discussion/Response
	experienced a major economic setback when its only timber mill burned down and was not rebuilt. The mill had provided jobs for many residents, and its loss left a significant "economic hole that has not been filled." There are no longer means to process timber in Gold Beach, and the closest mill is in Brookings, OR, roughly 30 miles away. Jodi said that during the recession of the mid to late 2000s, the public sector took a huge employment hit in the city and in the County, especially considering their relatively low populations. She said that Gold Beach "lost hundreds of federal, state, local and school district jobs." These job losses have resulted in a severely stressed level of economic capacity. The Census data state an unemployment rate of 5% for the city, but Jodi believes this is low. Data from the Bureau of Labor Statistics (June 2013- May 2014) indicate Curry County's unemployment rate is between 10.0 and 11.9%, putting the County's rate above the State's (7%). Currently, the city's major economic drivers are tourism and government. Tourism is based on the beaches, hiking, horseback riding, and boating and rafting.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Gold Beach has struggled to adapt from its former timber-reliant economy. Jodi says that the city's basket essentially had only one egg (the timber egg) and that tourism jobs have not been equivalent replacements. She added that the city has not recovered from the job losses during the recession; to her, it was, and remains a "depression." (Jodi cited the Grapes of Wrath in describing the recession's impacts). Jodi states that the city is trying to grow its tourism economy. But, it is not easy for a small, relatively isolated place with limited options and opportunities. Growing tourism has been a "tough sell" among some residents who hold on to the possibility of a return to a better economy through logging. In short, the city's resiliency is extremely low.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	The BLM only owns a small portion of land in the upper portion of Gold Beach at the Rogue River National Recreation Trail. As such, the BLM's management has no effects on the city. The U.S. Forest Service has much larger land holdings, approximately 70% of the land; but, to Jodi's knowledge, there have been no timber sales in recent years from Forest Service land. Some city residents look back fondly at the older timber-dependent economy. But, in Jodi's view, any effort by the BLM to contribute to the city's capacity is 30 years late. The BLM has some land near Cape Blanco State Park (Cape Blanco lighthouse), which is managed by the Oregon Parks and Recreation Department, but this is some 30 miles north of Gold Beach.
Have changes in the BLM's resource	Any small role the BLM had when the city's mill was operating has now gone.

Question	Discussion/Response
management over time affected your community? In what ways?	The city is responsible for providing nearly all services within the city. The city does not benefit directly from timber payments to counties. The only services the county provides in the city are the jail and maintaining county roads in the city (approximately 15% of the roads). The jail is important because if it exceeds capacity inmates are released into Gold Beach.
Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	If BLM's management could result in increased payments to Curry County then pressure on the County's budget would decrease and make it more likely that county services in the city are maintained.

City of Drain

Date: July 25, 2014

Participants:
Suzanne Anderson, Mayor; City of Drain
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Mayor Anderson provided written responses to the questions. These are provided verbatim, followed by input from the personal interview.

Table O-311. City of Drain interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	*Written response* In times of sustainable economic growth, our community has the ability to take advantage of opportunities to create new jobs, businesses and focus on increasing the overall health and prosperity of our community. Also, we can focus on infrastructure improvements, including streets and utilities (electric, water, sewer & communications). *Interview* Mayor Anderson (Suzanne) said she had lived in Douglas County all her life. She said that unemployment in Drain was around 40% versus the 10% figure cited in the data from the Census. She said the logging population had fallen drastically, due to lack of demand and mechanization of the logging industry.

Question	Discussion/Response
	Drain is down to only one working mill, Emerald Forest Products, which trucks veneer in to be dried, and then ships the dried veneer back to other plants to make plywood. Drain's population is not growing and enrollment at the city's combined elementary/middle school and high school has declined from about 500 to 345. Nevertheless, the school district remains one of the largest employers.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	*Written response* DIFFICULT! Significant changes (governmental policies, recession, etc.) resulting in job loss and less income flows significantly affects our ability to maintain community stability. When these changes occur the overall socio-economic health of our community declines and it is very difficult to adapt to changes without corresponding changes in governmental policies that create opportunities for socio-economic growth. *Interview* It is difficult for a small city to actively "adapt." The city did however have a recent success – as much by chance as by effort. Malcolm Drilling, a specialty-drilling contractor in the deep foundation industry, purchased Drain's former North Douglas Wood Products facility in 2013, and is now one of the city's major employers. Local colleges are gearing more programs to help former loggers find the assistance they need to start new careers, though the older generation loggers are finding it difficult to transfer their skills into new trades or professions. Mayor Anderson has seen the city of Drain struggle as mills closed and Douglas County lost funding from timber receipts. The city is unable to fund a police force and therefore contracts with the County's deputies to fill this need. The countywide library system has also suffered, and lacks funding to upgrade computers and other services. Other services the county provides that affect the city are the jail, health and social services, and juvenile services.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	*Written response* It has a direct effect on our community. BLM's statutory authority for managing resources on O&C and Coos Bay Wagon Road (CBWR) lands is the O&C Act of 1937. This law dedicates the O&C and CBWR lands to permanent timber production through long-term sustained forestry to help support local communities and O&C county governments with revenues from the sale of timber and by supplying timber to local industries for the purpose of creating jobs and income. BLM's management direction must,

Question	Discussion/Response
	therefore, give the highest priority to achieving those results. Planning decisions for the management of these lands must be designed to: (1) create jobs and income flow within the O&C Counties; (2) create opportunities for growth in the timber and related industries; (3) provide a sustainable source of revenues to O&C Counties based on the principles of sustained yield timber production; (4) increased tax revenue to the State of Oregon; and (5) contribute to the stability of communities in Western Oregon. Fifty percent of the receipts from the sale of timber from the O&C lands are distributed to the 18 O&C Counties in which the lands are located. That 50% is distributed to the Counties according to their proportion of the total assessed value of the lands and timber that existed in each of the Counties in 1915. These percentages range from 0.36% to 25.05% for the 18 Counties. It does not matter in which Counties the timber is harvested. All Counties get their assigned percentages of whatever receipts are available each year. In Douglas County we receive about 25%. The receipts are available to O&C Counties without restriction to be used for essential services, including especially public safety programs such as sheriff's patrols and corrections, as well as health and social services, libraries and programs for juveniles and seniors. These services have both a direct and indirect effect on residents of my community. *Interview* Suzanne said that historically Douglas County has been one of the highest recipients of payments to counties, making it more dependent and more vulnerable. Suzanne said the city did not benefit from the BLM's recreational resources.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Major changes in forest policies occurred in 1995 and continue today that significantly reduced BLM's ability to manage the O&C and CBWR lands for permanent timber production through sustained yield forestry. Significant negative socio-economic impacts have occurred in the form of job loss and increased unemployment; reduced income flow; business closure and/or reduction in operations; and reduced County and community services. In addition, significant increases have occurred in crime activities, mental health and drug addiction issues, and other social impacts that have affected the quality of life for residents living within communities. The healthy functioning of O&C County governments and communities they serve depends in substantial part on the BLM's compliance with the O&C Act. Changes in the way BLM manages O&C forests to comply with its mandatory O&C statutory authority must be addressed in a land use planning revision for O&C and CBWR lands. Simply stated, BLM plan revisions must significantly identify the availability of

Question	Discussion/Response
	more forestlands for timber production that can be sold, cut and removed on a sustained yield basis. This in turn will create sustainable economic growth in communities by taking advantage of opportunities to create more jobs and increase income flows; develop new businesses and revive old ones, and increase the overall health and prosperity of communities. If, on the other hand, BLM chooses to maintain the status quo or further reduce the availability of timber that can be sold and harvested on a sustained yield basis, communities will continue to decline from a socio-economic perspective. Without major changes in the way BLM manages these lands, some O&C Counties will become incapable of providing essential County services and, therefore, cause communities residing within the O&C Counties to continue to suffer and decline, which we have already recently experienced. *Interview* Drain currently only has logging rights on private lands, and the Mayor feels that the area could significantly benefit from gaining access to logging on federal lands. There have been clashes between cities and environmentalists, making it difficult for the cities to move forward in a way that could be mutually beneficial. Cities are required to agree to numerous environmental regulations, which the Mayor feels that Drain goes above and beyond these regulations and is still experiencing push back from environmentalist groups. The Mayor points out that the BLM should have a leadership role in these timber disputes and considers all possibilities and outcomes.

City of Florence

Date: July 31, 2014

Participants:
Larry Patterson, City Manager Pro Tem; City of Florence
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-312. City of Florence interview.

Question	Discussion/Response
How do you view your community's "capacity," that is	Larry Patterson (Larry) moved to the state of Oregon in 1986 and served in city administration in Bend and Oregon City, retiring in 2010. Larry recently joined the City of Florence as an interim City

Question	Discussion/Response
your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Manager. Florence is a coastal resort town with a large elderly population. Recreational tourism is important to the city, with the coast, golf, fishing, and a casino as major draws. Larry sees Florence's capacity being challenged, as the city experiences a weak overall economy and more and more costs forced upon it because of declining intergovernmental fund transfers. The city had about a 16% population increase between 2000 and 2012. The city's 65 years and older population (37%) is more than triple the share for the state of Oregon. Larry sees this high retiree population as posing some limits to contributing to the city's capacity– indeed the city's median household income is $35,000, at the lower end of the cities that were interviewed. Larry pointed out retirees with higher incomes (like in Bend, OR) have a greater positive fiscal impact for a city. The city's hospital and ambulance services are important to the large elderly population, and in tandem with these services is the higher demand for public transportation. The city ambulance service is provided by a private company, and supplemented with first responder service from the fire department. The Three Rivers Casino, owned and operated by the Siuslaw tribe of Native Americans, is located just east of the city. Larry feels that spillover spending in the city by casino guests is small though he thinks there are opportunities for stronger, mutually beneficial connections between the city and the casino. For example, he thinks both could benefit from more hotel rooms.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	The city's traditional economy was based on timber and fishing. Both have declined. Florence had an icehouse but it was moved down the coast to Coos Bay (to a more direct location), and the city lost the jobs and associated business activity. The city has sought to adapt to changing circumstances by focusing on tourism but tourism does not provide the stability of the traditional industries. Tourism in Florence is very seasonal and though tourism provides a continuum of jobs, many are lower paying jobs. Florence's main draw is its location on the Oregon Coast, but it has limited accessibility. It is on the Oregon Coast Hwy (US Highway 101) but is not close to I-5. Larry feels that the city needs a vision and plan to grow its tourism industry. The city needs more hotel capacity and development of the "shoulder" seasons (extending the visitor season later into the Fall and Winter when the weather from time to time can be very pleasant).

Question	Discussion/Response
	Florence has far less resiliency compared to larger cities; larger cities can recover more quickly from adversity. There is a budget proposal for a local gas tax increase in Florence in an effort to increase revenue for street improvements. Larry feels that, like all money measures, passage of such a measure will always be a challenge. A five-year moratorium imposed by the State legislature was recently lifted, meaning local governments are now able to seek voter approval for such gas tax increases.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Larry sees the direct day to day impact from the BLM as small. He did point out that the BLM administers property with sand dunes on the north side of town. The BLM's lack of maintenance has meant that the city has had to take responsibility for removing sand. Sand removal affects roads and also affects local business such as Fred Meyer and the Sandpines Golf Links. In the bigger picture he thinks that the BLM's management affects the counties, and, in turn, the cities. As timber receipts have declined, jobs have been lost and discretionary funds for cities, streets, social services watershed enhancements along with other services have been cut. Larry sees the cost of fighting forest fires are a significant issue for Western Oregon. The costs are huge (one fire he cited cost $70 million) impacting state budgets and subsequently impacting Counties and cities as resources are directed away from other priorities. These cuts affect the entire state and therefore affect cities like Florence.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Larry does not have answers to how to manage the forest. However, he feels strongly that a healthy forest industry is needed. The healthier the forest is the greater its ability to bring about positive economic effects on communities. An increase in the timber yield would benefit the local communities like Florence as well as the counties.

City of Grants Pass

Date: July 30, 2014

Participants:

Simon Hare, County Commissioner; Josephine County
Aaron Cubic, City Administrator: City of Grants Pass
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-313. City of Grants Pass interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Aaron Cubic (Aaron) has been with the city for two years having previously served in Roseburg. Commissioner Hare (Simon) is a south Oregon native. He lived elsewhere for around 10 years, including a stint with the federal government in Washington DC. He returned to Oregon and been a Josephine County Commissioner since 2011. Aaron said that Grants Pass overall is doing relatively well based on several measures of capacity (such as population growth, employment diversity, per capita assessed property value). The city ranks high for livability. The city had a 50% population increase between 2000 and 2012. However, the poverty rate in 2012 was 21%. Aaron said the city has been striving to retain existing businesses and maintain a viable workforce, as it has navigated a shift from a timber and natural resource-based economy to a more diversified economy. He said that tourism and healthcare were important sectors of the local economy. The government sector is also important since Grants Pass is the county seat. Aaron praised the community college for doing a great job of matching people with the skills they need to find work, especially former timber employees. Simon added that he feels the city is at a "tipping" point with respect to responding to the impacts and effects of the management of forest resources. As an example he recounted that the last sawmill in Josephine County (Rough and Ready) had to close in 2012 for lack of inventory. It had been in the county for 92 years and had provided 85 jobs, historically as high as 225. Fortunately, it is expected to reopen with approximately 70 jobs in the near future. State funds have helped the mill with retooling. Recreation is important to the city and the county. The Rogue River is a particularly important resource.

Question	Discussion/Response
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Grants Pass benefits from its relative size and capacity, but the city is highly dependent on the county. Simon said the city and county were "tied at the hip." Aaron feels that as the rural area has struggled economically due to the decline in the timber industry, the city has felt these effects both directly in strain on city services (public safety and social services) and indirectly due to reduced county funding. As the county struggles to fund programs, the effects are felt by the city which lacks the resources to make up shortfalls. Ballot measures that would increase tax levies had majority support in the city, but failed overall due to insufficient support in the rural areas. Josephine County administers services that are important to the city including juvenile services, the jail, the court system and district attorneys, and public health. Aaron says the city has been hit harder than other areas with the reduction of Secure Rural Schools (SRS) funding because of the decline in county resources that are now passed down from the county.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Aaron and Simon said that the ways the BLM manages its timber resources directly affect the city. The BLM administers approximately 300,000 acres land in Josephine County, close to 30% of the county land area. This includes one of the largest contiguous O&C land areas in Western Oregon along the Rogue River in the northwest part of the County. If more federal land were opened up for logging the timber industry would benefit and result in more timber-related jobs with direct beneficial impacts to the city, especially to former timber workers who are struggling to transition to new employment. Simon said that when there was more logging on federal lands Josephine county was receiving $10 to $12 million annually in shared timber receipts, whereas payments under the SRS are currently approximately $5 million. Of these monies, a good deal is spent on roads. Simon said the county spent $1.5 million helping to maintain roads needed to access federal lands. Fire is a huge concern for Grants Pass. Large fires in 2013 (such as the 54,000-acre Douglas Complex and Big Windy) effectively shut down the city causing economic losses, heat, human health effects, and negative reputational impacts. Reportedly, the Rogue River rafting companies lost $100,000 per day when they were unable to operate. Simon estimated that 25% of the fires in Oregon are in the BLM's Medford District.
Have changes in the BLM's resource management over time affected your community? In	Simon acknowledges that there are no simple answers to the forestland management questions. He served on Governor Kitzhaber's O&C lands task force and has some familiarity with the issues. He thinks that the management is unbalanced; 300% of the Northwest Forest Plan's conservation goals were being achieved, but

Question	Discussion/Response
what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	only 8% of the timber industry's goals. He is looking to the new round of RMP's for more balance. In Simon's view if plans are written solely from the perspective of ecology they will not be effective; ecological set-asides with no management will lead to more fires. He is interested in water quality, but not just for its own sake; the Rogue River, for example, supports a $15 million economy based on fishing (salmon, steelhead) and other recreation (Josephine County Parks Dept. Study). Simon reiterated his feeling that Grants Pass/Josephine County are at a tipping point with respect to their resiliency. Absent change, the communities' inability to deliver services will create a failed situation that will affect their reputation and send them into an economic spiral they will have great difficulty recovering from. The county's tax rate (58 cents per $1,000 of assessed value) is the lowest in the state of Oregon. O&C Payments as proportion of the county budget is 13% (only in Douglas County is the share higher). Simon acknowledged that the property tax rate is low but added that this low number should not be taken out of context because other taxes and fees make up the total tax burden. There is strong community support for putting more forestland back into production and for clearing the dead/dying timber. Simon serves on the Interagency Salvage Committee. What, he asks, are they going to do with the 75,000 acres that burnt in the fire? He finds it very frustrating that a new plan has to be prepared after each fire. There should be an overall plan that is mutually agreed upon under which actions can be taken without unnecessary "reinventing the wheel." Simon feels that in the past when there were more people (including loggers) in the forest and the roads were more actively managed, these people in a sense were the first responders and were able to provide faster response times to emergencies. Now he sees fires escalating more rapidly as first responders are faced with overgrowth and blocked access roads.

City of Klamath Falls

Date: July 23, 2014

Participants:
Nathan Cherpeski, City Manager; City of Klamath Falls
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-314. City of Klamath Falls interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Nathan feels that Klamath Falls is challenged in terms of capacity. Traditionally the city was a natural resource-heavy, resource dependent community, with lots of lumber mills. Workers were able to get decent, well-paying jobs without having, necessarily, a high level of education. With the decline in the timber industry much of the supporting timber infrastructure has disappeared and the city has struggled. Today the census data indicate the challenges: poverty rate of 24% (compared to 15% for Oregon); high number of lower paying jobs, relatively low rate of homeownership (42%), only 8% of jobs in manufacturing, unemployment rate of 10 to 12% (Bureau of Labor Statistics Klamath county data for June 2013- May 2014). Nathan cites as factors the loss of resource-based jobs and an influx of lower income retirees. While the population of the city is approximately 21,000, the area population is around 40,000. The city is surrounded by forest and recreation land. The city is the closest community to Crater Lake National Park, making it a destination. Klamath County has the highest per capita amount of outdoor recreation land (34,300 acres) compared to the other counties in the capacity/resiliency assessment. Tourism is important to the economy, but jobs in the tourism sector do not pay as well as those in manufacturing. The city's interior location off the interstate highway grid makes it hard to attract new industries. The city's largest job sectors are Health Care and Social Assistance, Education, and Retail. Oregon Institute of Technology, the only public institute of technology in the Northwest U.S. is a strong city asset.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Nathan says that the city is still a timber town at heart – the wild west. Opinions vary; some residents look back fondly at the older timber-dependent economy and yearn for a return. Others see the need to forge a new path. Nathan points out that the city is seeking to adapt from its former timber-reliant economy to a more diversified economy, but the challenges make this difficult. In that sense the city has not turned around. He feels that some of the city's adaptation efforts have been stymied by an environmental interests/interest groups who are not from the area and do not have to live with the consequences of failed economic initiatives. Nathan gave as an example, a private developers interests/efforts to develop a ski resort (following the example of Bend) – which failed due to red tape and environmental concerns. Nathan questions whether the city is being given the tools (or conversely is being denied the tools) to be resilient and allow it to adapt. The types of jobs that are interested in coming to the city are lower paying jobs such as call centers. Nathan spoke about the significant loss that the community felt about the Jeld-Wen's decision to move its corporate, global headquarters from Klamath Falls to Charlotte, North Carolina. Jen-Weld, windows and doors

Question	Discussion/Response
	manufacturer, was Oregon's largest private company. As a result, manufacturing jobs remained while corporate executive jobs were lost. As another example, Nathan cited Collins, a wood products company, where employment at its Klamath plant was once as high as1,200 but has fallen to 300. Industry consolidations have left the city with old mill redevelopment sites.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	While Nathan did not single out the BLM, he felt that its decisions are part of a larger decision-making environment that has resulted in the city's loss of capacity. The rules and regulations, which are formulated in metropolitan areas, have hurt and continue to hurt small rural cities. The overall result is pressure on the city's resources and strain on the social safety network. The BLM and the U.S. Forest Service manage some of the access roads around Klamath Falls that connect residents and tourists with forestlands and natural areas. There is strong support among residents for more access to public lands (off-road vehicles) to allow the public to use the resources. BLM's management of other resources such as minerals have a minimal effect on Klamath Falls.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Nathan believes the supply should be increased – allowing a "reasonable" amount of logging. His view is that as the timber harvest continues to decline, trees tend to be smaller and grow closer together, dying in the forest as opposed to being harvested. This results in unhealthy forest land which is prime tinder for forest fires, which the area experiences on an annual basis. Nathan cited the Moccasin Hill Fire as a recent July 2014) example. Nathan sees the importance for the BLM to manage the city's public lands for more than only recreation and to provide more resource products. These changes would positively impact Klamath Falls and increase its capacity and resiliency

City of Junction City

Date: August 14, 2014

Participants:
Jason Knope, Public Works Director; City of Junction City

Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-315. Junction City interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Jason Knope (Jason) is a lifelong Oregonian. He thinks that Junction city's capacity is fairly high which he attributes in part to strong community engagement that has broadened the city's ability to meet its needs and face change. Junction City is located approximately 15 miles northwest of Eugene and is surrounded by agricultural land in the Willamette River valley. The city benefits from its proximity to both rural and urban environments and opportunities. The city had a 15% population increase between 2000 and 2012. The city has a strong manufacturing economic sector comprising approximately 3,000 jobs, 25% of the jobs in a five mile radius (the largest in number of any of the cities in the sample – and Jason thinks the number may be closer to 35%). Historically this was due in part to the city housing the Country Coach Recreational Vehicle manufacturing plant. At its height, the company had between 500 and 600 employees. It went bankrupt in November 2009, but has recently reopened under the same name, though now with approximately 100 employees focusing on refurbishing and modernizing RV interiors. Jason said that the economy in Junction City is fairly diverse, though it has little today in the way of timber-related industries. He estimates that about 5% of the city's workforce is directly related to the timber industry, or indirectly in a support capacity. Jason added that some of the city's labor force work in Eugene. There is a small tourism and visitation economic component, Junction City being in Oregon wine country – the city is gateway to the Long Tom agri-tourism trail.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	The city's traditional economy was based on timber and farming, but as noted above is now quite diverse. Jason feels the city has done a good job in diversifying after the decline of the timber industry. He attributes this in part to geography and locational opportunities (the city is located on Oregon Route 99 truck route) but also, in his opinion, to unusually strong community engagement and involvement that has led to development of a strong community vision. For example, Jason points out that the city currently has three different committees dealing with community development, looking at the potential ripple effects of different community development options in different locations in relation to the vision for the city's future. These committees engage in "what ifs" – helping the city decide its investment and development policy. Agriculture in the area has also changed. Agriculture has always been an integral part of Junction City's

Question	Discussion/Response
	economic landscape, but Jason explains that there has been a shift from the traditional grass, hay and seed crops to organic crops; wheat and barley, and to biofuels. He estimates this sector now makes up between 40% and 50% of agricultural production. Jason believes the city learnt lessons through its experience with Country Coach, primarily to push to broaden its horizons. It expanded its Urban Growth Boundary, examined its fees and rates schedules to ensure the city was attractive to development, invested in infrastructure, engaged the community, explored development scenarios, and looked for opportunities to diversify. This included a prison, which did not move forward, and a new psychiatric hospital, part of the Oregon State Hospital system, which is scheduled to open in 2015.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Jason feels the direct day-to-day impact from the BLM on Junction City is relatively small. The city has moved on compared to 10 to15 years ago when it was more timber-dependent. He thinks there are two or three lumber mills outside town, inside the Urban Growth Boundary - Seneca Sawmill, Lane Forest Products, and Weyerhaeuser - and perhaps one mill in town, a processing packing business that relocated from Eugene. However, as noted above, overall employment in timber industries is small. In the bigger picture, he thinks that the BLM's management affects the counties, and, in turn, the cities. Specifically, as timber receipts have declined, discretionary funds have been cut. Jason explains that until 2008 Junction City was receiving between $60,000 and $65,000 a year in timber receipts funds from Lane County for the city's street fund. This was the second largest source of funding after gas tax receipts (approximately $300,000). The city no longer receives these monies which is regrettable as the city was using them for pedestrian-related projects.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Jason believes that an increase in timber production would have a positive effect on Junction City. Over time, the timber-related industries have shrunk to some degree, though he notes that they have not gone away entirely. More timber opportunities would certainly provide the community with more options and he sees a more reliable timber resource as a benefit to the area overall.

City of Lincoln City

Date: July 11, 2014

Participants:
David Hawker, City Manager; Lincoln City
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-316. Lincoln City interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Lincoln City has an interesting capacity mix. The assessed value of property in the city is high but residents' incomes are low. This is due to the nature of the city as a vacation and second home destination on the Oregon Coast. Roughly a third of the housing stock in the city is second homes, owned mostly by residents of Portland and Salem. It is the premiere beach town destination within driving distance of these larger municipalities. Lincoln City serves a variety of residential and visitor markets. The city has a large number of short-term rental units (hotel, motel vacation rental dwellings); about 4,000. This helps make it a fairly inexpensive place to visit. A variety of well-priced long-term rentals are also available. With its low cost of living, it also attracts retirees. This variety provides a high flux of visitors and seasonal residents over the course of the year, and the city accommodates and benefits from this variety. The city is home to a retail outlets mall and the Chinook Winds Casino, operated by the Confederated Tribes of the Siletz. Low resident incomes are due to the concentration of employment in retail, accommodation, and food service jobs. This includes seasonal employment. David feels that Lincoln City has high capacity because its economic diversity makes is less sensitive to economic ups and downs. Low resident income is a concern but is offset to some degree by the property tax base and visitor spending.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Resiliency was to some extent thrust on the city. During the 1960s, partially as a result of the Clean Water Act, three cities and three unincorporated areas became incorporated as the City of Lincoln City. This created rational, consolidated boundaries for efficient delivery of city services.
How do the ways the BLM manages its resources affect	The BLM has very little direct effect on the city. Approximately 60% of Lincoln City's watershed is in federal ownership, but the BLM owns very little compared to the USFS. Water quality could be a major concern, but

Question	Discussion/Response
your community (its capacity and resiliency)?	the decline in logging since the 1990s on all federal lands has meant that potentially impactful logging practices have not occurred.
Have changes in the BLM's resource management over time affected your community? In what ways?	Recreation is a major component of federal land management in the area. What drives tourism in Lincoln City is the beach but, increasingly, opportunities to experience the spectacular landscape and natural areas by hiking, trails, and scenic viewing, hunting and fishing. For example, the U.S. Forest Service maintains the Cascade Head National Scenic Research Area in the Siuslaw National Forest, which has congressional legislative limits for activities. While logging on private lands occurs, David was not aware of federal timber sales.
Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Whatever the BLM can do to maintain and increase access to this landscape for recreation would benefit Lincoln City. David speculated that if land swaps between the BLM and the USFS could be affected, this could provide opportunities for better management. The city does not benefit directly from timber payments to counties. David thought that payments to Lincoln County were earmarked for social services, so increases in payments could have an indirect beneficial effect on city residents.

City of Molalla

The City of Molalla was unavailable for an interview. However, Molalla City Manager, Dan Huff, provided written responses to the questions. These are provided verbatim below, followed by some additional observations by ERM.

Table O-317. City of Molalla interview.

Question	Discussion/ Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	*Dan Huff written response* Today, Molalla is in a fairly strong position to react to change and respond to opportunities. Molalla never really grew up when the mills closed in the 1980s due to a large influx of residents that were commuting to Portland and Salem area employment. Because of that change, the city did not have to face that changing economy until the late 2007 – 2012. Today our capacity and infrastructure is managed for growth and expansion, capitalizing on the recreation and agriculture in the region. *Additional observations* The city benefits from its proximity to both Portland and Salem, which are about 30 and 40 miles away,

Question	Discussion/ Response
	respectively. Molalla has experienced a significant population increase (42%) between 2000 and 2012. At just over 8,000 residents, the city has a relatively low percentage of its population below the poverty level (11%) compared to the State percentage (15%). Molalla is the gateway to the Molalla River Recreation Corridor, attracting visitors year-round for sightseeing, fishing, hunting, water sports, camping, mountain biking and horseback riding.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	*Written response* Molalla is a tough town and people choose to live here today. The economic and fiscal storms have not changed the longtime resident's belief in their community as a great place to live or come home to. Molalla has adapted and accepted that part of its role is as a commuter city but with a vibrant past that is connected to timber.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	*Written response* BLM's management of resources in the Molalla River corridor have not impacted the recreation component of this area recently. We do have some timber related jobs but there is not much timber-related activity in town today. Four in-town mills have closed since the mid-eighties and periphery businesses like saw shops, and equipment dealers go with the mills. There are two mills north of town, and the former in-town mills are redevelopment sites today. The old sites are now being looked at for redevelopment - one redevelopment area at the south end of town is now a bark and chip mobile unit.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	*Written response* Resource management has removed the historic job market from the area. However, Molalla continues to pursue other opportunities as a bedroom community to Salem and Portland. Because the farm or mill to market transportation corridors are not as high volume with trucks highway maintenance dollars have decreased in the area over the years at the State level. At this point probably not. Other than promotion of recreation, I am not sure how resource management would greatly impact the community today.

City of Rogue River

Date: July 22, 2014

Participants:
Pam VanArsdale, Mayor; City of Rogue River
Mark Reagles, City Administrator: City of Rogue River
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-318. City of Rogue River interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Mark has been with city for 20 years. He is a 4th generation Oregonian. Both he and his father worked in the timber industry and lost their jobs (Roseburg Lumber). He said that the City of Rogue River's capacity is closely tied to the timber industry. As the fortunes of the timber industry have ebbed and flowed, so have the city's fortunes – wreaking havoc with its economy and capacity. Before the 1970s, Rogue River had more than one mill. The city's one remaining mill (owned by Medford Corp) burned to the ground in 1990. It was rebuilt then sold, and resold, closing for long periods during transitions. The mill, located by I-5, is now owned by Murphy Plywood. It employs approximately 150 people – and is the largest employer, and taxpayer in the city. Murphy plans to add another shift, which could increase the number of jobs to about 250. Mark pointed out that timber-related employment is more widespread including truck drivers, loggers, construction workers, and machinists. The Rogue River School District is the second largest employer. The city lost over 400 residents (18%) between 2000 and 2012 and has an 18% poverty rate. Mark said that the city has seen an increase in retirement-aged residents and a decline in the school-aged population, to the point where one of the city's four schools had to close. In the late 1980s and 1990s retirees were coming from California; people interested in enjoying Oregon's great quality of life. Mayor VanArsdale (Pam) said that the city has seen a shift to service and retail jobs, but these jobs tend to be low wage compared to the higher, family-supporting wage jobs in the timber industry. Recreational tourism is a small portion of the city's economy. While the Rogue River is well known for rafting, that activity takes place upstream of the city. In 2009, the Savage Rapids (irrigation) Dam between Grants Pass and Rogue River was removed. While this benefitted fishes and fishing in the Rogue River, the city lost the lake behind the dam which was used for boating. The city considered it a loss –the city gets little economic

Question	Discussion/Response
	benefit from fishing.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Rogue River has struggled to adapt from a timber-reliant economy to a more diversified economy. The lack of diversity makes the city less resilient. Mark pointed out that because the city is small the ebbs and flows in timber-related employment have major direct and ripple impacts on the community. Rogue River cannot compete with the larger cities. For example, he noted that during the 2007 – 2009 recession, the mill's assessed value fell from $13 million to $3 million – with severe effects on city tax revenues. The city's loss of population is an indication of the city's resiliency challenges.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Mark feels that the way the BLM manages its timber resources directly affects the City. If more federal land were opened up for logging the timber industry would benefit and result in more timber-related jobs with direct beneficial impacts to the City. With a stronger timber industry, more stable jobs could be offered and more people would set up roots in the community. This would result in more school-aged children being added to the school system, creating the need for hiring more education jobs. In places where the BLM has cut roads into the forestlands and properly managed these roads, it is easier for emergency vehicles to access particularly in the case of a forest fire. The BLM management of recreation resources has limited effects on the City. However, Mark did note that the BLM is working with a local group to open up an area for mountain biking approximately two miles from the City on the Rogue River Greenway, a 30-mile partially complete greenway between the Cities of Grants Pass and Central Point.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	In Mark's and the Mayor's view, the BLM should actively "manage" its lands and "use" the resource. Enough land has been preserved and timber should be cut which would have multiple benefits: economic (as described above); help manage the risk of fire, and, as a side benefit open up areas for hunting – for food and for recreation. Mark said he is a hunter and hunts on private and public land – he finds the hunting is better on private lands that are managed. Mayor VanArsdale felt that the forestland can be managed to meet both the environmental interests and economic interests, which will make for a more well-rounded economy. Mark feels that the BLM should allow more timber sales and boost the supply. He thinks the decline of timber is a supply issue – not an issue of jobs moving overseas.

City of St. Helens

Date: August 26, 2014

Participants:

John Walsh, City Administrator; City of St. Helens
Susan Conn, City Councilor; City of St. Helens
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-319. City of St. Helens interview.

Question	Discussion/ Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	John Walsh has served as City Administrator for St. Helens since 2012. Susan Conn has served as a City Councilor since 2012, and is a long-time resident. John had previously worked in Coos County and is familiar with timber issues. John noted that the city's capacity numbers look good with high population growth, a high working-age population cohort, and high median household income. However, he said that the numbers don't tell the whole story. John and Susan said that historically the city was a mill town and had several mills but the city has experienced a steady drop-off in timber-related employment in recent decades culminating in the closure of a Boise Paper plant in 2012; the plant had been winding down over time, but all told, the job losses totaled approximately 900. John said this was a devastating social blow for the city. The one remaining mill is the Cascade Tissue plant, which has approximately 60 jobs – a huge change for the city. John described St. Helens as a healthy, middle-class town – but essentially a bedroom community for Portland and Hillsboro, both approximately 30 miles away. Hillsboro is the location of one of Intel's product development and manufacturing campuses, and is the largest private employer in the state. John estimated that about three-quarters of St. Helens' residents commute out of the city to work. John and Susan said that while the city is fortunate to have this proximity to jobs, the jobs are not "in the city" and the result has been a loss of social cohesion. As examples, John cited the decline in participation in charitable organizations and social clubs such as the Kiwanis. Susan noted that three bookstores, including her own, had closed. St. Helens is the county seat of Columbia County and public administration is one of the larger job sectors (11%).

	St. Helens owns a 2,500-acre tree farm which it harvests for sale; no old growth.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	John noted that change has been thrust on the city. The mills had provided commercial tax base and had supported the public utilities. With the mills' decline and the city's loss of income and inability to raise revenue due to tax caps, the city has had to enact double-digit rate utility increases over the past five years and has reduced its workforce by 30%. He noted that the tax rate, $1.90 per $1,000, is unchanged since1995. As a result, revenues only increase if the assessed value goes up, but this too is capped. John said that the State has been doing a good job of retraining the workforce as fewer Oregonians are employed in the timber industry. Susan said that older generations have been especially affected by changes in the economic landscape in St. Helens. John said that the city is fortunate in that residents have alternative job options in Portland and Hillsboro. He thought that total employment was back to pre-recession levels, but not the same jobs. The city is working to adapt to the new economic environment. John said that the large mills were located along the Columbia River waterfront, which limited public access to this area. The city is working with Boise in order to acquire those properties and transition to new uses. The planning effort includes design collaborations between the city, Portland State University, and the American Institute of Architects. However, both he and Susan acknowledged that lack of a bridge over the Columbia river to I-5 is a major impediment to the city's economic development. John felt that generally cities had more resiliency compared to counties because the counties were tasked with more services and the cities had more options to raise revenues.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	There is relatively little BLM land near St. Helens, compared to many of the other cities in the sample, but the city is affected by the way the BLM manages its resources in that the county has cut services. Susan noted that the county got close to closing the jail in the city. John said that the city had never received pass-through federal timber funds from Columbia County, and so had not relied on such funds.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways	John sees a sustainable timber harvest as the key to increasing community capacity and resiliency. He did not think the entire decline of the timber industry was attributable to the BLM; there were many other factors to consider. He noted that St. Helens had not been affected by the forest fires that had affected other parts of the State.

that the BLM manages its resources that would increase your community's capacity and resiliency?	

City of Sublimity

Date: July 28, 2014

Participants:
Sam Brentano, County Commissioner; Marion County Board of Commissioners, former Mayor of Sublimity
Hitesh Parekh, Management Analyst; Marion County
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-320. City of Sublimity interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Commissioner Brentano (Sam) is a former Mayor of Sublimity (1983-1993) and understands its unique needs and challenges. He recalls that Sublimity was formerly an almost entirely agricultural- and timber- based economy, which has shifted dramatically in recent decades as all the mills in Marion County have closed. He recalled that in the 1970s and 1980s there were mills in many of the nearby towns and many mill owners lived in Sublimity; at that time, he said, the city had a high per capita income. Today he described Sublimity as a healthy, middle-class town – but essentially a bedroom community for Salem. There is little or no involvement by the city's residents in forest-related industries, whereas these used to be a key source of economic vitality. In spite of high household incomes (Sublimity's was the highest among the cities interviewed) its tax base is too low to cover many necessary services. The city contracts with Marion County for public safety (Sheriff), and relies on the county for many services including public safety, courts, and solid waste. The county spends 80% of its general fund on these services. The city depends on the county for so many services that as the county's ability to provide services is strained, the city's capacity is reduced.
How do you view your community's "resiliency," that	The city has changed over time as described above. Sam said that Marion County, by having less BLM acreage, is not as dependent as other O&C Counties on timber.

Question	Discussion/Response
is your community's ability to adapt to change over time?	The county payments (Secure Rural Schools and PILT) help, but they currently total $5 to $6 million a year and make up a small share of the county budget.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Sam said that the BLM owns approximately 20,000 acres of land in Marion County while the U.S. Forest Service owns 200,000 acres making the BLM's impact on the county lower than in other counties. Sam's concern is with the way the BLM (and other agencies) manages the timber resources. In his view, it should be treated like a crop and managed to help communities. This is not how the timberlands are currently being managed, and as a result, they contribute little to the community's capacity. In some respects, lack of management is a drain on resources. For example, the county has to spend timber dollars to pay for Sheriff's deputies to patrol around the forest. Sam thought there was more federal patrol oversight in the past. Sam also believes that the mismanagement contributes to the number and extent of forest fires. The BLM has some small recreation areas near Sublimity, which are used by residents, namely the Elkhorn Valley Recreation Site (Little North Santiam Recreation Area, Yellowbottom Recreation Site, and Fishermen's Bend). These are small and contribute little to overall community capacity.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	In Sam's view, the key to increasing community capacity and resiliency is a sustainable timber harvest. The lack of timber harvest has hurt communities by reducing income and leaving a resource that is simply waiting to burn – this is bad policy. The market is there for Oregon. Canada stepped in and took market share as the U.S. stopped producing.

City of Winston

Date: August 25, 2014

Participants:
Sharon Harrison, Mayor; City of Winston
Ken Harrison, former U.S. Forest Service employee

Kevin Miller, Superintendent; Winston-Dillard School District
David M. Van Dermark, City Manager; City of Winston
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM
Kristina Higgins, Intern; ERM

Table O-321. City of Winston interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	Both Mr. (Ken) and Mayor (Sharon) Harrison are long-time residents of Winston, having owned and operated the Harrison Hardware store for over 20 years prior to its sale in 2013. Ken is also a former timber industry employee; he worked for the U.S. Forest Service as well as private timber companies that worked with the BLM and the U.S. Forest Service. The city's population increased by 16% between 2000 and 2012 (from 4,613 to 5,352), but Winston's poverty rate in 2012 was 30%, twice the rate for the state as a whole. Kevin said that Winston struggles with economic resources and is "living close to the bone." The city is becoming a retirement community. While retirees help the city fiscally to some degree – paying property taxes, for example, - they don't tend to spend much and as a result do not contribute to the local economy as much as the family-wage jobs that used to be more prevalent. Kevin pointed out that the nearest major medical center is in Roseburg (roughly 10 miles north) where there is a VA hospital. Winston residents may spend their dollars in Roseburg when attending medical appointments. David says that the city is open to development and is very business-friendly. It has capacity for growth and is ready to grow. The Cow Creek Band of Umpqua Tribe of Indians owns land near Winston in the city's growth area, but it has little impact on the city's capacity. The Tribe raises alfalfa and beef cattle. The Tribe owns a casino in Canyonville approximately 25 miles south of Winston along Interstate 5.

Question	Discussion/Response
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	Sharon says that Winston was and remains a timber-dependent community. Roseburg Forest Products, which is in Dillard about 3 miles south of Winston, employs 1,200 to 1,500 people at several mills. (This accounts for the high number of jobs in the manufacturing sector in a 5-mile radius around the City in the Census data). There were many layoffs there in 2008 but employment has almost recovered. Kevin added that mechanization has affected employment. A shift that used to require 100 people now needs only 30. The city has struggled to adapt to a changing economy and demographics. Kevin said that in 1980s the school district had some 2,000 children; today there are approximately 1,400. There is a sense that the job growth is in Portland. The Winston community today is very mobile and people move to the jobs. The community has also lost truck farms. New businesses such as wineries have opened but the wages, relatively speaking, are lower. Sharon feels the overall income in Winston has been reduced.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Ken said that the BLM's management practices affect the community greatly. He said that recent policy is marked by lack of management. The only tree cutting is thinning which leaves the old growth trees that can't be touched due to the Endangered Species Act. Winston and the surrounding Douglas County have a huge forestland base – which is a renewable resource, unlike minerals which are a one-time extraction. However, unlike 20 years ago when the BLM was more actively managing these lands and timber harvests were putting dollars into the county budgets, today the city does not get the benefits it used to. David points out that in the past the cities were given pass-through funds from Secure Rural Schools to help manage their road maintenance. Winston received $100,000 annually (a quarter of its $400,000/year road budget) until these funds were stopped in 2010. The lack of O&C funds has resulted in raised costs to the city, such as IT, jail beds, and radio communication. He does not blame the BLM; rather he puts the blame on environmental interests who file frequent lawsuits against the BLM. Kevin noted a recent lawsuit regarding the Elliott State Forest. The forest is part of the Common School Fund Lands to be managed for the benefit of the schools under the Oregon Constitution. A portion of the forestland, under the instruction of the State Land Board, is slated to be sold to a private entity, though environmental groups have claimed that this sale should not be allowed to take place. The Winston-Dillard School District has filed an amicus brief in support of the sale, as this will result in a harvest and sales benefits for schools. Kevin said that the BLM is decommissioning roads – creating a more natural environment but limiting access to the forest. This is a serious problem with respect to access for first responders in the event of a forest fire, preventing access for emergency vehicles. In addition, this reduces forest access from a recreation standpoint.

Question	Discussion/Response
	Kevin did wish to point to an alternative education program; a collaboration with the BLM that teaches children about working in the forests and on stream restoration. He sees this as a very beneficial program.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	David feels that if the BLM should get back to timber harvest and land management in the manner in which it did in the past. This would provide revenues and reduce the incidence of large forest fires and other problems. In his view, the BLM is not in compliance with the O&C Act - requiring that the lands be managed to contribute to the economic stability of local communities and industries. He feels that there is worldwide market demand for timber products, as well as a need to harvest the timber in an efficient and economically viable way. Oregon produces Douglas-fir, a great tree for framing houses. As Oregon scaled down its harvest, Canada has been increasing its timber exports and sends logs to the U.S. to be milled.

Confederated Tribes of the Grand Ronde Community of Oregon

Date: July 8, 2014

Participants:
Heather Ulrich, District Archaeologist; Bureau of Land Management
Michael Wilson, Natural Resources Department Manager; Confederated Tribes of the Grand Ronde Community of Oregon
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM

Table O-322. Confederated Tribes of the Grand Ronde Community of Oregon interview.

Question	Discussion/ Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create and take advantage of opportunities, and meet its needs?	The word "community" needs to be understood broadly. It needs to consider the greater membership of the Grand Ronde tribes, not just those living on the reservation or in the tribally owned lands in the (unincorporated) town of Grand Ronde. The tribes have 5,000 to 6,000 members spread out over the lands that were ceded to the U.S. including, for example, in the BLM's Roseburg and Medford districts. Mike said he would look for membership data to supplement the census data that is specific to tribally owned lands. The Grand Ronde's capacity has increased over time, for example, since the Northwest Forest Plan, but the Community still faces challenges in serving its members and meeting its mission. There are more jobs today than back then but this is not attributable to the BLM.

Question	Discussion/ Response
	Funding for tribal functions comes from a variety of sources. Mike estimated the income from timber sales at approximately $2 to $3 million a year. The Tribes get the majority of their funds from the casino. The Tribe does not levy a property tax. Mike said he would look into measures of community income/wealth that might be comparable to, for example, the tax base of a city or county, in order to help the BLM understand the Tribes' financial capacity. The Grand Ronde has taken on community building functions such as housing, education, and health care. The State passed legislation allowing tribes to create their own police departments. Grand Ronde has a police department in the town of Grand Ronde (unincorporated), and has developed its own fire station. The members living in this area wanted to make sure they had these services (where county services were lacking). The Tribes have established a "Spirit Mountain Community Fund" to support members and projects throughout the Tribes' geographical areas of interest. The fund is supported by revenues from the casino. It has helped fund, for example, a charter school and an environmental project on the Willamette River.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	The Tribes have shown their resiliency in the way they have diversified their economy; the Spirit Mountain Casino, for example, being a major economic driver. The diversification has helped the Tribe's resilience. During the recession, there was a significant drop in casino revenues.
How do the ways the BLM manages its resources affect your community (its capacity and resiliency)?	Members have an interest in gathering plants when needed on BLM land, hunting, and access to places of spiritual significance. Mike felt the BLM has done a good job in meeting those needs and interests. The way the BLM manages its timber resources affects the community. Many tribal members live in timber-dependent communities. The Grand Ronde sells timber from its reservation. The Tribes understand the need for mills, loggers, and competition. The BLM can play a role in maintaining the industry. A healthy industry is important to support the services that are important to tribal members such schools, police, fire, and roads. As Mike talks to people in the timber industry, the importance of having a predictable supply of raw material is very important. In addition, if the mills are too far away the logs lack value; competition is important. Mike said he would send the forest management plan (10-year plan) for the Grand Ronde's forest. Mike did not see a direct correlation between the BLM's resource management and the casino revenues that are driven by broader economic trends.

Question	Discussion/ Response
	There are management issues on the micro level. For example, there is about a mile of boundary sharing on the eastern side of the Grand Ronde reservation, where the tribes share a road with the BLM.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	The lack of predictability in the timber market and sales has affected tribal members in that timber supports the broader economy. If the broader economy is doing well then the Tribes will benefit too. The ways BLM manages cultural resources and natural resources/habitat affects the community. The BLM could work with the Tribes to find the right balance in protecting these resources, and provide more resource-based jobs to help industry. With respect to hunting there is disappointment over declining opportunities to hunt deer and elk - fewer openings and meadows due to lack of active management, so the hunting areas for those species have declined. But Mike thought this was more of a U.S. Forest Service issue than a BLM issue.

Coquille Indian Tribe

Date: July 14, 2014

Participants:
Brenda Meade, Tribal Chairperson, Coquille Indian Tribe
George Smith, Executive Director, Coquille Indian Tribe
Mark Johnston, Deputy Executive Director, Coquille Indian Tribe
Clive Graham, Principal; ERM
Jill Bellenger, Associate Consultant; ERM
Heather Ulrich, District Archaeologist; Bureau of Land Management

Table O-323. Coquille Indian Tribe interview.

Question	Discussion/Response
How do you view your community's "capacity," that is your community's ability to face changes, respond to external and internal stresses, create, and take advantage of opportunities, and meet its needs?	George gave a little background recent history about the Coquille Indian Tribe. The Coquille Indian Tribe was terminated in 1954, but the United States reinstituted federal recognition to the Tribe and restored its full sovereignty rights in 1989. Tribal membership is now approximately 1,000 across five counties in southwest Oregon. The 297 number in the Census data only reflects the population on the approximately 6,500 acres in the Census Bureau's boundary maps – mostly in the North Bend/Coos Bay area. The 1954 termination "cut loose" the membership resulting in more assimilation into local communities compared to reservations such as Warm Springs. This means that the socioeconomic state of the Tribe is

Question	Discussion/Response
	closely bound up with local communities; the counties and cities, such as Coos Bay and North Bend. For example, Coquille children attend community schools so when these schools are affected by cutbacks, tribal children and families are equally affected. Southwestern Oregon was historically heavily dependent on timber and fishing. Coos Bay was an export center for the Oregon coast. Since the 1990s, there has been an 80% reduction in timber sales. As a result, Coos County and the Coos Bay area became economically stressed. The recession that began in 2007 was one more blow and the area has not recovered. Brenda added that the Tribe is currently facing the strain of responding to increasing needs of the tribal membership; increased population and healthcare costs. Census data indicate a tribal poverty rate of 23% compared to 15% for the State as a whole. The Coquille Indian Tribe is the second largest employer in Coos County, making it a vital part of the wider economic landscape. In summary, the Tribe has internal capacity and resources but is located in a region of Oregon with macro level economic challenges that strain the Tribe's capacity to meet its needs.
How do you view your community's "resiliency," that is your community's ability to adapt to change over time?	The Tribe has shown its resiliency by its survival, resurgence, and recent population growth. The Tribe has adapted and continues to adapt to economic realities. The Mill Resort and Casino in Coos Bay is an important source of income for the Tribe, but revenues were significantly affected by the recession, and only now are they beginning to climb back to pre-recession numbers. Overall economic recovery in southwest Oregon has been much slower than in the metropolitan parts of the State. The Tribe is engaged in economic development initiatives through the Coquille Economic Development Corporation. These include business ventures in forestry, arts and exhibits, gaming and hospitality, assisted living and memory care, high-speed telecommunications (Optical Rural Community Access Communications) and renewable energy. Because tribal and tribal members' fortunes are closely tied to the local communities, resiliency is also affected by the communities' lack of resiliency. For example, Brenda pointed out that in attempting to address budget constraints, the Coos Bay School District went to a 4-day school week during the 2013-14 school year. This type of action affects tribal members' lives.
How do the ways the BLM manages its resources affect your community (its capacity	The timber industry is a major driver for Coos County and so that the way BLM manages its resources has a great effect on the community.

Question	Discussion/Response
and resiliency)?	The Tribe owns the Coquille Forest, comprised of 14 separate parcels of former BLM timberlands in eastern Coos County, totaling approximately 5,410 acres. The Tribe is legally mandated to manage the forest consistent with BLM's management practices. This places a financial management burden on the Tribe. Bureau of Indian Affairs funding covers some the need, but the Tribe has to supplement. The Tribe believes that the BLM's practices are not all in the Tribe's economic interests. For example, George said that BLM's practices follow guidelines in the Northwest Forest Plan but that these guidelines go beyond the requirements of the Endangered Species Act and NEPA. As a result, the forests are becoming overgrown and are not being given the opportunity to regenerate. The Tribe is proud of its management practices. The Coquille Forest is Forest Stewardship Council (FSC) certified. The Tribe is very concerned about habitat, water resources, and water quality – such as for salmon runs. George said that Tribal monitoring has been held up as a national model. Mark said that BLM's management of recreation resources had little effect on the Tribe. He did note BLM's role in helping manage the local Dunes National Recreation Area at the mouth of the Umpqua River that attracted visitors and some spinoff visitation to tribal facilities near Coos Bay.
Have changes in the BLM's resource management over time affected your community? In what ways? Are there changes in the ways that the BLM manages its resources that would increase your community's capacity and resiliency?	Brenda feels that the federal lands have not been managed well; very few jobs are generated. George added that the biggest change in resource management has been the decrease in the timber harvest. Practices have changed from allowing sales, Survey and Manage, then to only allowing thinning – all triggering lawsuits. George feels that BLM's forest management is driven more by risk aversion to lawsuits than by its obligations to manage for sustained yield. As noted above, he believes this has led the BLM to go over and above its obligations under the ESA and NEPA. A more balanced, science driven approach would increase the Allowable Sale Quantity (ASQ) which would result in higher timber sales and a stronger local economy; which would help the Tribe. The timber capacity is there; the forest is very productive. Most of the Coquille land is in a trust from the federal government, and the Tribe has been constrained by economic stress from litigations in the timber industry and increasing restrictions and requirements incurred by the BLM and other agencies related to how the Tribe is required to manage its timber. The way the BLM has been writing its management plans goes above and beyond, as George points out, what is required for endangered species protection and NEPA regulations. The Tribe supports federal legislation that would decouple management of the Coquille Forest from BLM management.

Question	Discussion/Response
	Brenda added that the Tribe is very concerned about fire; she believes that BLM's management has been "cookie cutter" easy to administer but having negative consequences such as allowing the buildup of material that is fuel for fire. Tribal lands are open to the public. The Tribe would like to work with the BLM to allow it to erect fences and gates to protect access to certain areas.

Issue 6

Would the alternatives result in environmental justice impacts (disproportionally high and adverse effects on minority, low-income, or Tribal populations or communities)?

Minority Populations Meeting Environmental Justice Criteria

Table O-324. Minority populations meeting environmental justice criteria.

Geography	Total Population	All minorities		Hispanic	
		Number	Percent	Number	Percent
Oregon	3,836,628	563,921	15%	449,888	12%
Benton County					
Summit CDP	66	33	50%	0	0%
Clackamas County					
Barlow City	302	24	8%	87	29%
Canby City	15,770	1,264	8%	3,735	24%
Happy Valley City	14,050	3,900	28%	697	5%
Johnson City	657	50	8%	244	37%
Coos County					
Glasgow CDP	1,057	232	22%	14	1%
Powers City	890	179	20%	83	9%
Jackson County					
White City CDP	7,392	1,027	14%	2,301	31%
Josephine County					
Merlin CDP	1,484	353	24%	65	4%
Selma CDP	579	56	10%	117	20%
Klamath County					
Bonanza Town	418	51	12%	76	18%
Chiloquin City	766	603	79%	44	6%
Malin City	712	156	22%	555	78%
Merrill City	805	110	14%	416	52%
Lincoln County					
Lincoln Beach CDP	1,982	482	24%	358	18%
Siletz City	1,400	441	32%	42	3%
Linn County					
Crabtree CDP	308	49	16%	66	21%
Waterloo Town	320	35	11%	73	23%
West Scio CDP	163	40	25%	21	13%
Marion County	315,391	61,715	20%	76,429	24%
Brooks CDP	665	173	26%	88	13%
Four Corners CDP	16,472	4,555	28%	6,360	39%
Gervais City	2,475	754	30%	1,700	69%
Hayesville CDP	18,224	6,383	35%	6,891	38%
Hubbard City	3,154	920	29%	1,221	39%
Keizer City	36,402	4,673	13%	7,015	19%
Labish Village CDP	195	113	58%	128	66%
Mount Angel City	3,347	603	18%	953	28%

Geography	Total Population	All minorities		Hispanic	
		Number	Percent	Number	Percent
Salem City (1)	154,835	28,403	18%	30,565	20%
St. Paul City	310	31	10%	73	24%
Stayton City	7,637	1,234	16%	1,535	20%
Woodburn City	23,879	9,067	38%	13,444	56%
Multnomah County	737,110	158,601	22%	79,791	11%
Fairview City	8,884	1,807	20%	1,268	14%
Gresham City	105,612	20,891	20%	21,074	20%
Maywood Park City	1,008	226	22%	4	0%
Portland City	585,888	131,729	22%	54,420	9%
Wood Village City	3,870	644	17%	1,160	30%
Polk County					
Independence City	8,535	1,724	20%	3,271	38%
Tillamook County					
Bayside Gardens CDP	804	156	19%	0	0%
Washington County	531,818	122,803	23%	83,085	16%
Aloha CDP	50,710	15,057	30%	10,664	21%
Beaverton City	90,254	25,072	28%	14,310	16%
Bethany CDP	20,505	7,914	39%	960	5%
Bull Mountain CDP	8,990	1,847	21%	224	2%
Cedar Hills CDP	9,273	1,919	21%	1,205	13%
Cedar Mill CDP (1)	15,118	2,919	19%	529	3%
Cornelius City	11,867	4,039	34%	5,916	50%
Forest Grove City	21,245	3,609	17%	5,338	25%
Hillsboro City	91,998	26,243	29%	22,885	25%
Oak Hills CDP	11,005	3,065	28%	418	4%
Rockcreek CDP	9,488	1,888	20%	572	6%
Tualatin City (1)	26,106	3,814	15%	4,852	19%
Yamhill County					
Dayton City	2,537	820	32%	1,021	40%
Grand Ronde CDP (1)	1,451	677	47%	115	8%
Lafayette City	3,709	445	12%	904	24%
McMinnville City	32,092	5,672	18%	6,324	20%
Sheridan City	6,086	966	16%	974	16%
Tribes					
Coos, Lower Umpqua, and Siuslaw Reservation and Off-Reservation Trust Land, OR	24	12	50%	0	0%
Coquille Reservation and Off-Reservation Trust Land, OR (2)	297	166	56%	15	5%
Grand Ronde Community and Off-Reservation Trust Land, OR	473	381	81%	7	1%
Klamath Reservation, OR	17	11	65%	0	0%
Siletz Reservation and Off-Reservation Trust Land, OR	476	420	88%	19	4%
Warm Springs Reservation and Off-Reservation Trust Land, OR	3,960	3,657	92%	372	9%

Notes: Geographies meeting the 50 percent criterion shown in gray with black border. Geographies meeting the meaningfully greater criterion shown in gray.
(1) Where a city or Census Designated Place (CDP) spans more than one county, the BLM assigned it to the county with largest share of population.
(2) Shows 2009 American Community Survey 5-Year Data since 2012 data not available
Sources:
U.S. Census Bureau; American Community Survey, 2012 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; American FactFinder; http://factfinder2.census.gov ; (July 2014).
U.S. Census Bureau; American Community Survey, 2011 American Community Survey 5-Year Estimates, Tables DP03, DP04, DP05, S1901 and S1701; American FactFinder; http://factfinder2.census.gov ; (July 2014).
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Low-Income Populations Meeting Environmental Justice Criteria

Table O-325. Low income populations meeting environmental justice criteria.

Geography	Type	Total Population	Poverty Population (Shaded Cells are ≥ 25% of State Percentage)		Total Households	Median Household Income	Low-Income Households (Shaded Cells are ≥ 25% of State Percentage)	
			Number	Percent			Number	Percent
Oregon		3,836,628	584,059	15%	1,512,718	$50,036	366,078	24%
Benton County	County	85,501	17,418	20%	33,502	$48,635	9,716	29%
Alpine CDP	CDP	114	37	32%	45	$19,750	24	53%
Alsea CDP	CDP	126	22	17%	52	$33,654	20	39%
Corvallis City	City	54,341	14,355	26%	21,391	$37,793	7,765	36%
Monroe City	City	635	73	11%	243	$36,328	78	32%
Clackamas County	County	377,206	36,265	10%	145,004	$63,951	24,506	17%
Estacada City	City	377,206	674	25%	1,071	$39,844	380	36%
Government Camp CDP	CDP	131	4	3%	64	$250,000	29	45%
Johnson City	City	657	176	27%	295	$33,456	120	41%
Clatsop County	County	37,068	5,725	15%	15,757	$44,330	4,286	27%
Astoria City	City	9,510	1,896	20%	4,171	$40,603	1,360	33%
Cannon Beach City	City	1,373	344	25%	650	$39,559	222	34%
Warrenton City	City	4,991	811	16%	2,047	$35,325	643	31%
Westport CDP	CDP	483	56	12%	227	$26,435	98	43%
Columbia County	County	49,317	6,797	14%	19,060	$55,358	4,289	23%
Clatskanie City	City	1,788	391	22%	723	$35,875	257	36%
Deer Island CDP	CDP	269	57	21%	140	$48,182	53	38%
Prescott City	City	34	5	15%	19	$23,750	12	63%
Coos County	County	62,937	10,661	17%	26,567	$37,853	8,581	32%
Bandon City	City	3,053	443	15%	1,684	$34,279	635	38%
Barview CDP	CDP	1,832	803	44%	752	$20,133	456	61%
Bunker Hill CDP	CDP	1,892	396	21%	573	$21,305	319	56%
Coos Bay City	City	15,938	2,899	18%	6,659	$38,820	2,224	33%
Lakeside City	City	1,444	230	16%	675	$36,779	213	32%
Myrtle Point City	City	2,496	635	25%	1,007	$29,702	391	39%
Powers City	City	890	192	22%	313	$28,750	146	47%
Curry County	County	22,344	3,048	14%	10,320	$38,401	3,488	34%
Gold Beach City	City	2,563	370	14%	1,029	$50,958	330	32%
Harbor CDP	CDP	2,098	384	18%	1,251	$26,629	589	47%
Langlois CDP	CDP	218	76	35%	92	$33,906	28	31%
Nesika Beach CDP	CDP	352	40	11%	200	$26,813	71	36%
Port Orford City	City	1,198	328	27%	568	$30,667	238	42%
Douglas County	County	107,391	18,777	17%	43,678	$40,096	12,667	29%
Gardiner CDP	CDP	94	25	27%	45	$85,625	9	20%
Glendale City	City	854	243	28%	323	$34,226	111	34%

Clide CDP	CDP	1,867	466	25%	698	$49,940	161	23%
Lookingglass CDP	CPD	1,227	371	30%	424	$41,802	126	30%
Melrose CDP	CDP	743	62	8%	323	$50,938	98	30%
Myrtle Creek City	City	3,446	805	23%	1,388	$37,650	557	40%
Reedsport City	City	4,165	903	22%	1,864	$28,293	805	43%
Riddle City	City	921	209	23%	409	$39,034	140	34%
Roseburg City	City	21,542	3,892	18%	9,454	$39,621	3,101	33%
Roseburg North CDP	CDP	6,493	1,462	23%	2,700	$30,951	948	35%
Tri-City CDP	CDP	3,866	829	21%	1,317	$43,220	302	23%
Winchester Bay CDP	CDP	243	19	8%	104	$55,652	46	44%
Winston City	City	5,352	1,584	30%	1,809	$31,627	662	37%
Yoncalla City	City	1,145	310	27%	486	$32,813	189	39%
Jackson County	County	203,613	33,346	16%	83,370	$43,664	23,093	28%
Butte Falls Town	Town	516	129	25%	179	$39,267	50	28%
Foots Creek CDP	CDP	861	105	12%	392	$37,917	153	39%
Gold Hill City	City	1,087	208	19%	470	$37,375	146	31%
Phoenix City	City	4,550	765	17%	2,126	$31,267	746	35%
Shady Cove City	City	2,893	502	17%	1,348	$35,695	506	38%
Talent City	City	6,086	1,156	19%	2,797	$32,961	1,108	40%
Trail CDP	CDP	203	26	13%	124	$28,125	44	36%
White City CDP	CDP	7,392	1,584	21%	2,338	$42,163	592	25%
Wimer CDP	CDP	708	149	21%	313	$18,375	173	55%
Josephine County	County	82,636	16,301	20%	34,373	$36,699	11,446	33%
Cave Function City	City	1,817	613	34%	740	$22,016	433	59%
Fruitdale CDP	CDP	900	229	25%	348	$39,231	120	35%
Grants Pass City	City	34,454	6,962	20%	14,545	$32,991	5,353	37%
Kerby CDP	CDP	397	219	55%	189	$18,250	145	77%
O'Brien CDP	CDP	143	38	27%	106	$25,987	38	36%
Selma CDP	CDP	579	300	52%	214	$23,438	117	55%
Takilma CDP	CDP	175	11	6%	99	$13,264	74	75%
Williams CDP	CDP	1,195	372	31%	492	$37,264	143	29%
Klamath County	County	66,350	12,143	18%	27,747	$41,066	8,740	32%
Bonanza Town	Town	418	90	22%	149	$35,179	51	34%
Chiloquin City	City	766	259	34%	281	$34,141	90	32%
Klamath Falls City	City	20,943	5,131	24%	9,054	$31,971	3,685	41%
Malin City	City	712	205	29%	207	$33,594	86	42%
Merrill City	City	805	116	14%	294	$37,500	99	34%
Lane County	County	351,794	64,705	18%	145,474	$42,628	42,478	29%
Cottage Grove City	City	9,671	1,833	19%	3,876	$35,158	1,430	37%
Eugene City	City	156,222	34,671	22%	65,907	$41,525	20,958	32%
Florence City	City	8,412	995	12%	4,438	$35,000	1,611	36%
Junction City	City	5,445	1,239	23%	2,049	$35,067	770	38%
Oakridge City	City	3,211	667	21%	1,514	$41,284	527	35%

Springfield City	City	59,347	12,143	20%	23,972	$38,315	7,455	31%
Lincoln County	County	45,992	7,262	16%	21,039	$41,996	6,480	31%
Lincoln City	City	7,926	1,616	20%	3,932	$29,686	1,687	43%
Newport City	City	9,989	1,815	18%	4,455	$47,270	1,417	32%
Siletz City	City	1,400	310	22%	495	$37,188	159	32%
Waldport City	City	1,818	263	14%	924	$35,889	398	43%
Linn County	County	116,871	19,237	16%	44,566	$47,129	11,364	26%
Cascadia CDP	CDP	20	15	75%	17	$6,417	15	88%
Crabtree CDP	CDP	308	33	11%	151	$72,526	50	33%
Halsey City	City	1,015	206	20%	295	$50,804	47	16%
Lacomb CDP	CDP	345	40	12%	129	$51,193	43	33%
Mill City (1)	City	1,625	393	24%	569	$40,313	177	31%
Shedd CDP	CDP	607	236	39%	183	$61,599	17	9%
Sweet Home City	City	8,938	1,930	22%	3,645	$36,205	1,185	33%
Waterloo Town	Town	320	78	24%	88	$48,750	24	27%
West Scio CDP	CDP	163	52	32%	111	$16,845	61	55%
Marion County	County	315,391	55,223	18%	113,227	$46,654	27,514	24%
Brooks CDP	CDP	665	160	24%	175	$11,161	95	54%
Four Corners CDP	CDP	16,472	3,754	23%	5,467	$45,372	1,438	26%
Gates City	City	675	161	24%	271	$39,750	91	34%
Gervais City	City	2,475	685	28%	629	$45,063	140	22%
Hayesville CDP	CDP	18,224	4,671	26%	6,437	$39,587	1,944	30%
Labish Village CDP	CDP	195	44	23%	70	$34,015	15	21%
Mehama CDP	CDP	238	56	24%	86	$56,406	22	26%
Woodburn City	City	23,879	5,362	22%	7,517	$41,818	2,195	29%
Multnomah County	County	737,110	123,434	17%	303,654	$51,582	74,699	25%
Wood Village City	City	3,870	1,211	31%	1,281	$42,917	369	29%
Polk County	County	75,448	10,788	14%	27,973	$52,365	6,658	24%
Falls City	City	1,089	251	23%	383	$36,083	148	39%
Independence City	City	8,535	2,244	26%	2,848	$40,719	946	33%
Monmouth City	City	9,549	2,167	23%	3,358	$29,697	1,461	44%
Tillamook County	County	25,254	4,197	17%	10,843	$41,869	3,123	29%
Bayside Gardens CDP	CDP	804	182	23%	365	$37,566	110	30%
Beaver CDP	CDP	189	6	3%	84	$45,750	39	46%
Cape Meares CDP	CDP	74	21	28%	45	$85,417	21	47%
Cloverdale CDP	CDP	337	124	37%	106	$41,429	11	10%
Garibaldi City	City	736	150	20%	353	$38,750	118	33%
Idaville CDP	CDP	395	79	20%	153	$23,444	107	70%
Neahkahnie CDP	CDP	115	41	36%	79	$9,659	41	52%
Neskowin CDP	CDP	91	1	1%	61	$32,566	30	49%
Pacific City CDP	CDP	1,078	250	23%	408	$31,348	106	26%
Rockaway Beach City	City	1,082	154	14%	555	$36,318	190	34%
Tillamook City	City	4,934	1,473	30%	2,100	$31,832	848	40%

Wheeler City	City	280	25	9%	139	$30,893	44	32%
Washington County	County	531,818	57,466	11%	200,160	$64,375	31,825	16%
King City	City	3,138	293	9%	1,967	$36,446	661	34%
Yamhill County	County	99,119	13,068	13%	33,920	$53,950	7,089	21%
Amity City	City	1,636	302	18%	557	$48,750	174	31%
Fort Hill CDP (1)	CDP	110	17	15%	97	$21,514	84	87%
Grand Ronde CDP (1)	CDP	1,451	257	18%	573	$35,240	225	39%
Willamina City (1)	City	1,685	319	19%	633	$34,844	201	32%
Tribes								
Coos, Lower Umpqua, and Siuslaw Reservation and Off-Reservation Trust Land, OR	Tribe	24	6	25%	15	$15,938	10	67%
Coquille Reservation and Off-Reservation Trust Land, OR (2)	Tribe	297	67	23%	102	$28,750	49	48%
Cow Creek Reservation, OR (2)	Tribe	21	-	0%	9	$22,250	5	56%
Grand Ronde Community and Off-Reservation Trust Land, OR	Tribe	473	130	27%	185	$24,861	95	51%
Klamath Reservation, OR	Tribe	17	9	53%	14	$6,944	12	86%
Warm Springs Reservation and Off-Reservation Trust Land, OR	Tribe	3,960	1,069	27%	1037	$47,526	209	20%

Notes:
(1) Where a city or Census Designated Place (CDP) spans more than one county, the BLM assigned it to the county with largest share of population.
(2) Shows 2009 American Community Survey 5-Year data since 2012 data not available.

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Appendix P – Off-highway Vehicle Management Guidelines

This section provides off-highway vehicle (OHV) management guidelines that the BLM would implement following adoption of the RMP until the BLM completes implementation level transportation management plans. The BLM has developed these interim guidelines at the district level, for Recreation Management Areas/Travel Management Areas that contain travel management opportunities (i.e., Class I, II, III, and IV motorized uses, mechanized, foot, and equestrian travel).

The BLM will defer travel management planning during this RMP revision process. The RMP will serve to document the decision-making process used to develop the initial transportation network, provide the basis for future management decisions, and set guidelines for making transportation network adjustments through the life of the RMP.

The BLM has developed these management guidelines consistent with BLM Handbook H-8342- Travel and Transportation. This handbook provides specific guidance for preparing, amending, revising, maintaining, implementing, monitoring, and evaluating BLM land use and travel management plans.

Designation of OHV Management Areas

All public lands are required to have OHV area designations (as defined in 43 CFR 8340.0-5 (a). The OHV area designations are land use allocations the must be determined in the RMP and classified as open, limited, or closed to motorized travel. The BLM bases these designations on protecting natural and cultural resources and public safety, limiting visitor conflicts, and providing diverse recreational opportunities. Criteria for open, limited, and closed are designations are established in 43 CFR 8340.0-5 (f, g, h). The OHV area designations are defined as follows:

- Open: areas where the BLM does not limit off-highway vehicle use since there are no issues regarding resources, visitor conflicts, or public safety to warrant limiting cross-country travel
- Limited: areas where the BLM has restricted off-highway vehicle use in order to meet recreational and resource management objectives[141]
- Closed: areas that the BLM has closed to all motorized vehicle use to protect resources, ensure visitor safety, or reduce visitor conflicts

Table P-1 displays the current OHV area designations within the decision area.

[141] Restrictions may include the number or types of vehicles, the time or season of use, permitted or licensed use only, or limiting use to existing or designated roads and trails.

Table P-1. Current OHV area designations within the decision area.

Travel Management Area Designation (1995 RMP)	Coos Bay	Eugene	Klamath Falls	Medford	Roseburg	Salem	Totals
Open	-	-	29,902	139,878	-	160,614	**330,394**
Limited to Existing Roads and Trails	-	320,883	137,154	26,514	416,560	48,771	**949,882**
Limited to Existing Roads and Designated Trails	-	-	-	-	-	87,144	**87,144**
Limited to Designated Roads and Trails	318,676	-	47,222	661,357	6,731	16,192	**1,050,178**
Limited to Designated Roads	-	-	-	-	-	69,508	**69,508**
Closed	3,489	3,547	10,702	46,371	3,283	17,197	**84,589**
Totals	**322,165**	**324,430**	**224,980**	**874,120**	**426,574**	**399,426**	**2,571,695**

Table P-2 displays the OHV area designations by alternative.

Table P-2. OHV area designations by alternative.

Trails and Travel Management	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	330,394	-	-	-	-
Limited to Existing Routes	1,037,026	2,339,820	2,319,908	2,290,558	2,315,232
Limited to Designated Routes	1,119,686	5,755	5,755	5,755	5,755
Closed	84,589	128,757	148,551	178,001	153,305

In addition to OHV area designations, the action alternatives include designation of some Recreation Management Areas (RMAs) for the exclusion of OHV use (**Table P-3**). The restrictions identify areas that would be designated for more primitive recreation opportunities. Closure acreages correspond proportionally to RMA total acreages by alternative.

Table P-3. OHV recreation opportunities, acres restricted within Recreation Management Areas.

Recreation Opportunities	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
OHV Recreation Restricted	17,517	49,969	87,261	105,474

The OHV area designations do not apply to non-motorized uses (hiking, biking, equestrian), though areas can be designated for non-motorized transportation systems in the RMP process.[142] The designation of

[142] To restrict non-motorized travel to specific routes, the BLM must develop supplemental rules through a Federal Register process, consistent with 43 CFR 8365.1-6-Supplementary Rules.

OHV areas should consider the needs for a variety of road, primitive road, and trail systems tailored to a variety of users including non-motorized recreational uses.

Plan Maintenance and Changes to Route Designations

The RMP will include indicators that will guide plan maintenance, amendments, or revisions related to OHV area designations or the approved road and trail system within "Limited to Existing" areas. Future conditions may require the designation or construction of new routes or closure of routes to better address resources and resource use conflicts. The BLM will be able to modify actual route designations within the "Limited" category without completing an RMP amendment, although compliance with NEPA will still be required.

The BLM will accomplish plan maintenance through implementation-level travel management planning. The BLM will collaborate with affected and interested parties in evaluating changes to the existing and designated road and trail network in "Limited" area designations and changes to the broader Recreation Management Area designations that emphasize motorized OHV recreation. In conducting such evaluations, the BLM will consider the following:

- Routes suitable for various categories of OHVs (e.g., motorcycles, all-terrain vehicles, full size 4-wheel drive vehicles) and opportunities for shared trail use
- Needs for parking, trailheads, informational and directional signs, mapping and route profiles, and development of brochures or other materials for public dissemination
- Opportunities to tie into existing or planned route networks
- Measures needed to meet other resource objectives in the RMP (e.g., cultural resources, soil resources, special status species, and recreation)

The BLM will consider public land roads or trails determined to cause considerable adverse effects or to continue a nuisance or threat to public safety for relocation or closure and rehabilitation after appropriate coordination with applicable agencies and partners. In implementation-level travel management planning, areas designated as "Closed" will not be available for new motorized designation or construction without an RMP amendment changing the area designation.

Designated Motorized and Non-Motorized Trails

The BLM is currently working on an inventory of all user-created motorized and non-motorized routes within the decision area. The BLM will use this inventory as a baseline to guide future implementation-level route designations within the areas that are designated "Limited to Existing Routes." **Table P-4** displays the current designated trails within the decision area.

Recreation routes (authorized and unauthorized) have been created in response to demand for trail-based recreation. As demand for trail-based recreation (especially OHV riding) increased, the number of routes increased. The routes developed for administrative and resource uses provide primary access routes throughout most of the decision area. These primary access routes were created for administrative and resource uses, not for recreation. As a result, the routes are not always providing the recreation experience users are looking for. Over time, recreation use extended, connected, or pioneered new routes from the administrative and resource use routes. This pattern of route development has resulted in high route densities where the administrative and resource use routes provided access for recreation use.

Table P-4. Current designated motorized and non-motorized trails within the decision area.

District/Field Office	Recreation Trail	Miles
Coos Bay	Blue Ridge	10.0
	Doerner Fir	0.5
	Euphoria Ridge OHV Trail System	4.0
	Floras Lake	1.0
	Four Mile Creek	0.3
	Loon Lake Waterfall	0.5
	Lost Lake	1.0
	New River/Storm Ranch	2.0
	New River Water Trails	5.0
	New Fork Hunter Creek	2.0
	North Spit Trail System	9.0
	Subtotal	**35.3**
Eugene	Clay Creek Trail	0.6
	Eagles Rest Trail	0.2
	Lake Creek Falls Trail	0.2
	Row River Trail	13.5
	Shotgun Creek Non-Motorized Trails	6.2
	Shotgun Creek OHV Trail System	23.2
	Tyrrell Forest Succession Trail	1.0
	Whittaker Creek Trail	1.0
	Subtotal	**45.9**
Klamath Falls	Gerber-Miller Creek Potholes Trail	13.0
	Keno Spencer Snowmobile Trail	6.0
	Pacific Crest National Scenic Trail	1.0
	Pederson Snowmobile Trail	5.0
	Surveyor Peak Snowmobile Trail	3.0
	Wood River Wetland Trail	1.0
	Subtotal	**29.0**
Medford	Armstrong Gulch Trail	1.0
	Buck Prairie Cross Country Trails	17.0
	Cathedral Hills Trail System	10.0
	Grayback Mountain Trails	6.5
	Grizzly Peak	5.0
	Hidden Creek	1.0
	Jacksonville Historic Landmark	5.0
	Kelsey Peak	3.0
	Kerby Peak	8.0
	Listening Tree	1.0
	London Peak	1.0
	Lower London Peak	2.0
	Lower Table Rock	2.0
	Mt. Bolivar	1.5
	Mule Creek	3.0

District/Field Office	Recreation Trail	Miles
	Pacific Crest National Scenic Trail	22.4
	Sterling Mine Ditch Trail	10.0
	Tunnel Ridge	41.0
	Upper Table Rock	2.0
	Wolf Gap	4.0
	Subtotal	**146.4**
Roseburg	China Ditch Trail	0.4
	Emerald Trail	1.3
	Miner-Wolf Creek WW Trail	0.2
	North Bank Ranch Trail System	8.0
	North Umpqua Trail	12.3
	Sawmill Trail	12.3
	Susan Creek Trails	2.0
	Susan Creek Falls Trails	1.0
	Wolf Creek Falls Trails	1.2
	Subtotal	**38.7**
Salem	Alsea Falls Trail System	8.0
	Baty Butte-Silver King Trail	3.4
	Boulder Ridge Trail	0.2
	Eagle Creek Trail	0.5
	McIntyre Ridge Trail	0.5
	Molalla River Trail System	24.6
	Nasty Rock Trail	1.0
	Sandy Ridge Trail System	15.4
	Table Rock Wilderness Trails	20.4
	Upper Nestucca OHV Trail System	25.0
	Valley of the Giants Trail	0.8
	Subtotal	**99.8**
	Grand Total	**395.1**

Delineation of Travel Management Areas

The BLM will delineate Travel Management Areas to address particular concerns and prescribe specific management actions for a defined geographic area. The BLM typically identifies Travel Management Areas where travel and transportation management (either motorized or non-motorized) requires particular focus or increased intensity of management. While OHV area designations are a mandatory land use plan allocations, Travel Management Areas are an optional planning tool to frame transportation issues and help delineate travel networks that address specific uses and resource concerns.

The RMP process provides the opportunity to establish a link between Recreation and Transportation Management Areas. To help ensure that that travel decisions support program-specific management objectives, the BLM will identify Travel Management Area boundaries that correspond with the Recreation Management Areas defined for various outcomes. The RMP will management objectives and management direction for non-motorized trails and access. When delineating Recreation Management

Areas and Travel Management Areas and developing management direction for these areas, the BLM will consider the following:

- Other resource values and uses
- Primary travelers
- Emerging uses such as growing recreational-use types
- Setting characteristics that are to be maintained, including recreation setting characteristics and VRM settings
- Primary means of travel allowed to accomplish the objectives and to maintain the setting characteristics
- Social conflicts between different travel types
- Social conflicts between public land visitors and adjacent property owners
- Number and types of access points (motorized vs. non-motorized)
- Existing right-of-ways (ROWs) and future ROW requests
- Existing geographic identify and public knowledge of the area
- Identifiable boundaries of the Travel Management Area based on topography, major roads or other easily discernible elements

Road Maintenance Levels and OHV Use

BLM road maintenance levels that pertain to limitations on types of OHV use are described below.

Level 1 – This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless roadbed drainage is being adversely affected, causing erosion. Closure and traffic restrictive devices are maintained as needed.

Level 2 – This level is assigned to roads that are passable by high clearance vehicles. Drainage structures are to be inspected within a 3-year period and maintained as needed. Grading is conducted as necessary to correct drainage problems. Brushing is conducted as needed to allow access. These are typically low standard, low volume, single lane, natural and aggregate surfaced, and are functionally classified as a resource road.

Level 3 – This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreational, or administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced road. These roads have a defined cross section with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority. Drainage structures are to be inspected at least annually and maintained as needed. Grading is conducted to provide a reasonable level of riding comfort at prudent speeds for the road conditions. Brushing is conducted as needed to improve sight distance.

Level 4 – This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions) and which connect major administrative features (recreational sites, local road systems, administrative sites, etc.) to County, State, or Federal roads. Typically, these roads are single or double lane, aggregate, or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.

Coos Bay District OHV Area Designations

Table P-5. Coos Bay District OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	160,614	-	-	-	-
Limited to Existing Routes	-	318,500	319,565	319,565	318,469
Limited to Designated Routes	-	-	1,401	1,401	1,401
Closed	17,197	5,191	2,724	2,724	3,821

Description: Includes all BLM-administered lands within the Coos Bay District. See additional guidelines for the Blue Ridge OHV Area.

Limited Area Management Guidelines:

- The BLM will manage Limited OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.
- The BLM will limit motor vehicle use to administrative, commercial, and passenger vehicle traffic where not specifically signed or gated.
- Until road and trail designations are complete, all motorized vehicles will be limited in the interim to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, to protect cultural resources, or for public safety.
- Vehicles may pull off roads or trails to park or allow others to pass, up to 25 feet from centerline of roads or up to 15 feet from centerline of trails.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicle use and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration and outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLM will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps, and brochures shall be available to the public at the Coos Bay District office illustrating designations, describing specific restrictions, and defining opportunities.

Process for selecting a final road and trail network: The BLM has completed route designations for the New River ACEC and the Blue Ridge OHV Area. The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be

identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1(USDI BLM 1987) and other professional sources.

Blue Ridge OHV Travel Management Area

The BLM will manage the Blue Ridge OHV travel management area in the Coos Bay District as a Recreation Management Area with an off-highway vehicle focus. The following management guidelines apply to the Blue Ridge OHV area on the Coos Bay District:

Acres: 1,609

OHV Designation: Limited to designated roads and trails.

Niche: Offers a multiple-use, single-track trail riding experience for hikers, equestrians, mountain bikers, and motorcycle riders.

Management Guidelines:

- The single-track trail system is available to Class III (motorcycles) vehicles with Oregon all-terrain vehicle permits and all non-motorized modes of travel.
- Motorized, mechanized, and equestrian use is prohibited between December and April to prevent excessive damage to the trail tread when soil moisture conditions are high. Motorized use on the trail system may be restricted during summer months due to fire hazard conditions.

Process for ongoing public collaboration/outreach: The principal venue for public collaboration on the trail system is through local partnership relationships. A printed trail map is available to the public at the Coos Bay District office and on the Coos Regional Trail Partnership webpage. The trail system is marked on the ground with regulatory and directional signage.

Process for selecting a final road and trail network: The BLM completed route designations through the Blue Ridge Multiple Use Trail System environmental assessment (EA OR-125-98-18). The BLM will use adaptive management to adjust the system for commercial timber production demands, user needs and resource protection. The BLM will accomplish these modifications in collaboration with trail partners and users and through changes to the Blue Ridge Trail system plan and an environmental assessment.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the design features identified in the environmental assessment, standards in BLM Manual H-9114-1 (USDI BLM 1987), and other professional sources. Trail maintenance will be a priority within this OHV area to ensure a quality riding experience for trail users and to conserve natural resource values.

Eugene District OHV Area Designations

Table P-6. Eugene District OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	-	-	-	-	-
Limited to Existing Routes	-	289,796	283,963	281,750	279,757
Limited to Designated Routes	-	-	5,728	5,727	5,727
Closed	-	20,601	20,707	22,921	24,915

Description: Includes all BLM-administered lands within the Eugene District. See additional guidelines for the Shotgun Creek OHV Area.

Limited Area Management Guidelines:

- Until road and trail designations are complete, all motorized vehicles will be limited to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, to protect cultural resources, or for public safety.
- Vehicles may pull off roads or trails to park or allow others to pass, up to 25 feet from centerline of roads or up to 15 feet from centerline of trails.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicles and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration/outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLM will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps and brochures shall be available to the public at the main office illustrating designations, describing specific restrictions, and defining opportunities.

Process for selecting a final road and trail network: The BLM has completed route designations for the Upper Lake Creek Special Recreation Management Area and the Shotgun Creek OHV Area. The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1 (USDI BLM 1987) and other professional sources.

Shotgun Creek OHV Travel Management Area

Acres: 5,755

OHV Designation: Limited to designated roads and trails

Niche: Offers a multiple-use trail riding experience for motorcycle riders, all-terrain vehicle riders, and four-wheel drive enthusiasts.

Management Guidelines:

- The trail system is available to Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) motorized vehicles with Oregon all-terrain vehicle permits.
- The BLM will sign and map routes open to OHV use.
- Routes available for OHV use may change periodically due to timber harvest activity or trail rehabilitation.

Process for ongoing public collaboration/outreach: The principal venue for public collaboration on the trail system is through local partnership relationships. A trail map is available to the public at the Eugene District Office and will be updated as trail routes change. The trail system is marked on the ground with regulatory and directional signs.

Process for selecting a final road and trail network: The BLM completed route designations through two Shotgun OHV Trail System environmental assessments (EA OR 090-00-04 and EA OR 090-06-04). The BLM will consider changes to the transportation system during the route designation planning process. The BLM will accomplish these modifications in collaboration with trail partners and users.

Road and trail construction and maintenance standards: Trail maintenance will be a priority within this OHV area to ensure quality riding experiences for trail users and to conserve natural resource values.

Klamath Falls Field Office OHV Area Designations

Table P-7. Klamath Falls Field Office OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	-	-	-	-	-
Limited to Existing Routes	-	213,266	209,559	200,501	202,759
Limited to Designated Routes	-	-	-	-	-
Closed	-	494	4,201	13,260	11,001

Description: Includes all BLM-administered lands within the Klamath Falls Field Office.

Limited Area Management Guidelines:

- The BLM will managed Limited OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.
- The BLM will limit motor vehicle use to administrative, commercial, and passenger vehicle traffic where not specifically signed or gated.
- Until road and trail designations are complete, all motorized vehicles will be limited in the interim to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, to protect cultural resources, or for public safety.
- Vehicles may pull off roads or trails to park or allow others to pass, up to 25 feet from centerline of roads or up to 15 feet from centerline of trails.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicles and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Seasonal restrictions:

- The Eastside seasonal OHV closure is in effect from November 1 to April 15 and applies to all BLM-administered lands within deer winter range cooperative wildlife areas, including the majority of Stukel and Bryant Mountain and portions of the Gerber block as mapped.
- The Pokegema wildlife area seasonal OHV closure is in effect from November 20 to April 1.
- For designated snowmobile trails, wheeled vehicles are prohibited once grooming of trails begins for winter season.
- The OHV use may be limited in other areas on a seasonal basis due to special conditions such as temporary fire restrictions, special wildlife requirements, etc.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration/outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLL will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps and brochures shall be available to the public at the main office illustrating designations, describing specific restrictions, and defining opportunities.
- The BLM will continue to participate with other land managers in the cooperative management of the Pokegema wildlife area and deer winter range areas.

Process for selecting a final road and trail network: The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1 (USDI BLM 1987) and other professional sources.

Medford District OHV Area Designations

Table P-8. Medford District OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	160,614	-	-	-	-
Limited to Existing Routes	-	715,439	730,596	734,121	769,047
Limited to Designated Routes	-	-	-	-	-
Closed	17,197	89,889	74,719	71,195	36,246

Description: Includes all BLM-administered lands within the Medford District.

Limited to Existing Area Management Guidelines:

- The BLM will manage Limited OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.
- Paved roads are limited to licensed, street-legal vehicles only.
- Level 1 and 2 routes are open to Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicles. Trails less than 50 inches in width are restricted to all-terrain vehicles and motorcycles.
- Roads on private property that do not have a secured public right-of-way are not necessarily open to public or recreational vehicle traffic, even if they are a "continuation" of the BLM road system or a road shown on the preliminary maps.
- Until road and trail designations are complete, all motorized vehicles will be limited in the interim to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, to protect cultural resources, or for public safety.
- In the Butte Falls Resource Area, the Jackson Access and Cooperative Travel Management Area closure (32,822 acres) is in effect from mid-October through April 30. Only those roads shown in green on Oregon Department of Fish and Wildlife maps or posted with green reflectors are open to motorized vehicles during the period of the restriction.
- Vehicles may pull off roads or trails to park or allow others to pass, the minimum distance needed to allow for safe passage.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicle use and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.
- Non-motorized travel (e.g., horseback riding, hiking, and mountain biking) is allowed on all access routes.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration/outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLM will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps and brochures shall be available to the public at the main office illustrating designations, describing specific restrictions, and defining opportunities.

Process for selecting a final road and trail network: The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1 (USDI BLM 1987) and other professional sources.

Roseburg District OHV Area Designations

Table P-9. Roseburg District OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	-	-	-	-	-
Limited to Existing Routes	-	418,978	412,196	400,259	398,863
Limited to Designated Routes	-	-	-	-	-
Closed	-	3,808	10,591	22,528	23,924

Description: Includes all BLM-administered lands within the Roseburg District.

Limited Area Management Guidelines:

- The BLM will manage Limited to Existing OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.
- Motor vehicle use will be limited to administrative, commercial, and passenger vehicle traffic where not specifically signed or gated.
- Until road and trail designations are complete, all motorized vehicles will be limited in the interim to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, to protect cultural resources, or for public safety.

- Vehicles may pull off roads or trails to park or allow others to pass, up to 25 feet from centerline of roads or up to 15 feet from centerline of trails.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicle use and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration/outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLM will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps and brochures shall be available to the public at the Roseburg District office illustrating designations, describing specific restrictions, and defining opportunities.

Process for selecting a final road and trail network: The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1 (USDI BLM 1987) and other professional sources.

Salem District OHV Area Designations

Table P-10. Salem District OHV area designations by alternative.

OHV Area Designation	No Action	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Open	160,614	-	-	-	-
Limited to Existing Routes	-	389,595	361,780	346,806	340,067
Limited to Designated Routes	-	-	6,684	6,185	10,626
Closed	17,197	8,774	29,881	45,374	47,672

Description: Includes all BLM-administered lands within the Salem District. See additional guidelines for the Upper Nestucca OHV Area.

Limited to Existing Area Management Guidelines:

- The BLM will manage Limited OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.

- Motor vehicle use will be limited to administrative, commercial, and passenger vehicle traffic where not specifically signed or gated.
- Until road and trail designations are complete, all motorized vehicles will be limited in the interim to the existing road and trail network unless closed or restricted under a previous planning effort or due to special circumstances as defined below.
- The BLM may close or limit routes under seasonal or administrative restrictions. These restrictions may include, but are not limited to, fire danger, wet conditions, special requirements for wildlife species, protection of cultural resources, or for public safety.
- Vehicles may pull off roads or trails to park or allow others to pass, up to 25 feet from centerline of roads or up to 15 feet from centerline of trails.
- Limitations apply to all Class I (all-terrain vehicles), Class II (four-wheel drive vehicles), and Class III (motorcycles) vehicles and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Closed Area Management Guidelines: All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.

Process for ongoing public collaboration/outreach:

- The principal venue for public collaboration is through public outreach and scoping during future travel management planning efforts, special projects, and local partnership.
- The BLM will send press releases as needed informing the public of OHV opportunities and restrictions. The BLM will post signs where appropriate.
- Upon completion of the transportation management plan, maps and brochures shall be available to the public at the main office illustrating designations, and describing specific restrictions.

Process for selecting a final road and trail network: Route designations have been completed for the Upper Nestucca OHV Area. The BLM will accomplish final route designations for the rest of the district in a comprehensive, interdisciplinary travel and transportation management plan scheduled to be completed no later than five years after completion of the RMP revision.

BLM's geo-database will provide information for identifying roads and trails for both motorized and non-motorized activities. The BLM will conduct on-the-ground inventories if roads and trails cannot be identified using remote-sensing techniques. The BLM will evaluate proposed designations through public scoping and a NEPA analysis. The BLM will consider changes to the designated system during the transportation management planning process.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the standards in BLM Manual H-9114-1 (USDI BLM 1987) and other professional sources.

Upper Nestucca OHV Travel Management Area

Acres: 9,579

OHV Designation: Limited to designated roads and trails.

Niche: Located 20 miles northwest of McMinnville, Oregon, this area provides Class I (all-terrain vehicles), and Class III (motorcycles) OHV riding experience along a designated road and trail network.

Management Guidelines:

- Designated trails and maintained roadways are limited to Class I and Class III motor vehicle use within the boundaries of the OHV area.
- All Class I and Class III vehicles must be equipped with approved spark arresters, an Oregon all-terrain vehicles sticker for the appropriate vehicle class, and must meet posted noise requirements.
- Class II vehicle use is only authorized on Level 3 and Level 4 roadways.
- The BLM may restrict motorized use on the trail system during summer months due to fire hazard conditions.
- The BLM may be permanently or temporarily close areas or trails for administrative use, extreme wet conditions, construction/reconstruction requirements, or other environmental concerns.

Process for ongoing public collaboration/outreach: The principal venue for public collaboration on the trail system is through local partnership with the Applegate Rough Riders Motorcycle Club. A trail map is available to the public at the Salem District Office and Tillamook Field Office. The trail system is marked on the ground with regulatory and directional signage.

Process for selecting a final road and trail network: The BLM has completed route designations through the Upper Nestucca Motorcycle Trail System Environmental Assessment (EA OR 086-97-05). The BLM will use adaptive management to adjust the system for timber management, user needs, and resource protection.

Road and trail construction and maintenance standards: The BLM will construct and maintain roads and trails in accordance with the design features identified in the Monitoring and Maintenance Plan for the Upper Nestucca OHV Trail System. Trail maintenance will be a priority within this OHV area to ensure a quality riding experience for trail users and to conserve natural resource values.

References

USDI BLM. 2011. BLM Manual Handbook H-8342-1 – Travel and Transportation Management. 146 pp. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/west_mojave_plan_updates.Par.33567.File.dat/Travel%20and%20Transportation%20Management%20Handbook.pdf.

USDI BLM. 1987. BLM Manual Handbook H-9114-1 – Trails. Available at BLM district offices.

Appendix Q – Tribal

Biographies and Maps

The BLM compiled data and text from five of the seven Tribes with Tribal lands and varying interests within the planning area, or portions of it. Each Tribe wrote and submitted their individual Tribal biography. The BLM did not alter or edit the text in any way. The BLM created the maps using data provided by each of the Tribes in order to show those lands of interest to each Tribe. The maps and biographies do not reflect a BLM endorsement of tribally stated territories or histories. In addition, the nomenclature used on each map came from the tribes as well. The BLM has included these biographies and maps as context for the Tribal Interests section as well as to allow the Tribes to state who they are and how they define their interest in the lands administered by the BLM in western Oregon. It also provides managers and others who implement this RMP with valuable information about the history and interests of Tribes within the planning area. All seven tribes listed below are federally recognized Tribes and interact with the BLM as sovereign Nations.

- The Confederated Tribes of Coos, Lower Umpqua, Siuslaw Indians
- The Confederated Tribes of the Grand Ronde Community of Oregon
- The Confederated Tribes of Siletz Indians
- The Confederated Tribes of the Warm Springs Indian Reservation
    - (The BLM did not receive Warm Springs documents in time for the draft.)
- The Coquille Indian Tribe
- The Cow Creek Band of Umpqua Tribe of Indians
- The Klamath Tribe
    - (The BLM did not receive Klamath documents in time for the draft.)

The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians

We, the Coos, Lower Umpqua, and Siuslaw, are coastal people. We still live on lands that once were managed by our ancestors. We have always strived to live in balance with the land and waters, using their gracious bounties and sustaining them for future generations. We have always held sacred the land and the resources that rely on that land, water, and air. We have always lived using what the Creator has provided. We have endured many hardships to our land, people and culture over the last 150 years. Thousands of our ancestors lost their lives to relocation, sickness, and moral. Over the last century we have worked to sustain our people and culture by protecting the environment, natural resources and trying to find ways to balance our traditions and philosophy with the dynamic and developing viewpoints communities that share our coasts and lands.

A Historical Record

In 1855, members of the Coos, Lower Umpqua, and Siuslaw Tribes, along with members of the other coastal Oregon tribes, signed a treaty with the United States of America. This treaty would have ceded lands west of the summit of the Coast Range. This treaty was introduced in the United States Senate and read once, but whether through negligence or whether due to concerns arising from what is commonly known as the Rogue River War, it was never read a second time nor ratified by the Senate. Despite the lack of ratification, the Coos and Lower Umpqua Tribes were held captive beginning in 1856, the Coos were confined on the sand spit known as Ki:we'et (now commonly known as Sitka Dock) just south of Empire, the Lower Umpqua moved to Fort Umpqua on the north spit of the Umpqua River, then at the

Alsea Sub-Agency of the Coast Reservation and the Siuslaw were confined within the Coast Reservation, the boundary of which included most of the western portion of their Ancestral Territory.

In 1871, the federal Appropriations Act ended treaty making between the federal government and tribes. The relationship between sovereigns was continued by the United States through "agreements," statutes, and Executive Orders in lieu of treaties. The passage of this act ended the prospects of the Tribes' treaty being ratified.

In 1875, the Alsea Sub-Agency of the Coast Reservation was opened to Euro-American settlement. This occurred against the will and heartfelt testimony of the Coos and Lower Umpqua confined at the sub-agency. These Tribal Members were ordered to relocate to the remaining portion of the Coast Reservation centered around the Siletz Agency. Most if not all of the Coos and Lower Umpqua refused and relocated around the remnant Siuslaw population centered around the traditional village of Qa'ich (now commonly known as the area around the Hatch Tract, the site of the Confederated Tribes Three Rivers Casino and Hotel); centered around the area of Gardner and the confluence of the Smith and Umpqua Rivers, or centered around South Slough and other areas around Coos Bay.

In 1887, the General Allotment (Dawes) Act authorized allotments to Indian People. Most of these passed out of Indian tenure due to financial hardship, lack of familiarity of the applicable land tenure laws and regulations, and/or due to scheming by non-Indian land investors. Some allotments remain in Tribal Member ownership in fee status or have been sold to the Confederated Tribes government.

In 1917, the Coos, Lower Umpqua and Siuslaw Indians, in reflection of millennia of shared cultural and political ties, and in response to sixty years of common adversity, formally confederated to form the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians. The primary purpose of this confederation was to pursue land claims. Since according to United States Law in order to take lands a ratified treaty agreement had to take place and there was no such ratified treaty.

In 1929, the United States government waived its sovereign immunity (45 Stat.1256, as amended by 47 Stat. 307) and allowed the Confederated Tribes to sue the federal government in the United States Court of Claims for settlement of land claims. Testimony from several Tribal Members and members of the broader community was taken over the next several years. In 1935, the testimony of George Bundy Wasson (of Coos and Coquille descent) in the Court of Claims described the boundary of Ancestral Territory as extending from Fivemile Point (Coos County) north to Tenmile Creek (Lane County) thence east to the crest of the Coast Range, including the Coos, Umpqua (to the head of tide), Smith, and Siuslaw Watersheds. (This description has been carried forward and appears on the enrollment cards of members of the Confederated Tribes and was adopted in Tribal Council Resolution No. 90-010.) In 1938, the United States Court of Claims ruled against the Confederated Tribes, describing Indian testimony as hearsay and self-interested. Later in1938 the United States Supreme Court refused to hear Confederated Tribes appeal of this Court of Claims ruling. In 1947, the Confederated Tribes filed claim to the reorganized Indian Claims Commission, which in 1952 rejected the Confederated Tribes claim, ruling that the matter was *res judicata*, or a case already decided by the Court of Claims.

Following World War II, the United States government pursued the goal of Indian assimilation into the "melting pot" and promoted the termination of federal recognition of several tribes. In 1951, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians refused to endorse termination of federal recognition. In 1954, Public Law 588 terminated federal recognition of forty-three bands and tribes in Oregon effective 13 August 1956, including, without consent, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians.

In 1956, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians petitioned the United Nations for membership "to the end that truth and justice may be raised up and accorded their proper place." The petition was ignored.

The period of termination was a dismal time. Tribal Members continued to know who they were, continued to remember their Ancestors, continued to honor their Elders, continued to meet among themselves as a Tribe, continued to raise their children to be Coos, Lower Umpqua, and Siuslaw, and continued to fight for their rights. Despite the dismissal of their Tribal identity by the United States government, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians maintained continuous government of, by, and for the Tribes, and exercised the rights and fulfilled the responsibilities of any government to its People.

From 1954 through 1984, the Confederated Tribes expended three decades of human energy, money, and political capital working to have federal recognition restored. Through the sacrifices of many who lived to see the day, and through the sacrifices of many others who did not, federal recognition was restored to the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians through the enactment of Public Law 98-481which was signed into law on 17 October 1984.

Future Directions

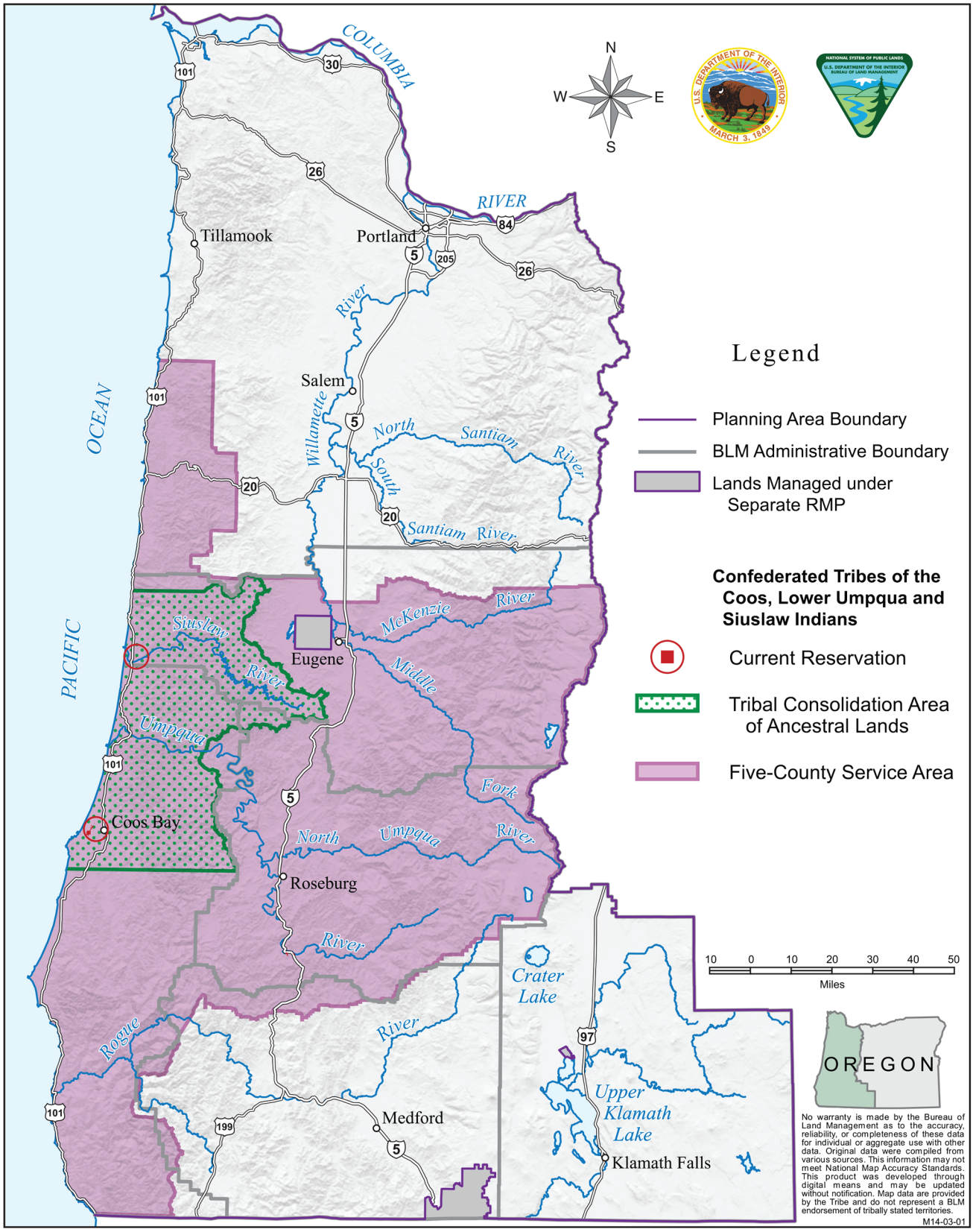
We of the Coos, Lower Umpqua, and Siuslaw have lived here since time immemorial. Our culture and stories are reminders to show our appreciation for all that we have. We have always taken only what we need, and we have always given back. For hundreds of generations we lived in balance with nature. We bring back the bones of the first caught Salmon to the ocean to show respect to the Salmon. It is our way of celebrating and communicating our appreciation to the Salmon, in recognition of their sacrifice. It is also a time to refrain from fishing and give reprieve to the first Salmon as they run upriver. We consider ourselves responsible for the survival and health of the fish, forest, waters and all the resources of our lands.

We understand that People are part of the Natural World. We understand that for us to live other parts of creation must give us their lives. We understand that our lives depend on the lives of others. We must take care of them, as they take care of us. We all must take care of each other. For ten thousand years, for five hundred generations, we have returned our Ancestors to the earth. Our Ancestors' bones are all around us – in the earth, in the trees, in the water, in the air. We feel the spirits of our Ancestors accompanying us every day as the Tribe continues on.

Over 150 years ago, we signed a treaty would have exchanged our land for some promises. That treaty was never ratified; we were removed from our lands and the promises were not kept. Where once millions of salmon returned to our streams, today only thousands return.

BLM-managed lands are culturally significant to the Tribes. Tribal cultural resources include archaeological sites and traditional cultural properties; living cultural resources such as cedar and salmon; and spiritually-significant sites including certain promontories and viewsheds. These cultural resources contribute to the health of tribal cultures and the persistence of tribal identities.

Today, we are Tribal members and we are neighbors. Today we sit around the same table. Today we face the same issues, and today we work together and create common solutions. We are proud to be members of the communities in our Ancestral Watersheds. We greatly respect the accomplishments of our partnerships, and we look forward to the continued healing that our partnerships can achieve.



Map 1: Tribal Lands of the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians

The Confederated Tribes of the Grand Ronde Community of Oregon

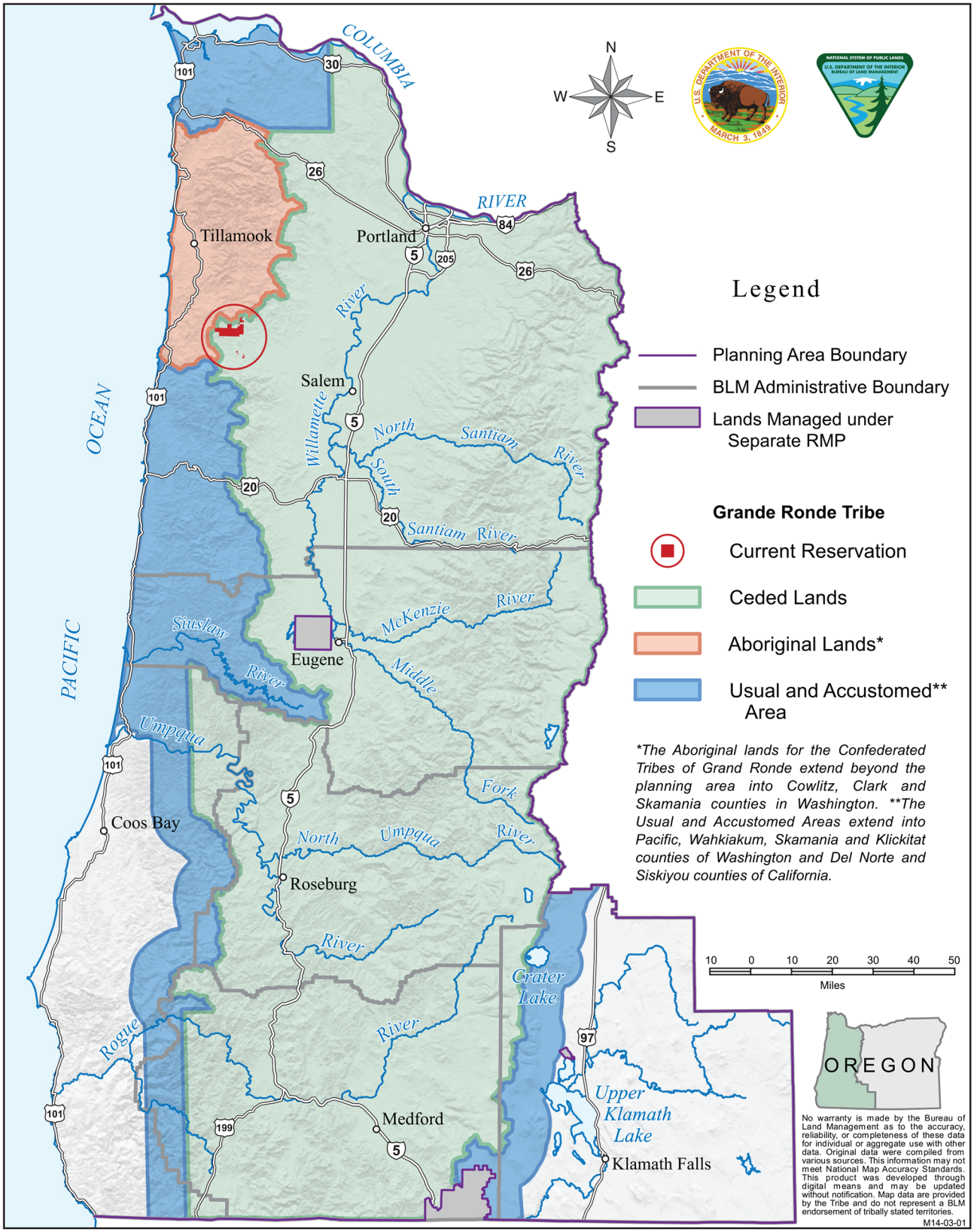
More than 30 Tribes and Bands were relocated to the Grand Ronde Reservation from western Oregon, southwestern Washington, and northern California and removed to the Reservation after signing seven treaties from 1853-1855. These include the Rogue River, Umpqua, Chasta, Kalapuya, Chinookan, Molalla and Tillamook Indians who had lived in their traditional homelands since time immemorial. Prior to removal they lived off the land – fish, game and plant foods were plentiful, and they traded with other Tribes and later, with non-Indians.

The Grand Ronde Reservation was begun by treaty arrangements in 1854 and 1855 and firmly established by Executive Order on June 30th, 1857. The original reservation contained more than 60,000 acres and was located on the eastern side of the coast range on the headwaters' of the South Yamhill River, about 60 miles southwest of Portland and about 25 miles from the ocean.

In 1887, the General Allotment Act became law. Under the law, 270 allotments totaling more than 33,000 acres were made to the Tribal members of the reservation. These allotments came with the understanding that they would pass from federal trust status into private ownership after 25 years. The purpose of the Act was to encourage Tribal people to become farmers and eliminate common ownership of land, traditional activities and practices. In 1901 U.S. Inspector James McLaughlin declared 25,791 acres of the reservation "surplus" and the U.S. sold it for $1.10 per acre to non-tribal businesses and citizens.

In 1936 under the Indian Reorganization Act (also known as the Howard-Wheeler Act), the Tribe was able to purchase 536.99 acres to provide homes and land for tribal people. The attempt at recovery of land was halted on August 13th, 1954, when the Congress passed Public Law 588, the Western Oregon Termination Act, which terminated the Tribe's federal recognition and abolished the treaties that had been negotiated in good faith. This act of legislation was aggressively pursued by then Secretary of Interior James Douglas McKay. McKay was Oregon's 25th Governor prior to accepting the position of Secretary of Interior. McKay oversaw the implementation of the Western Oregon Termination Act, which went into effect on August 13, 1956. For nearly 30 years, the members of the Tribe were landless with the exception of the Tribal cemetery and without the Tribe to provide a focal point of community. Irreparable damage was done to the Tribal community's health, education, languages and cultures. In the early 1970s efforts began to reverse the Termination Act and to reestablish the Tribe. Tribal leaders worked together with no financial backing, only a cemetery, and their desire for the Tribe to restore its federal recognition.

On November 22nd, 1983, Public Law 98-165, also known as the Grand Ronde Restoration Act, was signed into law. After a great deal of negotiations with the local community, local landowners, as well as state and federal agencies, the Tribe developed a Reservation Plan. Following this on September 9th, 1988, Public Law 100-425, also known as the Grand Ronde Reservation Act, was passed, restoring 9,811 acres of the original reservation. On October 4, 1994, Public law 103-435, added 240 acres to the Reservation to compensate the Tribe for a surveying error that was never corrected prior. Today the 10,052-acre reservation lies just north of the community of Grand Ronde. With Restoration of the Tribal government and the re-establishment of the Reservation, the Tribe has focused on rebuilding Tribal programs, developing Tribal services and servicing the greater community. The Tribe has provided a viable community that contributes to the local economy and provides for the achievement of the Tribal members.



Map 2: Tribal Lands of the Confederated Tribes of Grand Ronde

The Confederated Tribes of Siletz Indians

The Confederated Tribes of Siletz Indians (CTSI) consists of the many Tribes and Bands who were removed to or came to reside on the Siletz/Coast Reservation beginning in 1856 or after. Almost exclusively, ancestral Tribal residents resided there by Aboriginal Right and/or Treaty Right (it being their designated permanent home under treaty stipulations/approved federal policy).

Prior to Treaties being signed, the Reservation being established, and the U.S policy that all Western Oregon Indians were to confederate and live within its borders, Siletz ancestral peoples maintained about 20 million acres of ancestral territories, approximately 19 million of those acres were the area of Oregon west of the summit of the Cascades. As treaties were signed, our people generally ceded large territories to the U.S., while maintaining certain rights. Those rights included: (1) the right to a permanent reservation (and adequate land, water, fish wildlife and other resources for the CTSI to sustain itself into the future); (2) payment for cession of aboriginal title to those vast territories; and (3) right to a temporary reservation or ability to stay within the ceded area until the President of the U.S. selected the permanent reservation.

November 9, 1855, President Pierce signed an Executive Order establishing our permanent reservation at about 1.1 million acres. It included approximately 1/3 of what is now the State of Oregon's coastline. Removal of our ancestors to the new reservation began soon after. An encampment was established just off the eastern border of the reservation as a staging area for bringing tribes to the reservation. Just after most of the tribes had moved from the encampment/staging area to the Siletz Reservation, President Buchanan saw fit to re-designate the temporary encampment as the Grand Ronde Reservation. All Tribes and individuals who came to reside within the Siletz Reservation became members of the Confederated Tribes of Siletz. Those who remained at the encampment became members of the Confederated Tribes of Grand Ronde. All Western Oregon Indians were considered to belong to one or the other of the confederations. There were individuals, and small family groups who had stayed off-reservation, or returned from one or other of the reservation to live in old homelands.

Many hardships were endured, including starvation, neglect, abuse, forced labor, and violent assaults and punishments, sometimes resulting in deaths. Tribes were still being brought onto our Reservation from temporary encampments at Fort Umpqua and other places into the early 1860s. At about this time, the Coos, Lower Umpqua people who had not previously resided within the reservation were brought to a new Sub-Agency of our reservation established at Yachats, referred to as the Alsea Sub-Agency or Yachats Sub-Agency.

Quickly the brutal implementation of federal policy turned our Reservation's atmosphere into one of a harsh prison camp, rather than the Tribal Homeland that had been promised. That perception of our population suffering to bend to the will and whims of the U.S. and shifting policy decisions led U.S. Administrative and Legislative officials to take actions which grabbed large portions of our permanent reservation through illegal means – which did not take into account our peoples' treaty rights, or their own legal responsibilities/lack of authority.

In 1865, about 200,000 acres of our permanent reservation, around Yaquina Bay were taken by order signed by President Johnson. That action left our remaining reservation lands in two detached parcels. In 1875, another 700,000 acres were ripped from our possession through an Act of Congress. Our people were forced to move, instead of being informed that they had to give informed consent in order for the Act to legally take effect.

From 1875-1892 our remaining reservation consisted of about 225,000 acres. In 1892 the General Allotment Act took effect both on reservation and for our off-reservation families. Five hundred fifty-one

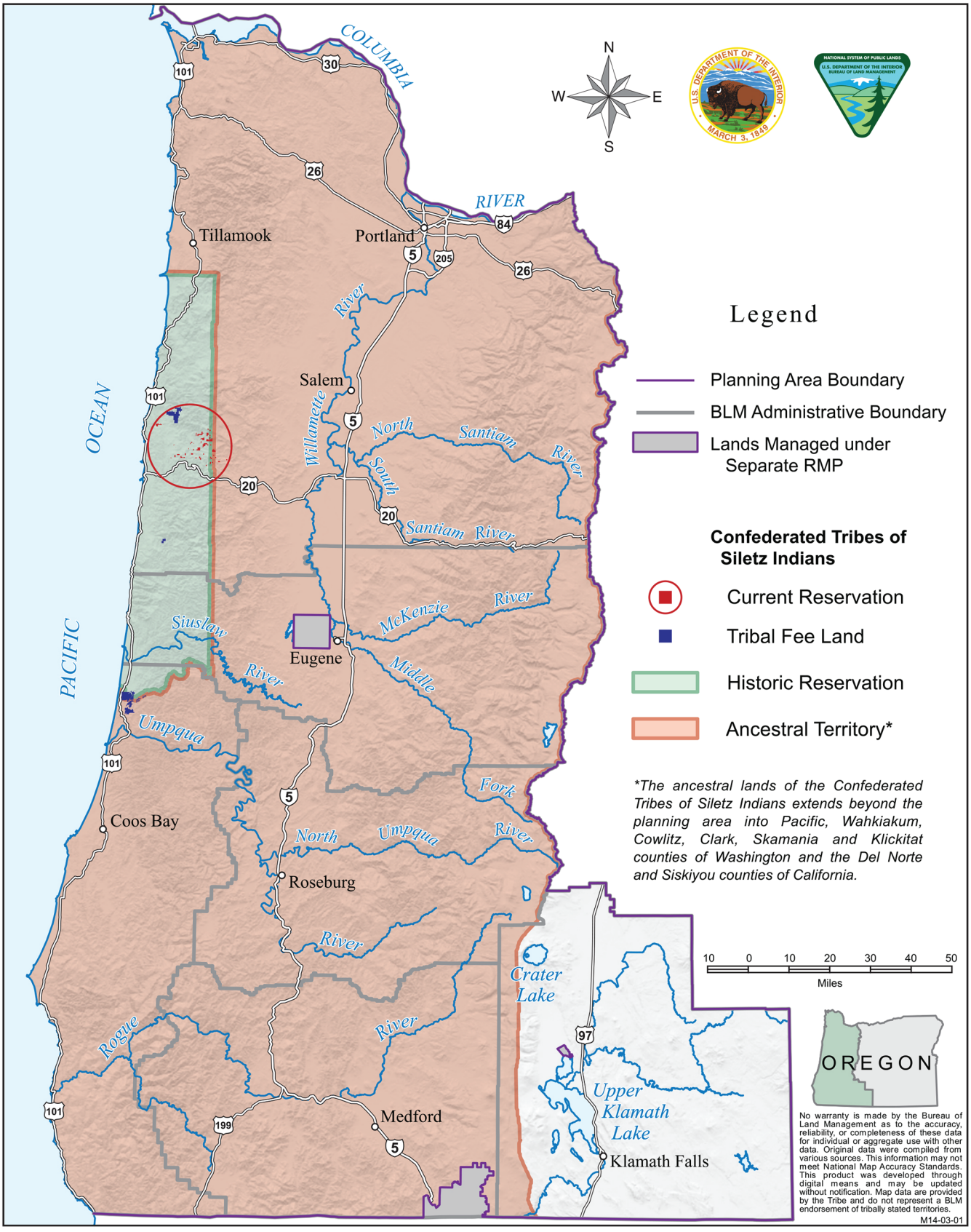
(551) Siletz Reservation Allotments of approximately 80 acres each were assigned to the tribal members then present, and before some families could even return to claim an allotment, the allotment rolls were closed and the remaining reservation lands declared "surplus". Our Tribe was forced to agree to cede those lands for 74 cents an acre, or they "could be taken just like the 1865 and 1875 reductions – without compensation". Promises that future tribal members could apply for and receive allotments from the open and unclaimed areas of the ceded areas remain unfulfilled.

Quickly, U.S. law and policy began to restrict our ability to hang onto even our allotments. By 1912, over half of the Siletz Allotments were non-Indian owned. All of these actions, from treaties, removal, reservation reductions, to loss of family allotments were experienced as a constant onslaught, and continued as U.S. Court of Claims and Indian Claims Commission cases were brought forward by our people. The U.S. Courts generally denied or minimized the U.S.'s responsibilities to our pay for lands ceded to the U.S., or maintain the reservation boundaries that had been set according to treaty stipulations. A combination of individuals who were of Coos, Lower Umpqua and Siuslaw descent brought suit for taking of aboriginal title without a title. Many enrolled Siletz members participated in the suit, but the effort was initiated by off-reservation families not enrolled, so the Court found in part that the group did not have standing to bring the suit – because the Confederated Tribes of Siletz, the legal successors in interest to those ancestral tribes, had not brought the action. Our Tillamook, Yaquina, Alsea, Tututni, Chetco and Coquille people brought suit through the Confederated Tribes of Siletz Indians, and seemed to be on the verge of a major victory, when the U.S. appealed that claims case to the U.S. Supreme Court. The Supreme Court decided that descendants of those tribes were only entitled to value at the time of taking, no interest accrued, because the U.S had failed to ratify their own treaty. A mere pittance was recovered for all of the generations of suffering since removal from those lands.

Simultaneous with land claims actions proceeding, was Siletz and Grand Ronde being targeted for the U.S. Policy of terminating tribal governments in the 1950s. The Western Oregon Termination Act was passed in 1954, and named the Confederated Tribes of Siletz Indians and Confederated Tribes of Grand Ronde, but no other Tribal governments were really recognized at that time. To ensure that no individuals living off-reservation, separate from Siletz or Grand Ronde, or that constituent groups who were members of those confederations could step forward later, and claim that they had survived the intended termination by not being named in the act – Congress named every western Oregon aboriginal group who had ever been named in a federal document, to be sure no chance of any tribal groups asserting status in Western Oregon would be possible. In 1956, the Western Oregon Termination Act took full effect.

Termination was meant to be the final blow to the CTSI and its members. The judgment funds from claims decisions were even held-up as insurance that no concerted resistance to the implementation of Termination would arise. About 1970, Siletz Indians began calling meetings and asking our people to come together and support an effort to get Congress to address our situation. Many of our people were living in poverty. Sub-standard housing was too common, healthcare and education access was low. In 1973, the Menominee Tribe of Wisconsin successfully petitioned Congress to reverse their Termination Act. The CTSI began working toward the same goal, but as the first landless tribe to regain federal recognition after being terminated. In November 1977, Congress passed, and President Jimmy Carter signed into law The Siletz Restoration Act. The Restoration Act called for an initial Reservation Plan to be submitted to Congress for consideration. The Siletz Tribe was advised to submit a modest request for return of lands, which could alter be expanded. The 1980, Siletz Reservation Act included about 3,660 acres of small scattered BLM administered parcels, primarily east of the town of Siletz. Today the CTSI owns about 15,000 acres, mostly timberlands added to our holdings after 1980, through purchase, donation, wildlife mitigation agreements, etc. Those lands are held in a variety of status' (Reservation, non-Reservation Trust, and fee) and managed for a combination of resource use/protection/enhancement values and revenue generation for member services.

Many places of intense historical, cultural and spiritual significance to our Confederated Tribes of Siletz Indians are now owned/managed by the BLM. Among these are ancestral villages such as Umpqua Eden, prayer places, treaty signing, and temporary Reservation sites such as Table Rocks in the Rogue Valley, battle sites such as Hungry Hill, numerous plant and other resource gathering places tended by our ancestors, both within and outside of our 1855 Siletz Reservation boundaries, including Yaquina Head Outstanding Natural Area. Because our people do not hold title or control of these places currently does not release us from our obligations to maintain our connections to them and recognize them for their importance to all generations in the past, present and future.



Map 3: Tribal Lands of the Confederated Tribes of Siletz Indians

The Coquille Indian Tribe

The Coquille Indian Tribe is a people that have always shared a strong connection with the land. This relationship is evident in the tribe's name which comes from the Native name for a lamprey eel, or "Scoquel," of which the river it abounded in took its name as well, and was later shortened to, "Coquell." Thus, "Coquille", pronounced, Ko-kwel, derived from a Chinook jargon word, became the name of a place and a people.

Coquille ancestors lived at South Slough on lower Coos Bay, in all the watersheds of the Coquille River system from the ocean to its headwaters, and along the coast as far as Cape Blanco and Port Orford. They spoke three distinct local languages; Miluk, Hanis, and Athapaskan, intermixed with Chinook jargon, the trade language for Northwest Native Americans. Along the coast, estuary shorelines and sheltered coastal bays offered food of all sorts, and canoe travel was easy. In the interior, streams and rivers full of fish and valleys where deer and elk wintered, determined where villages were located. Seasonal places in the uplands and interior valleys away from the estuaries and coast were often hunting and food gathering areas used by many different Native groups. Typically, when Coquille and other groups gathered for berry and nut harvesting, root digging, or at hunting and fishing sites, it was also a time of celebration, and for renewing old relationships and making new ones. These places were returned to year after year. Today, annual events like the Mid-Winter Gathering, Restoration Day Celebration, and Solstice Dances all respond to those ancient Coquille practices.

The Coquille people's Ancestral Homelands encompassed more than one million acres, all of it ceded to the U.S. government in treaties signed by, "Coquille chiefs and head-men," first in 1851 and again in 1855. Those treaties were never ratified by the U.S. Senate, thus reservation lands and other considerations promised in the treaties never materialized, so the Coquille people and the generations that followed were denied permanent Tribal homelands.

On June 28, 1989, Congress passed public Law 101-42, which re-established the Coquilles as a federally recognized Indian Tribe. The Coquille Restoration Act restored the Tribe's eligibility to participate in federal Indian programs and to receive funding to provide health, education, housing assistance, and pursue economic development for its members. The Act also reaffirmed the Tribe as a sovereign government, and validated the Tribe's authority to manage and administer political and legal jurisdiction over its lands and resources, its businesses, and its Tribal community members. Today, the Tribe, made up of over a thousand members, provides services to tribal members throughout the world and especially concentrated within the five-county service area of Coos, Curry, Douglas, Lane, and Jackson counties in Oregon.

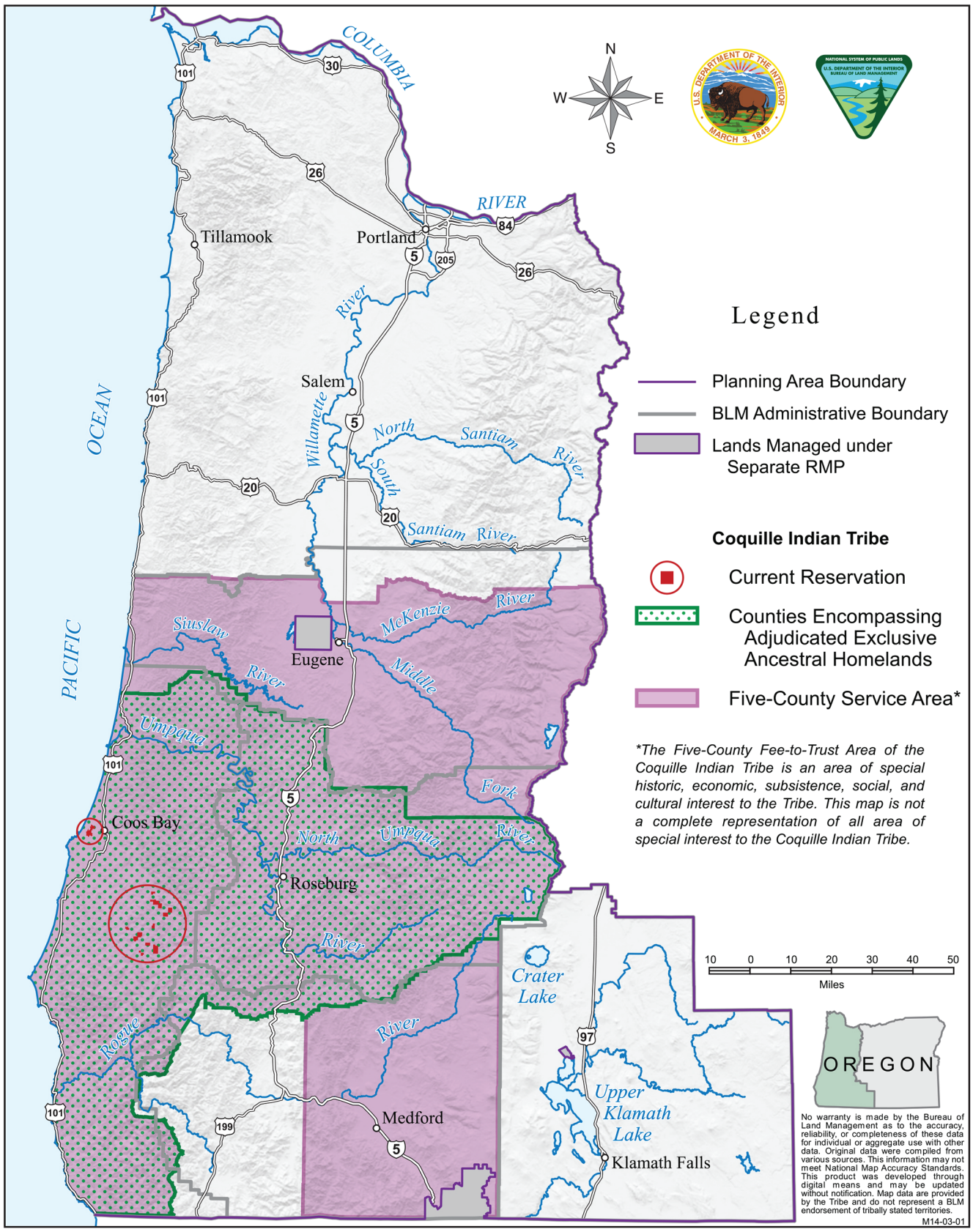
The Coquille Forest was created by enactment of P.L. 104-208, Division B, and Title V on September 30 1996. This Public Law, passed by the U.S. Congress and signed by President Clinton, restored 5,410 acres (5,397 according to GIS) of ancestral homelands to the Coquille Indian Tribe and designated the restored lands as the Coquille Forest.

The Coquille Forest Act allows the Coquille Tribe an opportunity to reaffirm Tribal stewardship over a small portion of its ancestral homelands, and to reestablish many of the Tribal cultural traditions that were once practiced on these landscapes.

The purpose for creation of the Coquille Forest was described by Senator Hatfield in his statement before the U.S. Senate concerning Amendment No. 5150 to the Oregon Resources Conservation Act of 1996 [S. 1662]: "It is intended to establish a Coquille Forest for the Coquille Tribe that will mesh into the broader forest management of Coos County. Within this context, the Coquille Forest is to provide a basis for

restoring the Tribe's culture as well as providing economic benefits [Congressional Record- Senate, pg. S9656, August 2, 1996].

The respect the Coquille people have always had for their Ancestral Homelands, much of which is now administered by the Bureau of Land Management, is carried on in legacy through the practices of the Coquille Indian Tribe today. Annual trips are still made to harvest traditional foods, gather grasses for weaving baskets and enjoy celebrations on the land their ancestors had stewardship over for thousands of years. The land is, and always will be, an integral part of their identity and heritage as a people.



Map 4: Ancestral Homelands and Areas of Special Interest to the Coquille Indian Tribe

The Cow Creek Band of Umpqua Tribe of Indians

The Cow Creek Band of Umpqua Tribe of Indians, located in Douglas County, Oregon, signed a treaty with the United States of America on September 19, 1853 which was one of the first treaty's from the Pacific Northwest to be ratified by the Senate on April 12, 1854. By that agreement, the Cow Creeks became a landless tribe, ceding more than 800 square miles of the Umpqua watershed in Southwestern Oregon to the United States. Unfortunately, the Treaty was ignored by the Federal Government for nearly a century until the Termination Act in 1956 which terminated federal relations with the Cow Creeks, along with 60 other tribes and bands in western Oregon.

The Cow Creeks received no prior notification of the Termination Act, and because of that were able to obtain presidential action in 1980 to take a land claims case to the U.S. Court of Claims. On December 29, 1982, nearly 125 years after the Treaty was signed, P.L. 97-391 was passed by Congress and the Tribe regained federal recognition.

With federal recognition, the tribe was able to negotiate federal contracts with the Bureau of Indian Affairs and the Indian Health Service to administer such programs as Housing, Education, and others related to health for the enrolled membership of the Tribe within the tribal service area.

Current enrollment for the Tribe is over 1600 members. Nearly one half of all tribal members reside in the tribe's seven county service area consisting of Coos, Deschutes, Douglas, Jackson, Josephine, Klamath and Lane Counties. These counties were determined by the Bureau of Indian Affairs and Indian Health Service as required by the CFR to define "on or near the reservation" for the tribe.

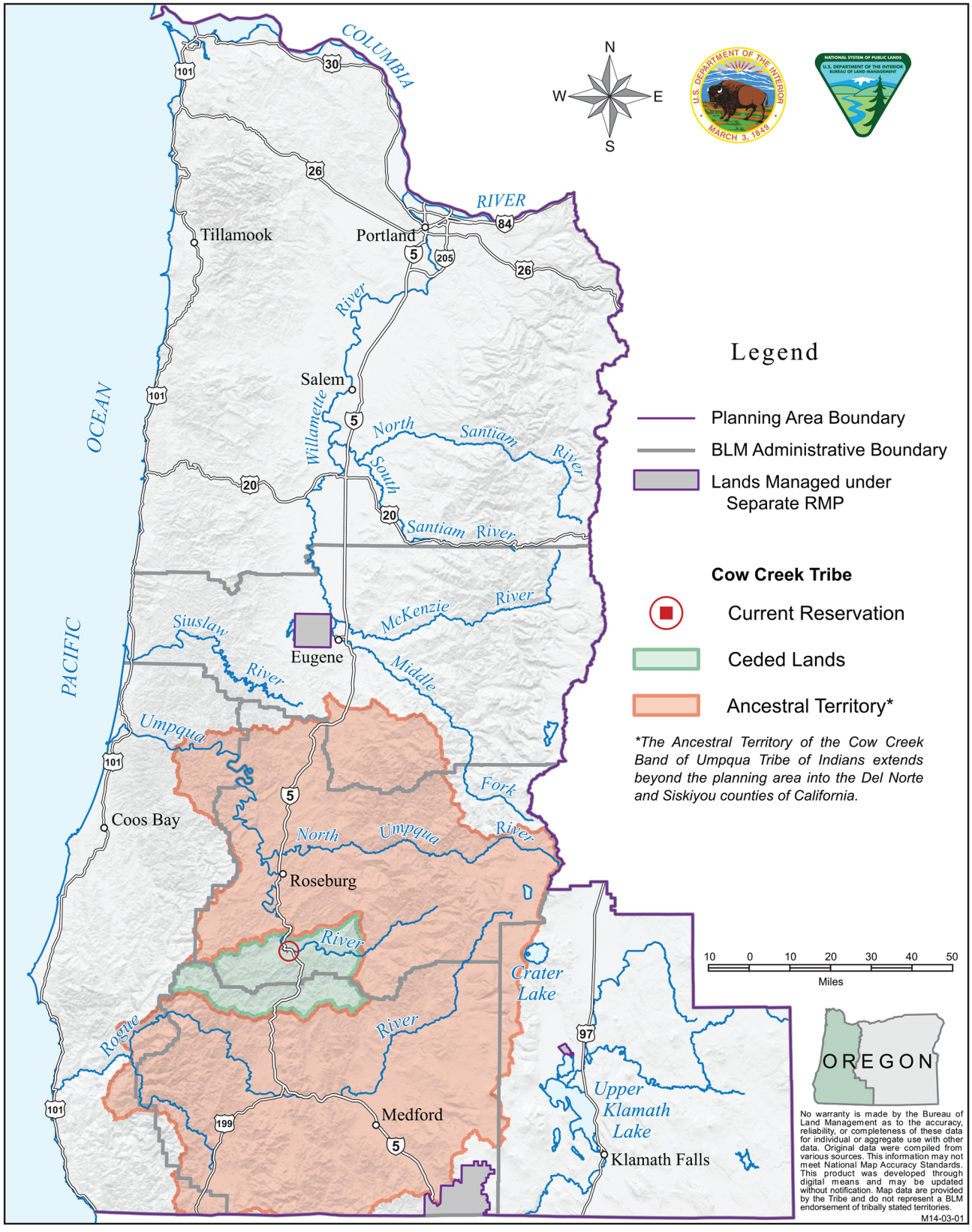
In 1985 the Tribe purchased 29 acres in Canyonville, Oregon which was eventually taken into "trust" by the federal government and became the Tribal Reservation. This property is only 6 miles from where the Treaty was signed in 1853.

The tribe has maintained strong cultural ties to the area. The traditional Cow Creek Pow-wow is held annually at South Umpqua Falls, an area that has tremendous importance to the tribe's culture and tradition.

Another area of great historical, cultural, and traditional use is an area known as the Huckleberry Patch on the Rogue-Umpqua Divide. This area was a traditional use area for the tribe and has great historic importance.

The Tribe has remained steadfast in the realization of tribal economic self-sufficiency. After years of planning and financial packaging, the Tribe opened the Cow Creek Bingo Center on April 30, 1992. Through careful management of tribal assets, the tribe was able to initiate a series of expansions that resulted in the Seven Feather Hotel and Casino Resort.

With proceeds from the resort, the tribe has developed an aggressive economic development program that includes land acquisition and business diversification and development.



Map 5: Tribal Lands of the Cow Creek Band of Umpqua Tribe of Indians

Tribal Listening Sessions

Overview

As part of the outreach process for the RMP, the BLM reached out to all nine Federally Recognized Tribes located within or holding interests within the planning area, inviting them to participate in listening sessions. These invitations initiated coordination and communication with the Tribes in this RMP planning process. Several Tribes also have representatives in CAAG, which has been and will continue to collaborate with the BLM throughout the duration of the planning process. In addition to these efforts, and formal government-to-government consultation, the BLM will continue to be available for meetings throughout the planning process with interested and affected Tribes.

BLM managers and RMP team members conducted listening sessions with five Tribes at local Tribal Headquarters (**Table Q-1**). Cogan Owens Cogan facilitated four of the five meetings with assistance from DS Consulting; BLM staff facilitated one meeting. Their notes, combined with BLM staff notes, comprise the content of this summary.

Table Q-1. Alphabetical listing of Tribal listening sessions.[1]

Tribe	Schedule
The Confederated Tribes of Grand Ronde Community of Oregon*	May 22, 2013
The Confederated Tribes of Siletz Indians*	June 7, 2013
The Coquille Indian Tribe*	May 14, 2013
The Cow Creek Band of Umpqua Tribe of Indians*	December 18, 2013
The Klamath Tribes*	July 15, 2013

[1]The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians; The Confederated Tribes of Warm Springs; Karuk Tribe; and The Quartz Valley Indian Community elected not to have listening sessions.
* Denotes the Tribal representative serves as a member of the CAAG. In addition to these Tribes, the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians also serve on the CAAG.

These listening sessions initiated efforts to ensure that Tribes were involved early in the RMP process and that the BLM understands Tribal interests. The listening sessions:

- Provided Tribal Councils and staff with an update on the planning process and external initiatives;
- Sought input on Tribal issues and concerns and what analytical questions need to be addressed in developing Planning Criteria;
- Identified how Tribes can provide input during future phases of the planning process; and
- Sought input on the level and mechanisms for participation desired by each Tribe.

The BLM had not publically released the Purpose and Need at the time the first three listening sessions were held. These notes reflect only the listening sessions, and not subsequent discussions that the BLM held with the Tribes who expressed interest in follow up discussions on the Purpose and Need. These follow up sessions with the Tribes occurred through conversations with Tribal representatives through the CAAG.

At each listening session, materials presented included:

- Maps of BLM-administered lands in western Oregon (e.g., planning area and administrative land designations)

- Draft analytical questions developed with input from the Cooperating Agency Advisory Group's Tribal Work Group
- A fact sheet on the process and timeline

Listening sessions ranged from 1.5 to 3 hours in length and covered several common discussion items (**Table Q-2**).

Table Q-2. Listening session agenda and format.

Meeting Agenda Items	Participants
Introductions and Background	District Manager and Tribal Council
Update on Planning Process and Schedule	State Office staff
Questions/Discussion	Tribal Council and staff
Listening Session • What are the areas of Tribal interest? • What are Tribal values and concerns to address in the RMP? • What are analytical questions that BLM should address?	Facilitator
Summary/Closing	District Manager

To help frame the discussion of Planning Criteria for Tribal interests, Heather Ulrich, RMP Tribal Liaison, provided a preliminary list of issues and concerns that generally addressed how BLM-administered land management actions would affect the following:

- Tribal plant collection, management, and use
- Tribal resource collection of obsidian and other non-biological resources
- Tribal fishing and hunting resources and practices
- Tribal access to areas of interest including areas of plant collection, fishing, hunting, sacred sites, or places of traditional religious and cultural importance
- Sacred sites and places of traditional religious and cultural importance
- Neighboring tribally managed lands

Because of these listening sessions, the BLM expanded and refined this initial list to address the diverse number topics and resources of interest to Tribes more accurately. The Planning Criteria contains a section on Tribal Interests that outlines the refined list of analytical questions as gathered from Tribal outreach.

Tribal Listening Session Highlights

The following section summarizes the participants and highlights of each of the listening sessions.

Confederated Tribes of Grand Ronde

May 22, 2013
Tribal Headquarters, Grand Ronde, Oregon

Tribal council participants: Toby McClary, Secretary; Jon George, Council Member; June Sherer, Council Member; Kathleen Tom, Council Member; Chris Mercier, Council Member
Tribal staff participants: David Harrelson, Cultural Protection Manager; Eirik Thorsgard, Tribal Historic Preservation Officer; Michael Karnosh, Ceded Lands Program Manager; Michael Wilson, Natural Resources Director

BLM attendees: Kim Titus, Salem District Manager; Ginnie Grilley, Eugene District Manager; Heather Ulrich, RMP Tribal Liaison; Mark Brown, RMP Project Manager; Trish Hogervorst, Salem District Public Affairs Officer
Facilitator: Jim Owens, Cogan Owens Cogan

General comments and highlights of main Tribal interest topics

- The Grand Ronde has just signed (2013) a Natural Resources Management Plan that they feel may serve as a model for other Tribes. Their timber land is managed for sustained yield. In writing their Natural Resources Management Plan, the Tribe met with environmental groups to educate them on the plan. The Tribe is very proud of the fact that environmental groups had previously predicted the Grand Ronde timber would be gone in 20 years; at 30 years, there is still plenty of timber on Tribal lands due to good management.
- The Tribe asked about gated BLM roads. Could tribes get passes through gated areas to access cultural sites? Could BLM let the Tribe know the conditions of the roads? Tribal members could serve as eyes/ears for the BLM on BLM-administered lands during their Tribal gathering of cedar, huckleberries, etc. Tribal access and public access are not the same. The Tribe expressed a need for Tribal access to BLM-administered lands for religious reasons.
- Private companies are harvesting and punching in roads interrupting fish passage and providing no maintenance on the roads for many years. The Tribe is concerned about this happening on BLM-administered lands.
- There is a lot of available timber and our communities and counties are in need; consider increased timber production based upon sustainable management principles.
- Can the BLM add language at the plan level that establishes Tribes as partners for cultural resource work such as surveys?
- Develop a partnership for managing plants of interest, including "take" and the preparation for harvest and harvest methods.
- Could the Grand Ronde be included in all Tribal consultations since all lands on the BLM map are Ceded lands with treaty rights?
- The Tribe is contracting with National Park Service (NPS) and National Oceanic and Atmospheric Administration (NOAA) to conduct traditional cultural landscape studies on indigenous landscapes. Could the BLM hire Tribes to work on this on BLM-administered land?
- There are concerns regarding management of BLM-administered lands bordering the eastside of Grand Ronde lands.
- Could BLM meet regularly with Tribes on new rules coming down and create an memorandum of understanding on annual meeting to discuss mutual issues/projects? The Tribe would like to finish Tribal memorandum of understanding as cooperating agency on the planning process.
- Interested in discussion of Purpose and Need at a future date.
- The Tribe offered a tour of Grand Ronde lands to see work (i.e., fish passages) they are doing in natural resources. The Tribe has opened 60+ miles of fish passage.

Planning considerations

- Restoration and long-term maintenance of fish passage. Old roads left unmaintained block fish passage.
- Indigenous landscapes and landscape level analysis.
- Quantifying non-commercial items is not the way to approach it. Cannot compare value of timber products versus non-commercial timber products (e.g., items for making baskets and other Tribal cultural needs).
- How BLM manages collection of special forest product to prevent degradation.
- Tribe would like to provide information to the BLM on restoration efforts (e.g., hazelnut sticks for basketry). The Tribe would like to see more lands managed for Tribal cultural resources.

Confederated Tribes of Siletz Indians

June 7, 2013
Tribal Headquarters, Siletz, Oregon

Tribal Council participants: Delores Pigsley, Chairman; Lillie Butler, Council Member; Loraine Butler, Council Member; Reggie Butler, Sr. , Council Member; Robert Kentta, Council Member
Tribal staff participants: Mike Kennedy, Natural Resources Manager
BLM attendees: Kim Titus, Salem District Manager; Ginnie Grilley, Eugene District Manager; Mark Brown, RMP Project Manager; Heather Ulrich RMP Tribal Liaison; Richard Hatfield, Mary's Peak Resource Area Field Manager
Facilitator: Jim Owens, Cogan Owens Cogan

General comments and highlights of main Tribal interest topics

- How does the RMP fit into the Wyden Plan?
- The Tribe expressed concern for air, water, and climate change.
- The Tribe expressed concern for timber receipts and Secure Rural Schools.
- The Tribe stated it would like an memorandum of understanding for collecting basketry materials.
- Tribe has past and ongoing interest in public domain lands in Lincoln County.
- Look into Tribes' "right of first refusal" for excess federal lands within original reservation boundaries that are designated for disposal.
    - Can Tribes provide input to what lands the BLM can put in Land Tenure Zone 3 (suitable for disposal)?
- First level of interest in BLM-administered lands are those within the original reservation boundary. Some interests include:
    - Hazel management
    - Hunting access
    - Spruce root collection
- The Tribe expressed concern regarding destruction and looting of archaeological sites and artifacts as well as public use impacts in certain key areas of interest to the Tribe within the planning area.
- Concern regarding BLM ability to coordinate consultation with other/all Tribes concerned.
- Plant collection: Where resources are on BLM-administered land, can the Tribe help manage them, increase them, and collect them? Specific collection interests include:
    - Beargrass collection
    - Ferns and peeled chittum
    - Sugar pine and ancient oaks; digger pine in Applegate and Rogue valleys
    - Willamette Valley oak savannah, angelica (Lomatium species), scrub oak, and rocky outcrops
    - Acorns and pileated woodpeckers for feathers; want to ensure that the Tribe can obtain forage permits for these resources
- The Tribe identified a need for improved coordination on memoranda of understanding with other Tribes when Tribal territory is impacted.

Planning considerations

- Protection of historic trail systems.
- Preserve some type of visible boundary between the historic reservation lands and BLM-administered land, e.g. leave large trees.
- Management of public domain lands in Lincoln County by the Tribes.

- Management for traditionally collected plants (e.g., beargrass, hazel nuts, angelica) on all BLM-administered lands; stand diversity that encourages spruce, other species important for collection; adverse effects of overly dense timber stands on sugar pine, ancient oaks. Management should include heavy thinning or clearcuts to reopen areas for beargrass collection.
- Identification/interpretation of battle sites.
- Management for marbled murrelet.
- Protection of cemetery sites and other archaeological sites and artifacts impacted by inadvertent public use or intentional damage and looting.

Coquille Indian Tribe

May 14, 2013
Tribal Headquarters, North Bend, Oregon

Tribal participants: Brenda Meade, Chair; Toni Ann Brend, Vice-Chair; Ken Tanner, Chief; George Smith, Executive Director; Joan Metcalf, Secretary/Treasurer; Sharon Parrish, Representative; Kippy Robbins, Representative; Jason Robison, Natural Resources Director
BLM attendees: Mark Johnson, Coos Bay District Manager; Ralph Thomas, Coos Bay Associate District Manager; Heather Ulrich, RMP Tribal Liaison; Mark Brown, RMP Project Manager; Megan Harper, Coos Bay District Public Affairs Officer
Facilitator: Jim Owens, Cogan Owens Cogan

General comments and highlights of main Tribal interest topics

- The Coquille Indian Tribe regained Tribal status in 1989. A 1950's Court of Claims case provided exclusive ancestral territory on BLM-administered lands within the Coos Bay District. Other geographic areas outside of this exclusive ancestral territory are of shared interest with other Tribes. The Coquille Forest Act of 1996 put 5,400 acres of BLM-administered land into trust for the Tribe to manage. They have a huge stake in BLM plan revisions because of statutory direction that requires the Coquille Forest to be managed per the standards and guidelines of Federal forest plans "on adjacent or nearby Federal lands".
- The Tribe expressed concern regarding the economic health of the communities that the Coquille and other Tribes work in, and how Tribes influence and contribute to the communities they live and work in (e.g., Coquille is the second largest employer in Coos County).
- Tribal approach is to maintain healthy communities that rely upon timber harvest but still only take what is needed and managing for the needs of the earth rather than the needs of humans. Living in balance; sustainability from a cultural perspective.
- In regards to the Tribal Cooperative Management Area, consider Adaptive Management Area framework with site-specific management prescriptions and intensive monitoring.
- Tribe desires greater direct involvement in management of Coos Bay Wagon Road lands. Tribe has proposed a cooperative management agreement with Coos County; developing a concept paper to share with the Congressional delegation.
- Tribe wants to ensure an ongoing relationship with the BLM beyond this planning process.
- Interested in discussion of Purpose and Need at a future date.

Planning considerations

- Economic values that lead to a sustainable and economically healthy Tribal community.
- Approach for and addressing management of the Coos Bay Wagon Road and cooperative management.
- Consideration of TCMA in all alternatives based upon Direction from the Secretary of the Interior.

- Concerns regarding climate change and impacts on Tribal resources and natural resources.
- Adjacency issues in the context of the Tribe's exclusive ancestral territory.
- Management of natural/cultural resources within riparian areas.
- The Tribe wants to ensure that the planning effort considers provisions of existing agreements with the BLM (memoranda of understanding , memoranda of agreement, etc.). If proposed planning considerations are in opposition to, or not fully consistent with agreement provisions, further discussions with the Tribe should occur prior to moving forward with such considerations.

Cow Creek Band of Umpqua Tribe of Indians

December 18, 2013
Tribal Headquarters, Roseburg, Oregon

Tribal participants: Robert Van Norman, Treasurer; Lonnie Rainville, Operations Officer; Tim Vredenburg, Director of Forest Management; Amy Amoroso, Director of Natural Resources; Jessie Plueard, Archaeologist; Rhonda Malone, Cultural Development Coordinator; Kelly Coates, Fisheries Biologist; Heather Bartlett, Environmental Specialist; Scott Van Norman, Wildlife Technician
BLM attendees: Mark Brown, RMP Project Manager; Abbie Jossie, Roseburg District Manager; Heather Ulrich, RMP Tribal Liaison; Molly Casperson, Roseburg District Archaeologist
Facilitator: Cheyne Rossbach, Roseburg District Public Affairs Officer

General comments and highlights of main Tribal interest topics

- Purpose and Need Statement seems too broad and that it will be challenging to develop alternatives.
- The Tribe is very aware of the politics surrounding the BLM, specifically proposed legislation directed toward BLM-administered lands. Specifically, Congressman DeFazio's O&C Trust, Conservation, and Jobs Act and Senator Wyden's O&C Act of 2013 and Canyon Mountain Land Conveyance Act of 2013.
- There was interest in knowing how the RMP planning process was taking into consideration proposed legislation.
- Interest in clarification of the differences between the RMP Purpose and Need statement, current practices, and what is in the Northwest Forest Plan.
- There was interest in the definition of "old growth."
- The public perception of old growth as natural is not true. The character of historic forests was a direct result of Tribal management. Recognize historic human involvement in "old growth" development in the new definition of old growth – that past humans "created" what is old growth today. The idea that pristine or untouched are characteristic of old growth is incorrect.
- How will the BLM balance the needs of the county, who says they need a set amount of money, versus the other needs (like northern spotted owl recovery, etc.)? Do the perceived needs of the counties direct the plan?
- The way the BLM draws lines around resources conflicts with how the Tribe would delineate resources and, at times, the BLM and Tribe are not even looking at the same kinds of resources. Tribal staffs at the table do not adhere to the silo approach of isolated old growth stands or owls. One example where Tribal values and BLM values are in conflict is that old growth is not fire resilient like it was 100 years ago because the Tribe is not managing them the way they did traditionally (i.e., annual fire cycles).
- It is problematic that the structural complexity of forests related to fires cannot be mapped. The forests are not as they should be because management is not as it was historically (Tribal management). Another example of the incongruous nature of federal and Tribal land management

strategies is diminishing meadows that are important foraging locales for game. Definitions and alternatives should be adaptive enough to protect Tribal resources.

- Early seral habitat is important for foraging and hunting, which has little to do with meeting timber targets. The Tribe needs to be able to hunt and regular fire cycles are important to create habitat.
- The Tribe expressed interest in the differences in the proposed riparian buffer zones. Two important issues to the Tribe are clean water and fish.
- There have been Tribal efforts working on lamprey conservation and the Tribe encouraged the BLM to raise the bar on conservation efforts as well. Conservation methods for lamprey are also good for salmon.
- Water issues include more than quality. There are more stems than in the past, with less water in tributaries. Changes like these create systems that are more compatible for invasive or exotic species, which directly harm lamprey. Management of upland systems directly affects lamprey. The BLM riparian zones may not align with Tribal values. An example of this from the BLM's pilot project includes finding beargrass in no-touch riparian zones. The presence of beargrass in these zones suggests it was open at one time, so a no-touch area conflicts with the way the Tribe would manage the beargrass.
- Think of Tribal concerns when you consult with the National Marines Fisheries Service (NMFS) or whoever. Your decisions affect how the Tribe can consult for the next year, which ultimately affects how the Tribe can manage its own lands. Think of the federal government's trust responsibility to the Tribe.
- Recreation is important in the new RMP, but off-highway vehicle (OHV) recreation creates issues for the Tribe's cultural sites. As this plan develops, the public will put pressure on the BLM to open OHV areas that will directly affect cultural sites.
- This area is the ancestral territory of the Tribe. We have been here for thousands of years and intend to stay.
- Beyond archaeological sites, recognize that the Tribe has spiritual sites that have visual and auditory sensitivity. Address this with future Visual Resource Inventory efforts.

Planning considerations

- How would land management actions affect resident deer and elk populations?
- Interest in BLM's approach to water, fish, and lamprey conservation.
- Concerns for effects to archaeological and other cultural resources.
- Consider Tribal views of management and resources, which are typically different from BLM perspectives. Tribal perspectives are particularly important in respect to land management, fire, water, and riparian area management.

Klamath Tribes

July 15, 2013
Tribal Government Office, Chiloquin, Oregon

Tribal participants: Perry Chocktoot, Jr., Director of Culture and Heritage; Kathleen Mitchell, General Manager
BLM attendees: Mark Brown, RMP Project Manager; Heather Ulrich, RMP Tribal Liaison; Donald Holmstrom, Klamath Falls Field Manager; Brooke Brown, Klamath Falls Resource Area Archaeologist
Facilitator: Robin Gumpert, DS Consulting

General comments and highlights of main Tribal interest topics

- The Tribe's interest area begins at the top of the Cascade Range.

- The Tribe expressed concern about splitting the Lakeview District into separate RMPs, requiring the Tribe to consult with two offices on two different plans. All of the Lakeview District is part of the Klamath Tribes' aboriginal territory.
- Will the RMP result in more or less timber harvested?
- Grazing allotments affect cultural resources, mostly near fences and water sources and rock features. Desire 100 percent survey on all allotments so that the BLM can say for sure what the impacts are to sites.
- Concern over archaeological contracting firms surveying on BLM-administered lands when they have no experience in the area and may not have the background to identify and subsequently document sites.
- Desire for the BLM to listen to what the Tribes have to say at all levels of management and engage in meaningful consultation. The Tribe and the BLM need to be allies on projects, and this occurs with meaningful consultation.
- The Tribe identified concern that the Purpose and Need includes no Section 106 responsibilities .
- Meaningful consultation as part of the planning process needs to be captured in the Purpose and Need. Tribes are interested in what is going on elsewhere, even if not on their aboriginal lands.
- Trees have importance to the Tribe, particularly culturally modified tress (cambium peeled trees and bow stave trees). Section 106 needs to protect these important areas of cultural interest. Spiritual integrity is first and foremost of importance to the Tribe. Tribal Resolution 92-047 states that all sites are sacred.
- Clean water in the Klamath watershed is of great concern.
- The Tribe has 22 million acres of aboriginal lands, and they are concerned about grazing, timber harvest activities, and protecting their sacred sites. The Tribes would like to see preservation of their sacred sites.
- It is frustrating when Tribes feel like they are sharing information and not heard.
- BLM has come a long way on meaningful consultation, and needs to do this on all projects. Face time (face-to-face meetings) means a lot to the Tribe.
- All of the BLM-administered lands in Klamath County are of interest to the Tribe. There are numerous and diverse archaeological, cultural, and spiritual locations within the BLM-administered lands that are of great importance and interest to the Tribe.
- Primary impacts to Tribal interests are grazing, timber, OHV, and low water exposing sites.
- The BLM needs to recognize federal trust responsibilities and talk to the Tribe about closures to areas affecting sites. The Tribe expressed a need for a memorandum of understanding for government-to-government consultation.

Planning considerations

- Grazing allotments that affect cultural resources, mostly near fences and water sources, and rock features.
- Protection of culturally modified trees (cambium peeled trees and bow stave trees).
- Primary impacts to Tribal interests are grazing, timber, OHV use, water levels in reservoirs.

Tribal Listening Session Summary

These five listening sessions provided BLM managers and RMP staff with a greater understanding of Tribal histories and their interests in the lands and resources that the BLM manages. As part of the RMP, these topics of interest are included as analytical questions in the Planning Criteria and the effects analyzed by alternative (Chapter 3). The analysis will inform decision makers on how land management actions affect those resources of concern to the Tribes.

Some of the recurring themes identified during these listening sessions included:

- hunting, fishing and plant gathering access
- plant collection, management and use
- multiple Tribes with interests (sometimes competing) on the same BLM-administered lands;
- fish and lamprey
- archaeological sites and impacts due to land management actions as well as public use and vandalism
- cooperative opportunities
- climate change
- air and water quality
- balancing healthy forests and the need for economic stability for the counties and Tribes
- land acquisition into Tribal ownership or Tribal management
- indigenous landscape studies
- management of BLM-administered lands adjacent to Tribal land
- land management activities that benefit multiple resources of cultural value
- memoranda of understanding
- impacts from recreation and OHV use to cultural sites
- effects of proposed legislation on the planning process

Detailed notes captured during these sessions will aid managers as they continue managing the lands that hold importance to the Tribes. The BLM collected valuable information from these listening sessions that will inform land managers beyond the scope of this RMP in carrying out the BLM mission.

Appendix R – Other Wildlife- Not Northern Spotted Owl

Bald Eagle

Table R-1. Bald eagle nesting habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	247,608	247,608	247,608	247,608	247,608	247,608
Alternatives						
2023	239,162	245,926	240,541	237,713	246,257	251,623
2033	241,217	250,307	248,623	234,618	254,734	260,791
2043	269,083	284,349	284,691	259,979	290,664	301,812
2053	283,700	300,363	302,859	273,581	312,466	320,636
2063	300,862	322,298	325,246	288,660	338,378	345,936

Table R-2. Bald eagle nesting habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	1,146,747	1,146,747	1,146,747	1,146,747	1,146,747	1,146,747
Alternatives						
2023	1,138,301	1,145,065	1,139,680	1,136,852	1,145,396	1,150,762
2033	1,140,356	1,149,446	1,147,762	1,133,757	1,153,873	1,159,930
2043	1,168,222	1,183,488	1,183,830	1,159,118	1,189,803	1,200,951
2053	1,182,839	1,199,502	1,201,998	1,172,720	1,211,605	1,219,775
2063	1,697,743	1,719,179	1,722,127	1,685,541	1,735,259	1,742,817

Columbian White-tailed Deer

Table R-3. Higher-quality forage habitat development for the Columbian white-tailed deer within the range of the Lower Columbia River population in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	295	295	295	295	295	295
Alternatives						
2023	350	2,436	2,109	3,514	1,600	295
2033	394	3,030	2,184	4,341	1,365	-
2043	1,672	1,715	3,278	2,055	441	-
2053	2,500	1,910	4,000	3,222	1,137	-
2063	1,400	1,502	3,761	3,228	1,455	-

Table R-4. Higher-quality forage habitat development for the Columbian white-tailed deer within the range of the Lower Columbia River population in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	87,711	87,711	87,711	87,711	87,711	87,711
Alternatives						
2023	87,766	89,852	89,525	90,930	89,016	87,711
2033	86,453	89,089	88,243	90,400	87,424	86,059
2043	87,731	87,774	89,337	88,114	86,500	86,059
2053	88,559	87,969	90,059	89,281	87,196	86,059
2063	87,459	87,561	89,820	89,287	87,514	86,059

Table R-5. Higher-quality forage habitat development for the Columbian white-tailed deer within the range of the Douglas County population in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	9,834	9,834	9,834	9,834	9,834	9,834
Alternatives						
2023	23,745	15,813	15,467	29,767	10,257	6,827
2033	32,878	17,932	19,068	44,504	10,539	3,332
2043	27,122	18,307	26,312	36,163	10,810	3,248
2053	22,616	19,254	31,151	34,474	9,557	3,230
2063	18,854	21,192	26,802	35,587	8,554	2,964

Table R-6. Higher-quality forage habitat development for the Columbian white-tailed deer within the range of the Douglas County population in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	133,197	133,197	133,197	133,197	133,197	133,197
Alternatives						
2023	147,108	139,176	138,830	153,130	133,620	130,190
2033	148,302	133,356	134,492	159,928	125,963	118,756
2043	142,546	133,731	141,736	151,587	126,234	118,672
2053	138,040	134,678	146,575	149,898	124,981	118,654
2063	134,278	136,616	142,226	151,011	123,978	118,388

Black-tailed Deer and Roosevelk Elk

Table R-7. Higher-quality forage habitat development for black-tailed deer and Roosevelt elk in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	46,249	46,249	46,249	46,249	46,249	46,249
Alternatives						
2023	92,216	91,012	81,747	138,088	69,273	43,016
2033	101,496	97,831	73,281	180,450	51,793	9,667
2043	100,324	86,622	105,364	145,343	44,531	12,233
2053	111,095	79,930	132,251	127,038	47,977	14,105
2063	110,566	80,089	118,311	131,001	46,001	14,418

Table R-8. Higher-quality forage habitat development for black-tailed deer and Roosevelt elk in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	1,112,694	1,112,694	1,112,694	1,112,694	1,112,694	1,112,694
Alternatives						
2023	1,158,661	1,157,457	1,148,192	1,204,533	1,135,718	1,109,463
2033	1,088,405	1,084,740	1,060,190	1,167,359	1,038,702	996,579
2043	1,087,233	1,073,531	1,092,273	1,132,252	1,031,440	999,145
2053	1,098,004	1,066,839	1,119,160	1,113,947	1,034,886	1,001,017
2063	1,097,475	1,066,998	1,105,220	1,117,910	1,032,910	1,001,331

Fisher

Table R-9. Total fisher habitat (denning, resting, foraging combined) in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	574,219	574,219	574,219	574,219	574,219	574,219
Alternatives						
2023	540,312	562,929	566,950	556,936	566,614	571,406
2033	508,448	557,325	564,704	544,409	564,162	570,339
2043	506,615	579,756	593,507	567,035	591,213	593,899
2053	514,442	609,830	633,093	600,094	626,542	623,829
2063	527,502	632,336	662,866	620,639	653,341	644,357

Table R-10. Fisher denning habitat in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	324,478	324,478	324,478	324,478	324,478	324,478
Alternatives						
2023	298,161	320,609	317,328	308,951	315,449	326,958
2033	288,378	333,386	331,912	320,253	332,599	345,024
2043	277,816	343,220	343,245	329,545	344,426	353,797
2053	286,468	364,269	360,761	346,072	366,379	376,841
2063	292,012	387,886	376,867	365,611	389,533	398,633

Table R-11. Fisher resting habitat in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	153,657	153,657	153,657	153,657	153,657	153,657
Alternatives						
2023	148,819	148,504	149,972	149,670	154,827	151,470
2033	125,316	132,781	135,607	130,593	137,631	132,291
2043	150,131	157,106	163,113	153,280	161,670	164,213
2053	153,310	168,252	188,158	172,182	178,813	172,239
2063	143,410	162,066	193,001	167,697	172,961	160,996

Table R-12. Fisher foraging habitat in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	96,084	96,084	96,084	96,084	96,084	96,084
Alternatives						
2023	93,332	93,816	99,650	98,315	96,338	92,977
2033	94,755	91,157	97,184	93,563	93,932	93,024
2043	78,668	79,430	87,149	84,210	85,117	75,889
2053	74,664	77,310	84,173	81,840	81,350	74,748
2063	92,080	82,384	92,998	87,331	90,847	84,728

Table R-13. Total fisher habitat (denning, resting, foraging combined) in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	4,484,755	4,484,755	4,484,755	4,484,755	4,484,755	4,484,755
Alternatives						
2023	4,450,848	4,473,465	4,477,486	4,467,472	4,477,150	4,481,942
2033	4,519,548	4,568,425	4,575,804	4,555,509	4,575,262	4,581,440
2043	4,554,018	4,627,160	4,640,911	4,614,438	4,638,616	4,641,302
2053	4,561,846	4,657,234	4,680,496	4,647,498	4,673,945	4,671,232
2063	4,574,905	4,679,739	4,710,269	4,668,042	4,700,745	4,691,760

Table R-14. Fisher denning habitat in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	639,570	639,570	639,570	639,570	639,570	639,570
Alternatives						
2023	613,253	635,701	632,420	624,044	630,541	642,051
2033	603,470	648,479	647,005	635,345	647,691	660,117
2043	592,908	658,313	658,338	644,638	659,518	668,889
2053	892,611	970,411	966,903	952,215	972,521	982,983
2063	898,154	994,028	983,009	971,753	995,675	1,004,775

Table R-15. Fisher resting habitat in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	825,681	825,681	825,681	825,681	825,681	825,681
Alternatives						
2023	820,843	820,527	821,996	821,693	826,851	823,494
2033	797,339	804,805	807,630	802,617	809,654	804,315
2043	822,155	829,129	835,136	825,303	833,693	836,236
2053	534,284	549,226	569,132	553,156	559,787	553,213
2063	1,241,308	1,259,963	1,290,899	1,265,595	1,270,859	1,258,894

Table R-16. Fisher foraging habitat in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	3,019,504	3,019,504	3,019,504	3,019,504	3,019,504	3,019,504
Alternatives						
2023	3,016,752	3,017,236	3,023,070	3,021,735	3,019,758	3,016,397
2033	3,118,739	3,115,142	3,121,169	3,117,548	3,117,916	3,117,008
2043	3,138,956	3,139,718	3,147,436	3,144,497	3,145,405	3,136,177
2053	3,134,951	3,137,597	3,144,461	3,142,127	3,141,637	3,135,035
2063	2,435,443	2,425,748	2,436,361	2,430,694	2,434,211	2,428,091

Golden Eagle

Table R-17. Golden eagle nesting habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	789,751	789,751	789,751	789,751	789,751	789,751
Alternatives						
2023	750,166	779,767	770,310	757,922	786,414	797,483
2033	729,066	782,249	782,891	737,013	802,040	812,293
2043	787,103	860,962	866,826	796,427	893,766	909,511
2053	821,344	911,220	930,695	843,357	964,908	967,010
2063	848,128	957,588	982,160	878,459	1,026,264	1,018,234

Table R-18. Golden eagle nesting habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	3,225,904	3,225,904	3,225,904	3,225,904	3,225,904	3,225,904
Alternatives						
2023	3,186,319	3,215,920	3,206,463	3,194,075	3,222,567	3,233,636
2033	3,165,219	3,218,402	3,219,044	3,173,166	3,238,193	3,248,446
2043	3,223,256	3,297,115	3,302,979	3,232,580	3,329,919	3,345,664
2053	3,257,497	3,347,373	3,366,848	3,279,510	3,401,061	3,403,163
2063	4,612,466	4,721,926	4,746,498	4,642,797	4,790,602	4,782,572

Marbled Murrelet

Table R-19. Marbled murrelet nesting habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	493,968	493,968	493,968	493,968	493,968	493,968
Alternatives						
2023	502,168	507,622	501,865	477,023	518,431	528,310
2033	565,762	579,509	569,953	515,784	602,023	621,274
2043	648,814	660,588	647,416	580,062	691,494	716,909
2053	733,369	739,298	725,624	648,471	779,791	811,704
2063	773,852	756,794	771,558	654,988	813,721	840,024

Table R-20. Marbled murrelet high-quality nesting habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	233,219	233,219	233,219	233,219	233,219	233,219
Alternatives						
2023	226,102	231,247	230,737	222,942	232,005	233,448
2033	252,025	259,411	258,532	244,219	260,620	263,781
2043	260,610	271,627	271,282	251,518	274,686	277,291
2053	275,825	286,819	287,764	265,232	290,827	294,382
2063	294,666	305,620	308,023	276,789	310,055	319,070

Table R-21. Marbled murrelet nesting habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	5,301,635	5,301,635	5,301,635	5,301,635	5,301,635	5,301,635
Alternatives						
2023	5,309,835	5,315,289	5,309,532	5,284,690	5,326,098	5,335,977
2033	5,414,289	5,428,036	5,418,481	5,364,311	5,450,550	5,469,801
2043	5,515,882	5,527,656	5,514,484	5,447,131	5,558,562	5,583,977
2053	5,600,437	5,606,367	5,592,692	5,515,539	5,646,859	5,678,772
2063	5,640,921	5,623,862	5,638,627	5,522,056	5,680,789	5,707,093

Table R-22. Marbled murrelet high-quality nesting habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	573,150	573,150	573,150	573,150	573,150	573,150
Alternatives						
2023	566,033	571,178	570,669	562,874	571,936	573,380
2033	591,956	599,342	598,464	584,150	600,551	603,712
2043	600,542	611,559	611,214	591,449	614,617	617,222
2053	781,686	792,680	793,625	771,094	796,688	800,243
2063	800,527	811,481	813,884	782,651	815,916	824,931

Table R-23. Marbled murrelet nesting habitat development in designated critical habitat under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	273,174	273,174	273,174	273,174	273,174	273,174
Alternatives						
2023	279,663	287,274	277,165	269,436	286,747	287,761
2033	316,887	331,494	309,895	288,580	328,915	332,689
2043	362,224	379,380	354,011	328,535	376,676	381,421
2053	413,282	428,841	398,366	371,044	427,385	433,432
2063	434,896	442,991	419,668	380,736	440,396	446,137

Table R-24. Marbled murrelet high-quality nesting habitat development in designated critical habitat under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	154,331	154,331	154,331	154,331	154,331	154,331
Alternatives						
2023	154,266	154,515	153,559	149,579	154,097	154,522
2033	173,468	173,730	172,153	164,803	172,237	174,105
2043	180,766	181,190	179,316	169,448	180,709	181,438
2053	190,381	190,596	188,469	177,754	189,304	191,014
2063	197,017	197,646	194,091	180,763	193,961	198,051

Table R-25. Marbled murrelet high-quality nesting habitat development in designated critical habitat under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	344,345	344,345	344,345	344,345	344,345	344,345
Alternatives						
2023	344,280	344,529	343,573	339,593	344,111	344,536
2033	363,482	363,744	362,167	354,817	362,251	364,119
2043	370,780	371,204	369,330	359,462	370,723	371,452
2053	516,380	516,595	514,468	503,753	515,303	517,013
2063	523,016	523,645	520,090	506,762	519,960	524,050

Table R-26. Marbled murrelet nesting habitat in the Harvest Land Base under the alternatives.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Current Condition					
2013	140,848	44,347	39,241	127,550	114,874
Habitat Capable	292,633	115,374	99,751	307,165	308,078
Alternatives					
2023	145,174	32,139	36,323	95,992	123,440
2033	164,573	29,690	43,046	92,166	160,852
2043	193,032	31,952	47,800	102,398	201,815
2053	219,139	34,457	58,187	121,136	244,201
2063	232,374	26,705	65,850	107,051	263,673

Non-forest Habitat and Non-BLM Forest Habitat

For the analyses of non-forest habitat types on both BLM-administered lands and on all other ownerships, the BLM used the ecological systems data (ESLF Codes and ESLF Names) available in the 2012 Gradient Nearest Neighbor (GNN) (LEMMA 2014). There are 64 different ecological systems that are present in the planning area.

For simplicity, the BLM grouped and re-classified these 64 categories into 12 similar non-forest habitat groups. Refer to **Table R-27** (Re-classification of non-forest habitats from GNN) for a complete list of the 64 ecological systems in the planning area and the BLM re-classification used in this analysis.

The BLM assumes that the non-forest habitats remain static throughout the analysis period (2013-2063).

Table R-27. Re-classification of non-forest habitats from GNN.

GNN		BLM-reclassification	
ESLF Code	**ESLF Name**	**Code**	**Name**
21	Developed, Open Space	1	Urban/Developed
22	Developed, Low Intensity		
23	Developed, Medium Intensity		
24	Developed, High Intensity		
61	Orchards Vineyards and Other High Structure Agriculture	2	Agriculture
81	Pasture/Hay		
82	Cultivated Cropland		
3118	North Pacific Alpine and Subalpine Bedrock and Scree	3	Rock
3128	Inter-Mountain Basins Volcanic Rock and Cinder Land		
3129	Rocky Mountain Cliff, Canyon and Massive Bedrock		
3140	North Pacific Volcanic Rock and Cinder Land		
3155	North Pacific Montane Massive Bedrock, Cliff and Talus		
3158	North Pacific Coastal Cliff and Bluff		
3167	Mediterranean California Serpentine Barrens		
3169	Central California Coast Ranges Cliff and Canyon		
3170	Klamath-Siskiyou Cliff and Outcrop		
7162	North Pacific Herbaceous Bald and Bluff		
9297	Inter-Mountain Basins Alkaline Closed Depression		
5258	Inter-Mountain Basins Mixed Salt Desert Scrub	4	Desert
5456	Inter-Mountain Basins Semi-Desert Shrub Steppe		
3165	Mediterranean California Northern Coastal Dune	5	Dunes
3177	North Pacific Maritime Coastal Sand Dune and Strand		
5205	North Pacific Dry and Mesic Alpine Dwarf-Shrubland, Fell-field and Meadow	6	Grassland/Prairie
5409	Willamette Valley Upland Prairie and Savanna		
5452	Columbia Plateau Steppe and Grassland		
7102	California Mesic Serpentine Grassland		
7103	California Northern Coastal Grassland		
7108	Mediterranean California Alpine Dry Tundra		
7109	Mediterranean California Subalpine Meadow		
7110	North Pacific Montane Grassland		

GNN		BLM-reclassification	
ESLF Code	**ESLF Name**	**Code**	**Name**
7112	Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland		
7157	North Pacific Alpine and Subalpine Dry Grassland		
8404	Introduced Upland Vegetation - Annual Grassland		
8502	Recently burned grassland		
9221	Willamette Valley Wet Prairie		
9265	Temperate Pacific Montane Wet Meadow		
3179	Inter-Mountain Basins Playa	7	Shrubland
5202	Columbia Plateau Scabland Shrubland		
5260	North Pacific Avalanche Chute Shrubland		
5261	North Pacific Montane Shrubland		
5305	California Xeric Serpentine Chaparral		
5311	Northern and Central California Dry-Mesic Chaparral		
5457	Northern California Coastal Scrub		
7161	North Pacific Hypermaritime Shrub and Herbaceous Headland		
9103	Inter-Mountain Basins Greasewood Flat		
5256	Great Basin Xeric Mixed Sagebrush Shrubland	8	Sagebrush
5257	Inter-Mountain Basins Big Sagebrush Shrubland		
5453	Columbia Plateau Low Sagebrush Steppe		
5454	Inter-Mountain Basins Big Sagebrush Steppe		
5455	Inter-Mountain Basins Montane Sagebrush Steppe		
9321	Columbia Plateau Silver Sagebrush Seasonally Flooded Shrub-Steppe		
2201	Open Water (Fresh)	9	Freshwater/Riparian
3122	Temperate Pacific Freshwater Mudflat		
9166	North Pacific Bog and Fen		
9173	North Pacific Shrub Swamp		
9219	Temperate Pacific Freshwater Aquatic Bed		
9220	North Pacific Intertidal Freshwater Wetland		
9222	North American Arid West Emergent Marsh		
9248	Mediterranean California Subalpine-Montane Fen		
9260	Temperate Pacific Freshwater Emergent Marsh		
9251	Northern California Claypan Vernal Pool	10	Vernal Pool
2202	Open Water (Brackish/Salt)	11	Marine
9281	Temperate Pacific Tidal Salt and Brackish Marsh		
3130	North American Alpine Ice Field	12	Ice

Table R-28. Non-forest habitat within the decision and planning areas.

Structural Stage	Decision Area		Planning Area	
	(Acres)	(%)	(Acres)	(%)
Urban/Developed	11,434	12%	1,061,331	24%
Agricultural	1,951	2%	2,193,206	51%
Rock	1,710	2%	76,278	2%
Desert	9	0%	32	0%
Dunes	1,300	1%	37,611	1%
Grassland	3,795	4%	290,284	7%
Shrubland	2,936	3%	59,616	1%
Sagebrush	63,884	70%	246,644	6%
Freshwater Riparian	4,164	5%	348,773	8%
Vernal Pools	307	0%	7,668	0%
Marine/Tidal	236	0%	16,464	0%
Ice	27	0%	3,335	0%
Totals	**91,752**	**100%**	**4,341,241**	**100%**

Non-BLM Forest Habitat

The BLM modeled forest habitat on non-BLM-administered lands within the planning area using the 2012 GNN structural condition (STRUCCOND) (LEMMA 2014).

So that the GNN-derived habitat on non-BLM lands could be readily compared with the WoodStock-derived forest habitat on BLM-administered lands, the BLM cross-walked the GNN STRUCCOND to the WoodStock structural stage categories (**Table R-29**).

Table R-29. Cross-walk of GNN STRUCCOND to Woodstock structural stages.

GNN STRUCCOND		WoodStock Structural Stage	
Code	**Description***	**Code**	**Structural Stage**
0	Non-forest	-	Non-forest
1	Sparse (CANCOV < 10%)	1.1	Early-successional: with Structural Legacies
		1.2	Early-successional: without Structural Legacies
2	Open (CANCOV 10-40%)	2.1	Stand Establishment: with Structural Legacies
		2.2	Stand Establishment: without Structural Legacies
3 and 4	Sapling/pole - moderate/closed (CANCOV>40, QMD_DOM <25cm) Small/medium tree - moderate/closed (CANCOV >= 40, QMD_DOM 25-50)	3.1	Young: High Density with Structural Legacies
		3.2	Young: High Density without Structural Legacies
		3.3	Young: Low Density with Structural Legacies
		3.4	Young: Low Density without Structural Legacies
5	Large tree - moderate/closed (CANCOV >= 40, QMD_DOM 50-75)	4.1	Mature: Single-layered Canopy
		4.2	Mature: Multi-layered Canopy
6	Large/giant tree - moderate/closed (CANCOV >= 40, QMD_DOM >= 75)	5.1	Structurally-complex: Developed Structurally-complex
		5.2	Structurally-complex: Existing Old Forest
		5.3	Structurally-complex: Existing Very Old Forest

* STRUCCOND Descriptions from LEMMA 2014.

The BLM modeled the structural conditions on non-BLM lands as continuing to provide the same distribution of habitat through time as the current condition, except in U.S. Forest Service reserves (i.e., Late-Successional Reserves and Congressionally Reserved lands).

The BLM modeled structural conditions continuing to develop on U.S. Forest Service reserve lands through time based on the mean ages of the WoodStock structural stages on the BLM-administered forest lands (**Table R-30**).

Table R-30. Assumptions for development of structural stages on non-BLM administered lands.

Code	Structural Stage	Mean Age* (Years)	BLM assumption for forest habitat development on Non-BLM lands
1.1	Early-successional: with Structural Legacies	10.3	Pixel stays in Early-successional group for 1 decade
1.2	Early-successional: without Structural Legacies		
2.1	Stand Establishment: with Structural Legacies	24.7	Pixel stays in Stand Establishment group for 1 decade
2.2	Stand Establishment: without Structural Legacies		
3.1	Young: High Density with Structural Legacies	66.5	Pixel stays in Young group for 4 decades
3.2	Young: High Density without Structural Legacies		
3.3	Young: Low Density with Structural Legacies		
3.4	Young: Low Density without Structural Legacies		
4.1	Mature: Single-layered Canopy	95.6	Pixel stays in Mature group for 3 decades
4.2	Mature: Multi-layered Canopy		
5.1	Structurally-complex: Developed Structurally-complex	160.4	Once a pixel enters Structurally-complex group, it remains there
5.2	Structurally-complex: Existing Old Forest		
5.3	Structurally-complex: Existing Very Old Forest		

* Mean age calculated using age on BLM-administered lands.

This modeling of U.S. Forest Service reserve lands assumed that habitat would not develop on U.S. Forest Service reserve lands that experience wildfire in the modeling (see the vegetation modeling section in Chapter 3).

For the purpose of this analysis, the BLM assumed that the future distribution of habitat conditions on non-BLM lands and burned, U.S. Forest Service reserves would continue to reflect the current distribution of habitat conditions.

On private lands, the assumption that the future distribution of habitat conditions would remain the same as current conditions is likely to be a reasonable approximation. On State and Forest Service non-reserve lands, this assumption is likely to be an underestimate of the future development of habitat. The BLM acknowledges that the spatial arrangement of structural conditions would change in the future, but lacks information to make more specific projections of how structural conditions would change over time on non-BLM-administered lands. This assumption is consistent with the assumption used in the analysis of forest structure and spatial pattern in the 2008 RMP/EIS, which describes the limitations on analyzing future changes on non-BLM lands and is incorporated here by reference (USDI BLM 2008, pp. 532-536).

North Oregon Coast Distinct Population Segment of the Red Tree Vole

Table R-31. North Oregon Coast DPS of the red tree vole habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	174,495	174,495	174,495	174,495	174,495	174,495
Alternatives						
2023	178,193	180,881	176,827	167,096	183,914	189,994
2033	214,128	218,570	212,751	189,394	225,827	235,607
2043	246,181	245,961	241,608	211,800	256,326	268,416
2053	281,094	278,632	274,507	236,514	293,181	309,872
2063	289,971	279,899	279,489	236,047	294,208	313,820

Table R-32. North Oregon Coast DPS of the red tree vole habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	741,263	741,263	741,263	741,263	741,263	741,263
Alternatives						
2023	744,961	747,649	743,595	733,864	750,682	756,762
2033	780,896	785,337	779,518	756,161	792,595	802,375
2043	812,948	812,729	808,376	778,568	823,094	835,184
2053	847,862	845,400	841,275	803,282	859,949	876,640
2063	978,930	968,859	968,448	925,006	983,168	1,002,779

Table R-33. North Oregon Coast DPS of the red tree vole habitat in the Harvest Land Base under the alternatives.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)
Current Condition					
2013	33,810	21,715	37,846	61,284	58,847
Habitat Capable	69,758	47,155	83,381	133,847	133,396
Alternatives					
2023	36,316	17,779	35,739	49,993	62,055
2033	46,492	18,466	44,670	52,673	79,939
2043	52,777	17,616	48,865	55,996	93,221
2053	55,195	15,703	51,687	58,015	109,727
2063	55,478	12,862	49,519	51,496	108,764

Snags and Down Woody Material

Table R-34. Snag density (trees per acre) in the decision area by structural group.

Structural Group	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional	4.1	6.5	2.2	1.4	0.7	0.6	0.3	9.4	3.7	2.6	15.7	127
Stand Establishment	1.5	3.4	1.2	0.7	0.5	0.2	0.3	4.4	2.0	1.4	7.8	1,313
Young	5.0	9.2	2.0	0.8	0.4	0.3	0.4	12.9	3.6	1.6	18.1	1,666
Mature	5.6	15.9	3.1	1.4	0.8	0.5	0.7	18.9	6.3	2.9	28.1	1,527
Structurally-complex	3.3	8.4	2.7	1.9	1.3	0.9	1.2	10.2	4.8	4.7	19.8	1,617
Weighted Average	**3.9**	**9.4**	**2.3**	**1.2**	**0.8**	**0.5**	**0.7**	**11.8**	**4.2**	**2.7**	**18.7**	**6,250**

Table R-35. Snag density (trees per acre) in the decision area by structural stage.

Structural Stage	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional with Structural Legacies	-	0.8	1.2	0.9	0.3	0.9	0.1	0.8	1.2	2.1	4.1	31
Early-successional without Structural Legacies	5.4	8.3	2.5	1.6	0.8	0.6	0.4	12.2	4.5	2.7	19.4	96
Stand Establishment with Structural Legacies	4.3	6.1	1.0	0.6	0.3	0.3	0.1	9.9	1.9	1.1	12.8	211
Stand Establishment without Structural Legacies	0.9	2.9	1.2	0.7	0.5	0.2	0.3	3.4	2.0	1.4	6.8	1,102
Young – High Density, with Structural Legacies	3.1	6.6	2.2	1.2	0.5	0.5	0.6	8.3	4.0	2.2	14.6	417
Young – High Density, without Structural Legacies	5.7	10.1	1.9	0.7	0.4	0.3	0.3	14.5	3.5	1.3	19.3	1,144
Young – Low Density, with Structural Legacies	5.4	10.9	0.7	0.2	0.9	0.5	0.1	16.3	0.9	1.4	18.6	31
Young – Low Density, without Structural Legacies	4.4	9.5	2.3	1.2	0.7	0.2	0.3	11.8	5.0	1.9	18.6	74
Mature, Single-layered Canopy	6.2	19.9	3.6	1.7	1.0	0.5	0.8	22.9	7.6	3.2	33.7	677
Mature, Multi-layered Canopy	5.2	12.7	2.7	1.3	0.6	0.5	0.7	15.7	5.3	2.6	23.6	850
Structurally-complex, Developed Structurally-complex	3.3	9.5	2.9	1.9	1.0	0.8	1.0	11.4	5.0	4.0	20.4	649
Structurally-complex, Existing Old Forest	3.3	7.8	2.5	1.9	1.6	1.0	1.3	9.6	4.7	5.1	19.3	925
Structurally-complex, Existing Very Old Forest	3.9	5.0	1.7	2.6	1.6	1.2	3.3	7.3	4.2	7.8	19.4	43
Weighted Average	**3.9**	**9.4**	**2.3**	**1.2**	**0.8**	**0.5**	**0.7**	**11.8**	**4.2**	**2.7**	**18.7**	**6,250**

Table R-36. Snag density (trees per acre) in the northern districts (Salem, Eugene, and Coos Bay) by structural group.

Structural Group	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional	-	-	0.9	0.3	-	1.2	-	-	0.9	1.6	2.5	17
Stand Establishment	0.9	2.3	1.9	1.0	0.8	0.3	0.4	2.8	2.9	2.0	7.7	500
Young	5.7	10.1	2.1	0.9	0.5	0.3	0.5	14.5	3.6	1.9	20.0	847
Mature	5.8	19.8	3.7	1.8	1.0	0.6	1.1	22.2	7.8	3.8	33.8	849
Structurally-complex	2.3	7.5	3.2	2.6	1.7	1.3	2.0	8.5	5.4	6.7	20.6	622
Weighted Average	**4.1**	**11.0**	**2.8**	**1.5**	**1.0**	**0.6**	**1.0**	**13.3**	**5.1**	**3.5**	**22.0**	**2,835**

Table R-37. Snag density (trees per acre) in the northern districts (Salem, Eugene, and Coos Bay) by structural stage.

Structural Stage	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional with Structural Legacies	-	-	1.3	0.4	-	1.8	-	-	1.3	2.2	3.5	12
Early-successional without Structural Legacies	-	-	-	-	-	-	-	-	-	-	-	5
Stand Establishment with Structural Legacies	4.0	6.0	1.1	1.5	1.2	-	-	10.0	1.6	2.2	13.9	24
Stand Establishment without Structural Legacies	0.7	2.1	1.9	1.0	0.8	0.4	0.5	2.4	3.0	2.0	7.4	476
Young – High Density, with Structural Legacies	2.9	4.5	2.5	1.6	0.5	0.7	1.3	6.5	4.0	3.6	14.1	156
Young – High Density, without Structural Legacies	6.4	11.4	2.0	0.7	0.5	0.2	0.4	16.5	3.5	1.5	21.5	677
Young – Low Density, with Structural Legacies	-	24.1	5.3	-	5.3	-	-	24.1	5.3	5.3	34.7	2
Young – Low Density, without Structural Legacies	-	6.0	0.9	1.3	-	0.4	1.3	2.0	5.3	2.7	10.0	12
Mature, Single-layered Canopy	6.7	22.3	4.0	1.8	1.2	0.6	0.9	25.3	8.6	3.7	37.6	531
Mature, Multi-layered Canopy	4.3	15.6	3.1	1.7	0.7	0.7	1.4	17.1	6.5	3.8	27.5	318
Structurally-complex, Developed Structurally Complex	2.0	8.8	3.9	2.5	1.6	1.3	1.8	9.1	6.5	6.2	21.8	272
Structurally-complex, Existing Old Forest	2.5	6.7	2.6	2.7	1.8	1.2	2.1	8.2	4.6	6.9	19.7	317
Structurally-complex, Existing Very Old Forest	3.7	4.4	1.9	2.3	1.1	1.6	3.9	6.6	4.3	8.0	18.8	33
Weighted Average	**4.1**	**11.0**	**2.8**	**1.5**	**1.0**	**0.6**	**1.0**	**13.3**	**5.1**	**3.5**	**22.0**	**2,835**

Table R-38. Snag density (trees per acre) in the southern districts (Roseburg, Medford, and Klamath Falls) by structural group.

Structural Group	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional	4.7	7.4	2.4	1.5	0.8	0.5	0.3	10.8	4.1	2.7	17.7	110
Stand Establishment	1.8	4.1	0.7	0.5	0.3	0.2	0.2	5.4	1.4	0.9	7.8	813
Young	4.2	8.4	1.9	0.7	0.4	0.3	0.2	11.3	3.6	1.3	16.1	819
Mature	5.4	11.0	2.4	1.0	0.5	0.3	0.3	14.8	4.4	1.7	20.9	678
Structurally-complex	3.9	8.9	2.3	1.4	1.1	0.7	0.7	11.3	4.4	3.5	19.2	995
Weighted Average	**3.8**	**8.0**	**1.9**	**1.0**	**0.6**	**0.4**	**0.4**	**10.6**	**3.5**	**2.0**	**16.1**	**3,415**

Table R-39. Snag density (trees per acre) in the southern districts (Roseburg, Medford, and Klamath Falls) by structural stage.

Structural Group	Diameter Class (Inches DBH)											Sub-Plots
	<6	6-12	12-18	18-24	24-30	30-36	>36	<10	10-20	>20	All	
Early-successional with Structural Legacies	-	1.3	1.1	1.1	0.6	0.3	0.1	1.3	1.1	2.1	4.5	19
Early-successional without Structural Legacies	5.7	8.7	2.6	1.6	0.8	0.6	0.4	12.8	4.7	2.9	20.5	91
Stand Establishment with Structural Legacies	4.4	6.1	1.0	0.5	0.2	0.3	0.1	9.8	1.9	0.9	12.7	187
Stand Establishment without Structural Legacies	1.1	3.5	0.6	0.5	0.3	0.1	0.3	4.1	1.3	1.0	6.3	626
Young – High Density, with Structural Legacies	3.1	7.8	2.0	0.9	0.4	0.3	0.2	9.4	4.0	1.4	14.9	261
Young – High Density, without Structural Legacies	4.6	8.4	1.8	0.6	0.2	0.3	0.2	11.7	3.4	1.1	16.2	467
Young – Low Density, with Structural Legacies	5.8	10.0	0.4	0.2	0.5	0.5	0.1	15.8	0.5	1.2	17.5	29
Young – Low Density, without Structural Legacies	5.2	10.2	2.5	1.2	0.9	0.2	0.1	13.7	4.9	1.7	20.3	62
Mature, Single-layered Canopy	4.3	11.2	2.4	1.1	0.4	0.2	0.2	14.4	3.9	1.4	19.7	146
Mature, Multi-layered Canopy	5.7	10.9	2.4	1.0	0.6	0.3	0.3	14.9	4.6	1.8	21.3	532
Structurally-complex, Developed Structurally-complex	4.3	9.9	2.2	1.4	0.6	0.4	0.5	13.0	4.0	2.3	19.3	377
Structurally-complex, Existing Old Forest	3.7	8.4	2.5	1.4	1.4	0.9	0.8	10.3	4.7	4.1	19.2	608
Structurally-complex, Existing Very Old Forest	4.8	7.2	1.1	3.7	3.2	-	1.1	9.6	4.0	7.4	21.1	10
Weighted Average	**3.8**	**8.0**	**1.9**	**1.0**	**0.6**	**0.4**	**0.4**	**10.6**	**3.5**	**2.0**	**16.1**	**3,415**

Table R-40. Down woody material cover in the decision area by structural group.

Structural Group	Decay Class (Percent Cover)						Number of Transects
	1	2	3	4	5	All	
Early-successional	0.2%	0.9%	1.5%	0.9%	0.3%	3.8%	254
Stand Establishment	0.2%	0.4%	1.4%	1.6%	0.4%	4.1%	2,626
Young	0.2%	0.4%	1.0%	1.4%	0.6%	3.6%	3,332
Mature	0.3%	0.7%	1.4%	1.8%	0.9%	5.0%	3,054
Structurally-complex	0.3%	0.7%	1.8%	1.5%	0.6%	4.9%	3,234
Weighted Average	**0.2%**	**0.6%**	**1.4%**	**1.5%**	**0.6%**	**4.4%**	**12,500**

Table R-41. Down woody material cover in the decision area by structural stage.

Structural Stage	Decay Class (Percent Cover)						Transects
	1	2	3	4	5	All	
Early-successional with Structural Legacies	0.2%	1.5%	2.4%	1.3%	0.3%	5.6%	62
Early-successional without Structural Legacies	0.1%	0.7%	1.3%	0.8%	0.3%	3.1%	192
Stand Establishment with Structural Legacies	0.2%	0.3%	0.7%	1.1%	0.8%	3.1%	422
Stand Establishment without Structural Legacies	0.2%	0.4%	1.6%	1.7%	0.4%	4.3%	2,204
Young – High Density, with Structural Legacies	0.2%	0.3%	1.1%	1.2%	0.4%	3.2%	834
Young – High Density, without Structural Legacies	0.3%	0.4%	1.0%	1.5%	0.6%	3.8%	2,288
Young – Low Density, with Structural Legacies	0.1%	0.2%	0.3%	0.2%	0.1%	0.9%	62
Young – Low Density, without Structural Legacies	0.1%	0.9%	1.3%	0.9%	0.3%	3.3%	148
Mature, Single-layered Canopy	0.3%	0.9%	1.5%	1.9%	0.9%	5.5%	1,354
Mature, Multi-layered Canopy	0.2%	0.6%	1.3%	1.7%	0.8%	4.6%	1,700
Structurally-complex, Developed Structurally-complex	0.2%	0.5%	1.5%	1.5%	0.6%	4.3%	1,298
Structurally-complex, Existing Old Forest	0.3%	0.8%	1.9%	1.5%	0.6%	5.2%	1,850
Structurally-complex, Existing Very Old Forest	0.4%	1.2%	5.2%	2.3%	0.9%	10.0%	86
Weighted Average	**0.2%**	**0.6%**	**1.4%**	**1.5%**	**0.6%**	**4.4%**	**12,500**

Table R-42. Down woody material cover in the northern districts (Salem, Eugene, and Coos Bay) by structural group.

Structural Group	Decay Class (Percent Cover)						Number of Transects
	1	2	3	4	5	All	
Early-successional	0.1%	1.6%	2.1%	1.0%	0.4%	5.3%	34
Stand Establishment	0.3%	0.4%	1.5%	1.5%	0.5%	4.1%	1,000
Young	0.3%	0.5%	1.2%	1.7%	0.7%	4.4%	1,694
Mature	0.4%	0.8%	1.6%	1.7%	0.9%	5.4%	1,698
Structurally-complex	0.3%	1.0%	2.7%	1.9%	0.8%	6.8%	1,244
Weighted Average	**0.3%**	**0.7%**	**1.7%**	**1.7%**	**0.8%**	**5.2%**	**5,670**

Table R-43. Down woody material cover in the northern districts (Salem, Eugene, and Coos Bay) by structural stage.

Structural Stage	Decay Class (Percent Cover)						Transects
	1	2	3	4	5	All	
Early-successional with Structural Legacies	0.2%	2.3%	3.0%	1.4%	0.6%	7.5%	24
Early-successional without Structural Legacies	-	-	-	-	-	-	10
Stand Establishment with Structural Legacies	-	0.2%	0.5%	1.3%	0.8%	2.8%	48
Stand Establishment without Structural Legacies	0.3%	0.4%	1.5%	1.5%	0.5%	4.2%	952
Young – High Density, with Structural Legacies	0.3%	0.4%	1.4%	1.7%	0.5%	4.3%	312
Young – High Density, without Structural Legacies	0.3%	0.5%	1.1%	1.7%	0.8%	4.4%	1,354
Young – Low Density, with Structural Legacies	0.8%	2.1%	-	1.4%	-	4.4%	4
Young – Low Density, without Structural Legacies	-	3.2%	2.3%	1.6%	1.0%	8.1%	24
Mature, Single-layered Canopy	0.4%	0.8%	1.6%	1.9%	1.0%	5.6%	1,062
Mature, Multi-layered Canopy	0.3%	0.7%	1.5%	1.5%	0.8%	5.0%	636
Structurally-complex, Developed Structurally-complex	0.2%	0.7%	1.9%	1.6%	0.7%	5.1%	544
Structurally-complex, Existing Old Forest	0.3%	1.3%	3.1%	2.1%	0.9%	7.7%	634
Structurally-complex, Existing Very Old Forest	0.4%	1.5%	6.5%	2.7%	1.0%	12.2%	66
Weighted Average	**0.3%**	**0.7%**	**1.7%**	**1.7%**	**0.8%**	**5.2%**	**5,670**

Table R-44. Down woody material cover in the southern districts (Roseburg, Medford, and Klamath Falls) by structural group.

Structural Group	Decay Class (Percent Cover)						Number of Transects
	1	2	3	4	5	All	
Early-successional	0.2%	0.8%	1.4%	0.9%	0.3%	3.5%	220
Stand Establishment	0.1%	0.5%	1.4%	1.6%	0.4%	4.0%	1,626
Young	0.1%	0.3%	0.8%	1.0%	0.4%	2.7%	1,638
Mature	0.1%	0.7%	1.1%	1.8%	0.8%	4.5%	1,356
Structurally-complex	0.2%	0.5%	1.3%	1.3%	0.5%	3.8%	1,990
Weighted Average	**0.2%**	**0.5%**	**1.2%**	**1.4%**	**0.5%**	**3.7%**	**6,830**

Table R-45. Down woody material cover in the southern districts (Roseburg, Medford, and Klamath Falls) by structural stage.

Structural Stage	Decay Class (Percent Cover)						Transects
	1	2	3	4	5	All	
Early-successional with Structural Legacies	0.2%	0.9%	2.0%	1.2%	-	4.5%	38
Early-successional without Structural Legacies	0.1%	0.7%	1.3%	0.8%	0.3%	3.3%	182
Stand Establishment with Structural Legacies	0.2%	0.3%	0.8%	1.1%	0.8%	3.2%	374
Stand Establishment without Structural Legacies	0.1%	0.5%	1.6%	1.8%	0.3%	4.3%	1,252
Young – High Density, with Structural Legacies	0.1%	0.3%	0.9%	0.9%	0.4%	2.6%	522
Young – High Density, without Structural Legacies	0.2%	0.3%	0.8%	1.1%	0.5%	2.9%	934
Young – Low Density, with Structural Legacies	-	-	0.3%	0.1%	0.1%	0.7%	58
Young – Low Density, without Structural Legacies	0.1%	0.4%	1.1%	0.7%	0.1%	2.4%	124
Mature, Single-layered Canopy	0.2%	1.1%	1.2%	1.9%	0.5%	4.9%	292
Mature, Multi-layered Canopy	0.1%	0.5%	1.1%	1.8%	0.8%	4.4%	1,064
Structurally-complex, Developed Structurally-complex	0.2%	0.4%	1.2%	1.4%	0.5%	3.7%	754
Structurally-complex, Existing Old Forest	0.2%	0.6%	1.3%	1.3%	0.4%	3.9%	1,216
Structurally-complex, Existing Very Old Forest	0.1%	0.3%	1.0%	0.8%	0.5%	2.7%	20
Weighted Average	**0.2%**	**0.5%**	**1.2%**	**1.4%**	**0.5%**	**3.7%**	**6,830**

Bureau Sensitive, Bureau Strategic, Survey & Manage Species

Table R-46. Early-successional habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres) (%)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (By County)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Black-throated Gray Warbler	*Setophaga nigrescens*	-	N	Y[1]	388,976	139,443 (36%)	107,772 (28%)	24,419 (6%)	170,143 (44%)	64,049 (16%)	22,334 (6%)	Stand Establishment (2.1, 2.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Blue (Sooty) Grouse	*Dendragapus fuliginosus sierra*	-	N	Y[1]	485,109	284,485 (59%)	225,647 (47%)	188,073 (39%)	339,836 (70%)	152,395 (31%)	74,967 (15%)	Early-successional (1.1, 1.2), Stand Establishment (2.1, 2.2), or Young Low Density (3.3, 3.4)	All	NatureServe 2014
Birds: Landbird Focal Species	Chipping Sparrow	*Spicella passerine*	-	N	Y[3]	46,258	110,566 (239%)	80,089 (173%)	118,312 (256%)	131,002 (283%)	46,001 (99%)	14,418 (31%)	Early-successional (1.1, 1.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Common Nighthawk	*Chordeiles minor*	-	N	Y[2]	54,940	119,248 (217%)	88,771 (162%)	126,994 (231%)	139,684 (254%)	54,683 (100%)	23,100 (42%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	All	NatureServe 2014
Birds: Landbird Focal Species	Fox Sparrow	*Passerlla iliaca*	-	N	Y[1]	46,258	110,566 (239%)	80,089 (173%)	118,312 (256%)	131,002 (283%)	46,001 (99%)	14,418 (31%)	Early-successional (1.1, 1.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Grasshopper Sparrow	*Ammodramus savannarum*	BS	N	Y[2]	25,487	55,477 (218%)	35,188 (138%)	53,134 (208%)	57,469 (225%)	23,533 (92%)	11,938 (47%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	Jackson, Lane, Linn, Polk	NatureServe 2014
Birds: Landbird Focal Species	Lark Sparrow	*Chondestes grammacus*	-	N	Y[2]	38,921	82,557 (212%)	46,993 (121%)	61,264 (157%)	67,724 (174%)	32,339 (83%)	17,938 (46%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	Benton, Jackson, Josephine, Klamath, Lane, Linn, Multnomah, Tillamook	Avian Knowledge Northwest 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres) (%)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (By County)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Lazuli Bunting	*Passerina amoena*	-	N	Y[1]	54,940	119,248 (217%)	88,771 (162%)	126,993 (231%)	139,684 (254%)	54,683 (100%)	23,100 (42%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	All – except Clatsop	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Nashville Warbler	*Oreothlypis ruficapilla*	-	N	Y[1,3]	479,672	284,381 (59%)	117,859 (29%)	187,919 (39%)	339,513 (71%)	152,196 (32%)	74,890 (16%)	Early-successional (1.1, 1.2), Stand Establishment (2.1, 2.2), or Young Low Density (3.3, 3.4) within the Klamath Province	All – except Lincoln	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Olive-sided Flycatcher	*Contopus cooperi*	-	N	Y[3]	402,947	249,722 (62%)	117,859 (29%)	141,484 (35%)	179,698 (45%)	108,880 (27%)	36,629 (10%)	Early-successional with Structural Legacies (1.1) or Stand Establishment (2.1, 2.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Orange Crowned Warbler	*Oreothlypis celata*	-	N	Y[1]	46,258	110,566 (239%)	80,089 (173%)	118,312 (256%)	131,002 (283%)	46,001 (99%)	14,418 (31%)	Early-successional (1.1, 1.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Oregon Vesper Sparrow	*Pooecetus gramineus affinis*	BS	N	Y[2]	5,726	28,774 (503%)	26,868 (469%)	58,696 (1025%)	48,788 (852%)	18,086 (316%)	1,798 (31%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	Benton, Clackamas, Lane, Linn, Marion, Polk	NatureServe 2014
Birds: Landbird Focal Species	Rufous Hummingbird	*Selasphorous rufus*	-	N	Y[1]	485,109	284,485 (59%)	225,647 (47%)	188,073 (39%)	339,836 (70%)	152,395 (31%)	74,967 (15%)	Early-successional (1.1, 1.2), Stand Establishment (2.1, 2.2), or Young Low Density (3.3, 3.4)	All	NatureServe 2014
Birds: Landbird Focal Species	Streaked Horned Lark	*Eremophila alpestris strigata*	FT	N	Y[2]	2,671	20,421 (765%)	17,796 (666%)	36,245 (1357%)	29,977 (1122%)	13,939 (522%)	1,092 (41%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7).	Benton, Clackamas, Linn, Marion, Polk, Yamhill	NatureServe 2014
Birds: Landbird Focal Species	Western Meadowlark	*Sturnella neglecta*	-	N	Y[2]	54,940	284,485 (518%)	88,771 (162%)	126,994 (231%)	139,684 (254%)	54,683 (100%)	23,100 (42%)	Early-successional (1.1, 1.2) or GNN Non-Forest Agricultural, Grassland, Shrub land (2, 6, 7)	All	NatureServe 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres) (%)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (By County)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Western Tanager	*Piranga ludoviciana*	-	N	Y[1]	438,851	173,919 (40%)	145,558 (33%)	69,761 (16%)	208,834 (48%)	106,394 (24%)	60,549 (14%)	Stand Establishment (2.1, 2.2) or Young Low Density (3.3, 3.4)	All	NatureServe 2014
Insects: Terrestrial	Siskiyou Short-horned Grasshopper	*Chloealtis aspasma*	BS	N	N	23,336	44,302 (190%)	19,290 (83%)	10,357 (44%)	21,021 (90%)	11,604 (50%)	10,130 (43%)	Early-successional (1.1, 1.2)	Jackson, Josephine	NatureServe 2014

*SSS Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

[1] Altman and Alexander (2012).

[2] Altman (2000a).

[3] Altman (2000b).

Table R-47. Young or mature forest habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Hammond's Flycatcher	*Empidonax hammondii*	-	N	Y[1]	1,088,340	1,234,282 (113%)	1,187,686 (109%)	1,239,055 (114%)	1,147,394 (105%)	1,251,205 (101%)	1,302,043 (120%)	Young High Density (3.1, 3.2) or Mature (4.1, 4.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Hermit Thrush	*Catharus guttatus*	-	N	Y[1]	1,088,340	1,234,282 (113%)	1,187,686 (109%)	1,239,055 (114%)	1,147,394 (105%)	1,251,205 (101%)	1,302,043 (120%)	Young High Density (3.1, 3.2) or Mature (4.1, 4.2)	All	NatureServe 2014
Birds: Landbird Focal Species	Hermit Warbler	*Setophaga occidentalis*	-	N	Y[1]	1,088,340	1,234,282 (113%)	1,187,686 (109%)	1,239,055 (114%)	1,147,394 (105%)	1,251,205 (101%)	1,302,043 (120%)	Young High Density (3.1, 3.2) or Mature (4.1, 4.2)	All	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Townsend's Warbler	*Setophaga townsedi*	-	N	Y[1]	1,088,340	1,234,282 (113%)	1,187,686 (109%)	1,239,055 (114%)	1,147,394 (105%)	1,251,205 (101%)	1,302,043 (120%)	Young High Density (3.1, 3.2) or Mature (4.1, 4.2)	All	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Purple Finch	*Haemorphus purpureus*	-	N	Y[1]	1,435,511	1,289,215 (90%)	1,356,356 (94%)	1,409,909 (98%)	1,316,798 (92%)	1,423,674 (99%)	1,392,683 (97%)	Young High Density (3.1, 3.2), Mature Multi-layered Canopy (4.2), or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014
Birds: Landbird Focal Species	Wilson's Warbler	*Cardellina pusilla*	-	N	Y[1]	1,138,215	1,268,758 (111%)	1,225,473 (108%)	1,284,396 (113%)	1,186,085 (104%)	1,293,550 (114%)	1,340,257 (118%)	Young (3.1, 3.2, 3.3, 3.4) or Mature (4.1, 4.2)	All	NatureServe 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Great Gray Owl	Great Gray Owl	*Strix nebulosa*	-	Y	N	45,157	116,913 (259%)	77,909 (172%)	91,599 (203%)	88,930 (197%)	42,922 (95%)	17,354 (38%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3) or GNN Non-Forest Grassland, Shrub land, Sagebrush (6, 7, 8) that is < 650 feet from meadows or openings(1.1, 1.2) ≥ 10 acres in size	Douglas, Jackson, Josephine, Klamath, Lane, Linn	GeoBOB 2013

* SSS Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

[1] Altman and Alexander (2012).

Table R-48. Mature or structurally-complex forest habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Brown Creeper	*Certhia Americana*	-	N	Y[1,3]	1,104,899	1,549,987 (140%)	1,638,115 (148%)	1,651,075 (149%)	1,467,275 (133%)	1,726,938 (156%)	1,831,210 (166%)	Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014
Birds: Landbird Focal Species	Hermit Thrush	*Catharus guttatus*	-	N	Y[3]	863,291	961,980 (111%)	1,058,410 (123%)	1,087,349 (126%)	962,201 (111%)	1,141,298 (132%)	1,136,633 (132%)	Mature Multi-layered Canopy (4.2) or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014
Birds: Landbird Focal Species	Pacific-slope Flycatcher	*Empidonax difficilis*	-	N	Y[1]	1,104,899	1,549,987 (140%)	1,638,115 (148%)	1,651,075 (149%)	1,467,275 (133%)	1,726,938 (156%)	1,831,210 (166%)	Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	All	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Pileated Woodpecker	*Dryocarpus pileatus*	-	N	Y[1]	863,291	961,980 (111%)	1,058,410 (123%)	1,087,349 (126%)	962,201 (111%)	1,141,298 (132%)	1,136,633 (132%)	Mature Multi-layered Canopy (4.2) or Structurally-complex (5.1, 5.2, 5.3)	All	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Pygmy Nuthatch	*Sitta pygmaea*	-	N	Y[3]	9,991	9,439 (94%)	20,835 (209%)	20,054 (201%)	15,014 (150%)	16,935 (170%)	17,195 (172%)	Mature Multi-layered Canopy (4.2) or Structurally-complex (5.1, 5.2, 5.3)	Klamath	Avian Knowledge Northwest 2014
Birds: Landbird Focal Species	Varied Thrush	*Ixoreus naevius*	-	N	Y[1]	863,291	961,980 (111%)	1,058,410 (123%)	1,087,349 (126%)	962,201 (111%)	1,141,298 (132%)	1,136,633 (132%)	Mature Multi-layered Canopy (4.2) or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014
Insects: Terrestrial	Johnson's Hairstreak	*Callophrys johnsoni*	BS	N	N	1,104,899	1,549,987 (140%)	1,638,115 (148%)	1,651,075 (149%)	1,467,275 (133%)	1,726,938 (156%)	1,831,210 (166%)	Mature (4.1, 4.2) or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Red Tree Vole	Red Tree Vole	*Arborimus longicaudus*	-	Y	N	930,404	1,260,016 (135%)	1,358,216 (146%)	1,371,586 (147%)	1,231,228 (132%)	1,432,730 (154%)	1,517,390 (163%)	Mature (4.1, 4.2) or Structurally-complex (5.1, 5.2, 5.3)	All - outside defined polygon for North Oregon Coast DPS	USFWS 2011
Red Tree Vole	North Oregon Coast DPS of the Red Tree Vole	*Arborimus longicaudus*	BS	Y	N	174,495	289,971 (166%)	279,899 (160%)	279,489 (160%)	236,047 (135%)	294,208 (169%)	313,820 (180%)	Mature (4.1, 4.2) or Structurally-complex (5.1, 5.2, 5.3)	Defined DPS Polygon	USFWS 2011

* SSSp Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

[1] Altman and Alexander (2012).

[3] Altman (2000b).

Table R-49. Forest floor habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Amphibians: Terrestrial	Black Salamander	*Aneides ferreus*	BS	N	N	389,409	422,485 (108%)	488,842 (126%)	508,151 (130%)	484,370 (124%)	505,687 (130%)	514,176 (132%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	Jackson, Josephine	NatureServe 2014
Amphibians: Terrestrial	California Slender Salamander	*Batrachoseps attenuates*	BS	N	N	225,416	251,435 (112%)	271,227 (120%)	283,379 (126%)	276,870 (123%)	287,792 (128%)	288,795 (128%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	Curry, Josephine	NatureServe 2014
Amphibians: Terrestrial	Larch Mountain Salamander	*Plethodon larselli*	-	Y	N	3,181	2,573 (81%)	3,329 (105%)	2,802 (88%)	2,111 (66%)	3,707 (117%)	3,902 (123%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	Multnomah	NatureServe 2014
Amphibians: Terrestrial	Van Dyke's Salamander	*Plethodon vandykei*	-	Y	N								Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	Out of Known Range	GeoBOB 2013
Insects: Terrestrial	Obrien's Seed Bug	*Malezonotus obrieni*	BStr	N	N	1,104,899	1,549,987 (140%)	1,638,115 (148%)	1,651,075 (149%)	1,467,275 (133%)	1,726,938 (156%)	1,831,210 (166%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Insects: Terrestrial	Roth's Blind Ground Beetle	*Pterostichus rothi*	BS	N	N	1,104,899	1,549,987 (140%)	1,638,115 (148%)	1,651,075 (149%)	1,467,275 (133%)	1,726,938 (156%)	1,831,210 (166%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	All	Assumed to be all of Planning Area
Mollusks: Terrestrial	Cascades Axetail Slug	*Carinacauda stormi*	BS	N	N	237,164	366,778 (155%)	353,113 (149%)	353,116 (149%)	299,286 (126%)	382,037 (161%)	422,835 (178%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Clackamas, Lane, Linn, Marion	GeoBOB 2013; NatureServe 2014
Mollusks: Terrestrial	Puget Oregonian	*Cryptomastix devia*	BS	Y	N	23,838	40,523 (170%)	29,928 (126%)	33,579 (141%)	24,453 (103%)	34,842 (146%)	43,841 (184%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Multnomah, Washington, Yamhill	GeoBOB 2013
Mollusks: Terrestrial	Warty Jumping-slug	*Hemphillia glandulosa*	-	Y	N	80,547	130,929 (163%)	119,271 (148%)	124,794 (155%)	109,028 (135%)	131,954 (164%)	138,430 (172%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Benton, Clatsop, Tillamook, Washington, Yamhill	GeoBOB 2013
Mollusks: Terrestrial	Malone Jumping-slug	*Hemphillia malonei*	-	Y	N	54,812	78,403 (143%)	73,743 (135%)	74,781 (136%)	62,213 (114%)	77,271 (141%)	89,747 (164%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Clackamas, Marion, Multnomah	GeoBOB 2013

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)						Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
	Common Name	Scientific Name				*in 2013*	*in 2063*							
						Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest		
Mollusks: Terrestrial	Oregon Megomphix	*Megomphix hemphilli*	-	Y	N	705,040	1,079,159 (153%)	1,085,261 (154%)	1,089,808 (155%)	946,713 (134%)	1,162,501 (165%)	1,246,290 (177%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Benton, Clackamas, Clatsop, Columbia, Coos, Douglas, Lane, Linn, Marion, Multnomah, Tillamook, Washington, Yamhill	GeoBOB 2013
Mollusks: Terrestrial	Klamath Sideband	*Monadenia churchi*	-	Y	N	163,314	177,638 (109%)	224,268 (137%)	231,326 (142%)	209,040 (128%)	229,231 (140%)	238,101 (146%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Jackson	GeoBOB 2013
Mollusks: Terrestrial	Green Sideband	*Monadenia fidelis beryllica*	BS	N	N	32,579	39,971 (123%)	39,578 (121%)	41,972 (129%)	35,767 (110%)	36,032 (111%)	45,292 (139%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Curry	GeoBOB 2013
Mollusks: Terrestrial	Broadwhorl Tightcoil	*Pristiloma johnsoni*	BStr	N	N	473,900	714,295 (151%)	746,446 (158%)	738,105 (156%)	641,727 (135%)	791,217 (167%)	833,514 (176%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Curry, Douglas, Lane	GeoBOB 2013
Mollusks: Terrestrial	Crowned Tightcoil	*Pristiloma pilsbryi*	BS	N	N	21,451	40,295 (188%)	41,433 (193%)	40,519 (189%)	41,541 (194%)	41,529 (194%)	42,009 (196%)	Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Tillamook	GeoBOB 2013

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Mollusks: Terrestrial	Blue-grey Taildropper	*Prophysaon coeruleum*	-	Y	N	1,144,280	1,532,767 (134%)	1,603,056 (140%)	1,647,285 (144%)	1,453,163 (127%)	1,707,753 (149%)	1,779,791 (156%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Benton, Clackamas, Coos, Curry, Douglas, Jackson, Josephine, Klamath, Lane, Linn, Marion	GeoBOB 2013
Mollusks: Terrestrial	Klamath Taildropper	*Prophysaon sp. nov.*	BStr	N	N	220,822	234,750 (106%)	293,885 (133%)	300,640 (136%)	268,344 (122%)	294,427 (133%)	308,387 (140%)	Young High Density with Structural Legacies (3.1), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Jackson, Klamath	GeoBOB 2013
Mollusks: Terrestrial	Hoko Vertigo	*Vertigo sp. nov.*	-	Y	N								Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Out of Known Range	GeoBOB 2013

*SSS Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

Table R-50. Legacy features in "younger" habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Birds: Landbird Focal Species	Lewis' Woodpecker	*Melanerpes lewis*	BS	N	Y[2, 3]	12,896	89,420 (693%)	12,249 (95%)	70,832 (549%)	8,716 (68%)	31,361 (243%)	16,361 (127%)	Early-successional with Structural Legacies (1.1) or GNN Non-Forest Shrub land (7)	Columbia, Douglas, Jackson, Josephine, Klamath, Lane, Multnomah	GeoBOB 2013,N
Birds: Landbird Focal Species	Northern Flicker	*Colaptes auratus*	-	N	Y[1]	82,477	228,649 (277%)	14,382 (17%)	121,639 (147%)	13,940 (17%)	89,418 (108%)	15,589 (19%)	Early-successional with Structural Legacies (1.1) or Stand Establishment with Structural Legacies (2.1)	All	NatureServe 2014
Birds: Landbird Focal Species	Olive-sided Flycatcher	*Contopus cooperi*	-	N	Y[1]	402,947	249,722 (62%)	117,859 (29%)	141,484 (35%)	179,698 (45%)	108,880 (27%)	36,629 (9%)	Early-successional with Structural Legacies (1.1) or Stand Establishment (2.1, 2.2)	All	NatureServe 2014
Birds: Landbird Focal Species	White-Headed Woodpecker	*Picoides albolarvatus*	BS	N	Y[3]	10,313	72,725 (705%)	11,882 (115%)	40,209 (390%)	8,567 (83%)	24,085 (234%)	15,923 (154%)	Early-successional with Structural Legacies (1.1) or GNN Non-Forest Shrub land (7)	Douglas, Jackson, Josephine, Klamath	GeoBOB 2013; NatureServe 2014
Birds: Landbird Focal Species	Williamson's Sapsucker	*Sphyrapicus thyroideus*	-	N	Y[3]	84,441	215,195 (255%)	23,098 (27%)	101,787 (121%)	22,457 (27%)	84,237 (100%)	24,061 (28%)	Early-successional with Structural Legacies (1.1), Stand Establishment with Structural Legacies (2.1), or Young Low Density with Structural Legacies (3.3)	Benton, Clackamas, Douglas, Jackson, Josephine, Klamath, Lane, Linn	Avian Knowledge Northwest 2014; GeoBOB 2013

* SSS Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

[1] Altman and Alexander (2012).

[2] Altman (2000a).

[3] Altman (2000b).

Table R-51. Legacy features in "older" habitat development for Bureau Sensitive, Bureau Strategic, Survey & Manage wildlife species and landbird focal species.

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)							Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*								
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest			
Bats	Fringed Myotis	*Myotis thysanodes*	BS	N	N	1,162,574	1,555,190 (134%)	1,624,141 (140%)	1,672,762 (144%)	1,479,554 (127%)	1,730,345 (149%)	1,801,630 (155%)	Young with Structural Legacies (3.1, 3.3), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Clackamas, Clatsop, Columbia, Coos, Curry, Douglas, Jackson, Josephine, Klamath, Lane, Lincoln, Linn, Tillamook, Washington	GeoBOB 2013; NatureServe 2014
Bats	Pallid Bat	*Antrozous pallidus*	BS	N	N	1,026,908	1,348,033 (131%)	1,435,273 (140%)	1,471,780 (143%)	1,305,381 (127%)	1,522,475 (148%)	1,571,763 (153%)	Young with Structural Legacies (3.1, 3.3), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Coos, Curry, Douglas, Jackson, Josephine, Klamath, Lane	NatureServe 2014
Bats	Spotted Bat	*Euderma maculatum*	BS	N	N								Young with Structural Legacies (3.1, 3.3), Mature (4.1, 4.2), and Structurally-complex (5.1, 5.2, 5.3)	Out of Known Range	NatureServe 2014
Birds: Landbird Focal Species	Vaux's Swift	*Chaetura vauxi*	-	N	Y[1]	992,340	1,090,906 (110%)	1,156,869 (117%)	1,219,648 (123%)	1,062,341 (107%)	1,267,362 (128%)	1,239,197 (125%)	Young High Density with Structural Legacy (3.1), Mature Multi-layered Canopy (4.2), or Structurally-complex (5.1, 5.2, 5.3)	All	NatureServe 2014

Taxonomic Group	Species		SSS Status*	S&M (Y/N)	Land-bird Focal Species (Y/N)	Amount of Habitat (Acres)						Structural Stage(s) for Habitat Analysis (Numeric Codes)	Species Range (Counties in the Planning Area)	Source for Species Range
						in 2013	*in 2063*							
	Common Name	Scientific Name				Current	No Action	Alt. A	Alt. B	Alt. C	Alt. D	No Timber Harvest		
Birds: Landbird Focal Species	Winter Wren	*Troglodytes hiemalus*	-	N	Y[1]	1,234,785	1,670,659 (135%)	1,432,214 (116%)	1,776,612 (144%)	1,559,493 (126%)	1,845,313 (149%)	1,925,362 (156%)	Young with Structural Legacies (3.1, 3.3), Mature (4.1, 4.2), or Structurally-complex (5.1, 5.2, 5.3)	All – except Lincoln	Avian Knowledge Northwest 2014

* SSS Status (Special Status Species status): BS = Bureau Sensitive, BStr = Bureau Strategic, FP = Federal Proposed (also Bureau Sensitive), FC = Federal Candidate (also Bureau Sensitive).

[1] Altman and Alexander (2012).

Structural Stage Development

Table R-52. Early-successional forest habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	46,249	46,249	46,249	46,249	46,249	46,249
Alternatives						
2023	92,216	91,012	81,747	138,088	69,273	43,016
2033	101,496	97,831	73,282	180,450	51,793	9,667
2043	100,324	86,622	105,364	145,343	44,531	12,233
2053	111,095	79,930	132,251	127,038	47,977	14,105
2063	110,566	80,089	118,311	131,001	46,001	14,418

Table R-53. Early-successional forest habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	1,112,694	1,112,694	1,112,694	1,112,694	1,112,694	1,112,694
Alternatives						
2023	1,158,661	1,157,457	1,148,192	1,204,533	1,135,718	1,109,463
2033	1,088,405	1,084,740	1,060,190	1,167,359	1,038,702	996,579
2043	1,087,233	1,073,531	1,092,273	1,132,252	1,031,440	999,145
2053	1,098,004	1,066,839	1,119,160	1,113,947	1,034,886	1,001,017
2063	1,097,475	1,066,998	1,105,220	1,117,910	1,032,910	1,001,331

Table R-54. Stand establishment forest habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	388,767	388,767	388,767	388,767	388,767	388,767
Alternatives						
2023	393,078	393,271	392,762	392,609	392,885	393,698
2033	261,528	259,790	261,142	260,643	261,162	263,693
2043	193,516	189,545	142,827	236,987	169,905	144,688
2053	169,130	158,823	77,038	243,421	118,027	75,210
2063	139,442	107,771	24,419	170,143	64,048	22,334

Table R-55. Stand establishment forest habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	2,473,304	2,473,304	2,473,304	2,473,304	2,473,304	2,473,304
Alternatives						
2023	2,477,615	2,477,808	2,477,299	2,477,146	2,477,422	2,478,235
2033	2,277,548	2,275,810	2,277,162	2,276,663	2,277,182	2,279,713
2043	2,130,000	2,126,029	2,079,311	2,173,471	2,106,389	2,081,173
2053	2,105,614	2,095,307	2,013,522	2,179,905	2,054,511	2,011,695
2063	2,075,926	2,044,255	1,960,903	2,106,627	2,000,532	1,958,819

Table R-56. Young forest habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	622,916	622,916	622,916	622,916	622,916	622,916
Alternatives						
2023	593,429	559,361	582,353	559,043	565,137	563,863
2033	621,154	553,647	588,635	563,582	560,568	550,334
2043	542,593	475,991	516,096	502,575	478,273	464,112
2053	410,984	347,098	395,704	369,961	347,204	331,876
2063	361,710	335,731	367,900	393,286	324,719	294,265

Table R-57. Young forest habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	9,807,038	9,807,038	9,807,038	9,807,038	9,807,038	9,807,038
Alternatives						
2023	9,777,551	9,743,483	9,766,475	9,743,165	9,749,259	9,747,986
2033	9,953,329	9,885,822	9,920,810	9,895,757	9,892,743	9,882,509
2043	9,954,304	9,887,702	9,927,807	9,914,286	9,889,984	9,875,822
2053	9,822,695	9,758,809	9,807,415	9,781,672	9,758,915	9,743,586
2063	8,295,651	8,269,672	8,301,841	8,327,227	8,258,660	8,228,205

Table R-58. Mature forest habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	515,324	515,324	515,324	515,324	515,324	515,324
Alternatives						
2023	530,495	535,495	528,263	510,523	555,899	570,286
2033	604,423	623,388	617,535	566,186	659,078	692,423
2043	748,405	753,999	746,035	671,321	807,110	864,305
2053	862,653	876,970	864,974	781,688	941,998	1,015,653
2063	907,043	889,737	916,491	792,794	968,826	1,045,993

Table R-59. Mature forest habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	2,431,709	2,431,709	2,431,709	2,431,709	2,431,709	2,431,709
Alternatives						
2023	2,446,880	2,451,880	2,444,648	2,426,908	2,472,284	2,486,671
2033	2,520,808	2,539,773	2,533,920	2,482,571	2,575,463	2,608,808
2043	2,664,790	2,670,384	2,662,420	2,587,706	2,723,495	2,780,690
2053	2,062,366	2,076,683	2,064,687	1,981,401	2,141,711	2,215,365
2063	3,584,526	3,567,220	3,593,974	3,470,277	3,646,309	3,723,475

Table R-60. Structurally-complex forest habitat development under the alternatives in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	588,435	588,435	588,435	588,435	588,435	588,435
Alternatives						
2023	552,481	582,560	576,573	561,435	578,505	591,365
2033	573,098	627,043	621,105	590,837	629,097	646,110
2043	576,860	655,541	651,378	605,473	661,880	676,889
2053	607,836	698,878	691,732	639,592	706,493	725,384
2063	642,938	748,371	734,577	674,474	758,105	785,217

Table R-61. Structurally-complex forest habitat development under the alternatives in the planning area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	1,578,370	1,578,370	1,578,370	1,578,370	1,578,370	1,578,370
Alternatives						
2023	1,542,416	1,572,495	1,566,508	1,551,370	1,568,440	1,581,271
2033	1,563,033	1,616,978	1,611,040	1,580,772	1,619,032	1,636,016
2043	1,566,795	1,645,476	1,641,313	1,595,408	1,651,815	1,666,795
2053	2,314,443	2,405,485	2,398,339	2,346,199	2,413,100	2,431,962
2063	2,349,545	2,454,978	2,441,184	2,381,081	2,464,712	2,491,796

Table R-62. Early-successional, stand establishment, and young stands with structural legacies (1.1, 2.1, 3.1, 3.3) in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	223,475	223,475	223,475	223,475	223,475	223,475
Alternatives						
2023	284,566	225,728	268,316	223,556	253,306	228,516
2033	301,306	199,160	267,575	196,131	244,514	204,698
2043	320,868	174,503	277,134	176,150	242,589	175,062
2053	344,989	149,389	278,851	149,441	235,643	151,473
2063	367,349	123,248	265,647	124,348	226,262	128,372

Table R-63. Mature and structurally-complex stands with structural legacies (4.2, 5.1, 5.2, 5.3) in the decision area.

Year	No Action (Acres)	Alt. A (Acres)	Alt. B (Acres)	Alt. C (Acres)	Alt. D (Acres)	No Timber Harvest (Acres)
Current Condition						
2013	862,411	862,411	862,411	862,411	862,411	862,411
Alternatives						
2023	822,156	850,413	840,454	824,563	859,206	871,438
2033	808,459	858,389	859,842	806,909	882,385	893,801
2043	884,185	952,884	962,440	879,988	993,084	1,011,663
2053	923,935	1,005,188	1,026,964	926,363	1,070,004	1,074,271
2063	961,980	1,058,410	1,087,349	962,201	1,141,298	1,136,633

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Appendix S – Northern Spotted Owl

Section S-A

Forecasting Habitat Change, and Northern Spotted Owl Population Responses, in Washington, Oregon and California

The U.S. Fish and Wildlife Service (USFWS) used HexSim (Schumaker 2011)—a spatially-explicit, individual-based, population model—to help inform its decisions on northern spotted owl recovery and the delineation of northern spotted owl critical habitat (USDI FWS 2011 and 2012). The Service's HexSim model was a powerful tool the BLM potentially could adapt to its planning needs.

The USFWS calibrated its HexSim model to run with northern spotted owl relative habitat suitability surfaces (i.e., digitized geospatial datasets used for computer analyses), which it derived using 1996 and 2006 Gradient Nearest Neighbor (GNN) data developed by the U.S. Forest Service (USFS) (Ohmann and Gregory 2002). Relative habitat suitability values range from 0 to 100, with higher numbers signifying better habitat value. The values themselves are derived from a variety of biotic and abiotic variables, such as the amount of forest canopy cover, mean tree diameter, and degree and direction of terrain slope. To create its relative habitat suitability surfaces, the USFWS used MaxEnt (Phillips *et al*. 2006) to compare variables present on broad landscapes with those associated with known northern spotted owls nest sites. The Service described its process in USDI FWS 2011 (Appendix C) and USDI FWS 2012.

Concurrent with the USFWS process, the USFS created a separate set of northern spotted owl relative habitat suitability surfaces to evaluate implementation of the Northwest Forest Plan (Davis *et al*. 2011). The USFS based its surfaces on a unique set of MaxEnt models that it also derived using 1996 and 2006 GNN data[143] (Davis *et al*. 2011, pp. 27 and 28). Differences between the two processes included:

- The two agencies used different variable scales to create their MaxEnt models. The USFS variables were specific to 30 × 30-m pixels (Davis *et al*. 2011, p. 28) whereas the USFWS variables were at the scale of 200 ha (USDI FWS 2012, p. 84).
- The two agencies trained their MaxEnt models to geographically-different modeling regions (Davis *et al*. 2011, p. 35 and USDI FWS 2011, p. C-13).
- Whereas the USFS trained its MaxEnt models primarily on discrete variable values, which could change independently (Davis *et al*. 2011, p. 99), the USFWS trained its MaxEnt models on a combination of discrete and compositional variables. Compositional variables are combinations of discrete variables, all of which must be present (USDI FWS 2012, p. C-38).

143 Both the USFWS and USFS trained their MaxEnt models using 1996 GNN data because the intent was to develop models that predicted the relative habitat suitability for northern spotted owls when competitive interactions with barred owl still were relatively uncommon. For this purpose, 1996 GNN data are better than 2006 GNN data because, when associated with northern spotted owl nesting-roosting location data, they better represent the association between habitat conditions and northern spotted owl occupancy before later displacements of northern spotted owls by barred owls. Once the models were trained, both agencies projected their models to 2006 GNN data, the most recent data available. Hence, throughout the remainder of this document, when the BLM refers to USFWS 2006 GNN MaxEnt models or USFS 2006 GNN MaxEnt models it always means models developed with 1996 GNN data and applied to 2006 data.

- The USFS used LandTrendr to examine changes in forest stand conditions during 1996 – 2006 from timber harvest, insects and disease, and wildfire (Davis *et al*. 2011, p. 28, 29, 121-125).

Before the BLM northern spotted owl modeling process began, the BLM decided—for its planning process—to use Woodstock to forecast changes in forest stand growth and timber yield variables on its administered lands in the planning area (see the Vegetation Modeling Section in Chapter 3). Therefore, for the northern spotted owl modeling, the BLM created relative habitat suitability surfaces for its administered lands in the planning area, that changed each decade for five decades (see Chapter 3, Northern Spotted Owl), using Woodstock variable outputs. In addition, to generate credible range-wide simulations of northern spotted owl demographic responses to the BLM alternatives using HexSim, the BLM:

- Created relative habitat suitability surfaces for all "other lands" (i.e., lands other than BLM-administered lands in the planning area) within the northern spotted owl's range so simulated northern spotted owls could move across planning area boundaries and respond to habitat conditions on all land ownerships inside and outside the planning area, and;
- Forecasted changes to those surfaces from forest ingrowth, timber harvest and wildfire at the same decadal increments as its Woodstock model, something not done by either the USFS or USFWS.

Thus, to simulate habitat conditions on BLM-administered lands in the planning area, the BLM could not use the USFS or USFWS relative habitat suitability surfaces because the BLM needed to vary the relative habitat suitability surfaces according to each of its alternatives and over time, using variables derived from Woodstock.

To simulate habitat conditions on other lands within the northern spotted owl's range, the BLM originally hoped to build upon the relative habitat suitability surfaces developed by the USFS because:

- The similarity of scale between the BLM Woodstock variables and the USFS GNN variables potentially made it easier for the BLM to merge its relative habitat suitability surfaces for BLM-administered lands with those generated by the USFS for other lands;
- Since Woodstock generates individual variable values, instead of compositional variable values, the BLM could more-directly compare its MaxEnt models to those created by the USFS, and;
- Woodstock could generate the same variable values used by the USFS to create its relative habitat suitability surfaces, which potentially made the BLM and USFS surfaces more compatible.

In addition, the BLM determined that unpublished USFS LandTrendr results could help it forecast habitat changes on other lands.

Therefore, the BLM programmed Woodstock to generate the same variables used by the USFS GNN MaxEnt models (see Davis *et al*. 2011, p. 99) and, using those variables, planned to apply the USFS's MaxEnt models to BLM-administered lands in the planning area. The BLM initially hoped that there would be sufficient compatibility between the relative habitat suitability surfaces generated from the Woodstock and GNN datasets so that the BLM could use the Woodstock variable outputs for BLM-administered lands in the planning area and the GNN variable outputs for all other lands. If the two sets of variable outputs were insufficiently compatible, the BLM could add a stand age variable to the Woodstock outputs to correlate the two relative habitat suitability surfaces.

Unfortunately, as described below under Model 1, the BLM found that the USFS MaxEnt models would not work in this way. Subsequently, the BLM went through an iterative process to identify and account

for design differences between the USFS and USFWS GNN MaxEnt models so that the BLM could use the HexSim model developed by the USFWS—with little or no recalibration—with relative habitat suitability surfaces that utilized both Woodstock data for BLM-administered lands in the planning area and GNN data for other lands.

Developing MaxEnt Models for BLM-Administered Lands in the Planning Area

Objectives and Selection Criteria

Since the BLM initially sought to use the USFS's GNN MaxEnt models, it first evaluated whether doing so was reasonable for its planning purposes. The BLM used three model assessment criteria to evaluate the utility of the USFS, and subsequently other, MaxEnt models:

1) Whether the current–year relative habitat suitability surface generated by the MaxEnt models had a strong correlation[144] with that generated by the USFWS's MaxEnt models. The USFWS calibrated its northern spotted owl HexSim model to its own relative habitat suitability surface. If the new relative habitat suitability surfaces were strongly correlated to the USFWS's surface, the BLM could use the USFWS's HexSim model with the new surfaces with relatively little recalibration of the HexSim model. However, if they were not strongly correlated, a long and detailed recalibration of the HexSim model would be needed. The BLM preferred to avoid a lengthy recalibration.
2) Whether the relative habitat suitability models applied to BLM-administered lands performed similarly[145] to those applied to non-BLM lands. The spatial scale for evaluating the effects of various BLM alternatives on the northern spotted owl population was to occur over the entire geographic range of the northern spotted owl, within modeling regions, and at smaller scales. Hence, the BLM needed the models to perform similarly on BLM-administered lands in the planning area and all other lands within the northern spotted owl's range.
3) Relative habitat suitability surfaces developed for BLM-administered lands in the planning area had to be derived from the forest growth and timber yield variables generated by Woodstock, the most accurate data for those lands.

To determine if criterion 2 were met, the BLM evaluated how its models worked under the No Timber Harvest scenario by evaluating the portions of BLM-administered lands in the planning area that occurred in various relative habitat suitability value bins and strength-of-selection bins (see Model 8, below, the first model so evaluated, for more information). This was a heuristic evaluation of the "reasonableness" of the model(s) applied to decadal changes according to the No Timber Harvest. The BLM forecasted changes at decadal intervals for 50 years. If the model(s) worked well, there would be a steady decrease in the portion of BLM-administered land in low relative habitat suitability value bins and increases in the proportion of that land in higher relative habitat suitability value bins. This evaluation was heuristic

144 Strong correlation: The BLM, knowing the substantive differences between the origins of the Woodstock and GNN datasets, did not choose an *a priori* minimum correlation coefficient. Instead, the BLM sought for the highest correlation coefficient it could achieve with the available datasets, and then determined if the coefficient were sufficiently strong to allow the BLM to proceed with its analyses.

145 Performed similarly in terms of their relative progressions, over time, through relative habitat suitability bins and strength-of-selection bins. See Model 8, below, the first model so evaluated, for descriptions of these analyses.

because the BLM knew the general trajectory that would be seen if the model(s) worked reasonably well, even though it did not know the specific extent of that change.

Here, the BLM describes its process to develop relative habitat suitability surfaces that met its three assessment criteria. **Figure S-1** outlines the process.

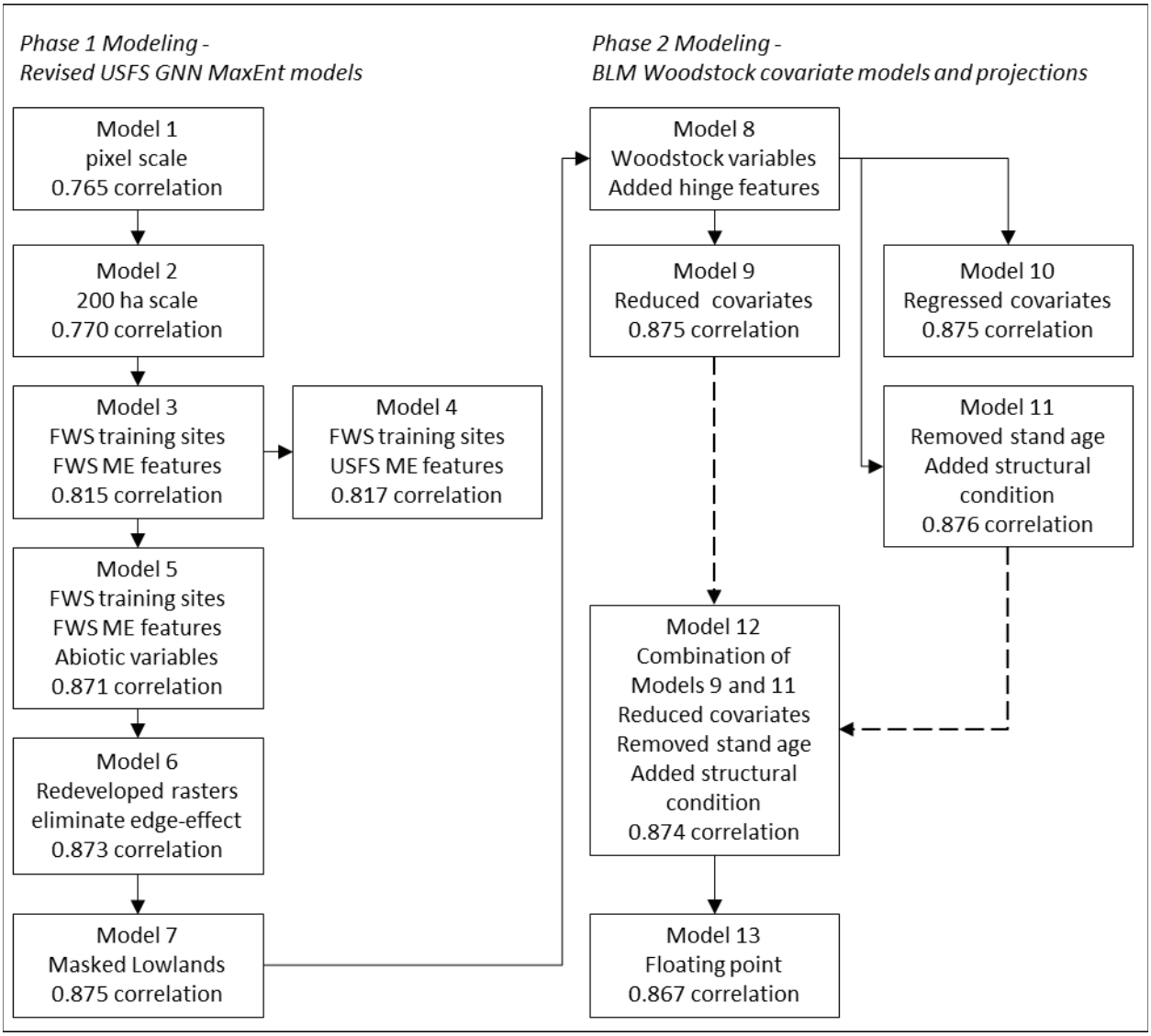


Figure S-1. Flowchart of the BLM MaxEnt modeling sequence. FWS refers to the U.S. Fish and Wildlife Service; ME refers to MaxEnt; USFS refers to the U.S. Forest Service.

Model 1

The BLM first conducted range-wide comparisons of the USFS (Davis *et al*. 2011) and USFWS (USDI FWS 2011, Appendix C) relative habitat suitability surfaces. The BLM overlaid the geographic range of the northern spotted owl with a grid of 86.6-ha hexagons—the grid used by the USFWS's HexSim model (USDI FWS 2012, p. 24)—and compared the relative habitat suitability values of both sets of models in each hexagon. As shown in **Figure S-2**, the two sets of models produced dissimilar results; the USDI FWS 2006 GNN MaxEnt models estimated more of the landscape to be in the lowest (relative habitat suitability values 0 to 10) and highest (values greater than 40) bins, whereas the USDA FS 2006 GNN

MaxEnt models estimated more of the landscape to be in the middle (values 11 to 40) bins. These results were not unexpected because, as described above, the USFS and USFWS calculated relative habitat suitability values at different scales.

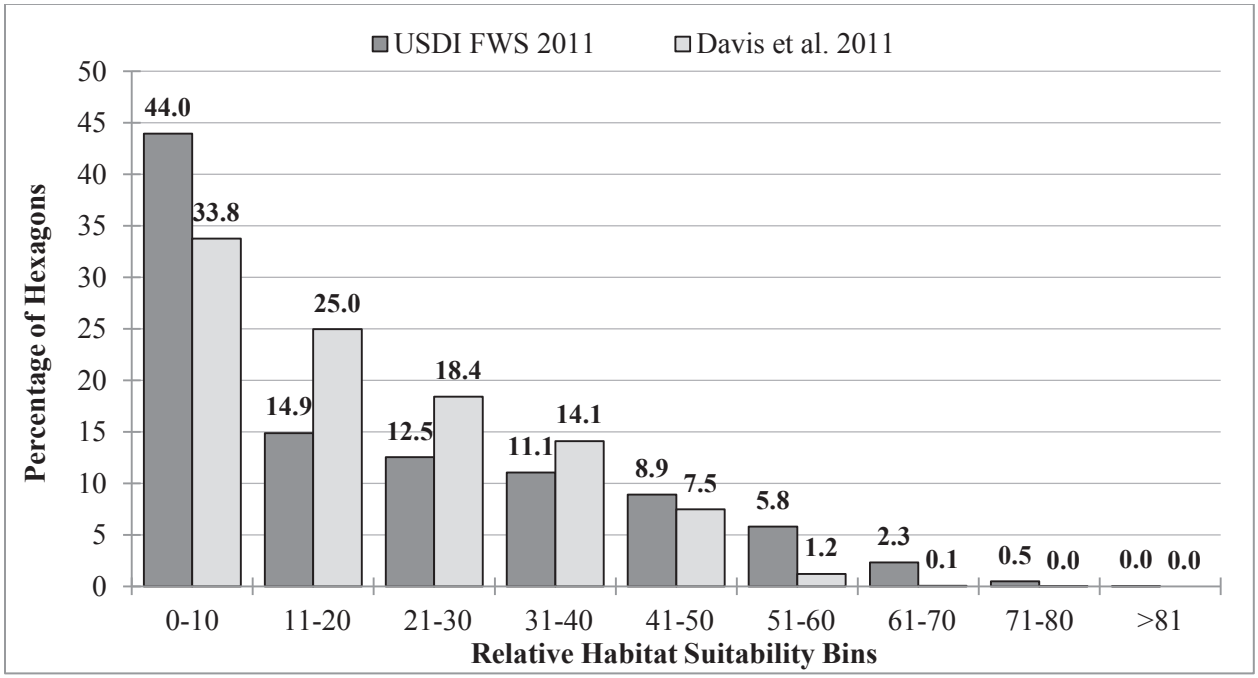


Figure S-2. Distribution of hexagons relative habitat suitability scores among various bins from 2006 GNN MaxEnt models developed by the U.S. Fish and Wildlife Service (USDI FWS 2011, Appendix C) and the U.S. Forest Service (Davis *et al*. 2011).

The correlation between hexagon relative habitat suitability values for the two sets of models was 0.765. The BLM sought a stronger relationship as well as greater similarity in the distribution of relative habitat suitability scores. The BLM determined that the USFS 2006 GNN MaxEnt models failed assessment criterion 1.

Model 2

The Model 1 results suggested the influence of an artifact-of-scale; i.e., the correlation would have been stronger if the two sets of MaxEnt models had been calculated at the same scale. So, the BLM ran the comparison again at the 200-ha scale used by the USFWS because the GNN data in part were derived from satellite imagery, the spatial accuracy of which increases with scale. Stated another way, although the GNN variable data reasonably describe forest conditions on a landscape, they are less accurate at the 30 × 30-m pixel-scale used by the USFS (see Ohman and Gregory 2002 and http://www.fs.fed.us/wwetac/projects/ohmann.html). Since the BLM intended to use its relative habitat suitability surfaces with the USFWS's HexSim model, in which simulated northern spotted owls "select" habitat from a relative habitat suitability surface, and the scale at which northern spotted owls are known to strongly select habitat is the 200-ha (i.e., ~ 500 ac) core use area (see Chapter 3, Northern Spotted Owl), the BLM chose that scale.

MaxEnt examines a variety of variables associated with known northern spotted owl nest locations and identifies those variables and combinations of variables, and the relative importance of each variable/combination, that best discriminate between occupied and available locations. The USFS (Davis *et al*. 2011) divided the northern spotted owl range into six modeling regions and used MaxEnt to identify

and weigh the best variables/combinations in each region, creating a unique MaxEnt model for each region. To alter the scale of the USFS relative habitat suitability surface, the BLM ran MaxEnt on the same modeling regions defined by the USFS, using the USFS 1996 GNN MaxEnt model for each region, but at the 200-ha scale. In other words, the BLM created a new set of MaxEnt models (Model 2) by running MaxEnt, with the region-specific models developed by the USFS, to calculate new relative habitat suitability values for each 30 × 30-m pixel based on the mean of the values of each variable within the 200-ha circle around each pixel.

The correlation between the USFWS 2006 GNN MaxEnt model and the Model 2 estimated relative habitat suitability for hexagons was 0.770. To meet assessment criterion 1, the BLM sought a stronger relationship.

Model 3

Keeping in mind that the USFS (Davis *et al*. 2011) and the USFWS (USDI FWS 2011) developed their MaxEnt models for different purposes, the BLM addressed another difference between the two model sets. The USFS MaxEnt models used northern spotted owl nest and pair roost sites from the demographic study areas supplemented by a random subset of northern spotted owl pair sites from the 10-year monitoring report training data set (Davis and Lint 2005) that were outside of the study area boundaries and spaced no nearer to each other than the mean nearest neighbor distance for that modeling region (Ray Davis, USFS, personal communication via e-mail to Eric Greenquist, October 21, 2014). In contrast, the USFWS MaxEnt models considered a subset of all known sites (USDI FWS 2011, p. C-21). Because northern spotted owl *known* nest sites tend to occur at greater densities in better habitat, and in areas that received more survey, when MaxEnt considers all sites, it calculates formulas that can be biased by the similarity of the variables around proximal sites. To help control for this, the USFS and USFWS used different approaches to limit the number of known sites MaxEnt could consider (i.e., aware of biased datasets, the agencies took different steps to reduce the bias). For Model 3, and all subsequent models, the BLM used the same northern spotted owl locations used by the USFWS.

The BLM also used the same MaxEnt feature sets used by the USFWS. Features, in MaxEnt, refer to the functional forms or shapes of relationships evaluated in MaxEnt. The BLM did this to determine if it could use variables used by the USFS (albeit, at the different scale) and that the BLM could estimate with Woodstock, while, at the same time, minimizing other differences between the USFS and the USFWS models so that the differences in the respective relative habitat suitability surfaces would not be a function of the differences in either training location or MaxEnt specifications (e.g., the features used).

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 3 estimated relative habitat suitability for hexagons was 0.815, an improvement from previous models. Although the BLM determined that this correlation coefficient was sufficiently strong to meet assessment criterion 1, it sought a stronger relationship.

Model 4

Model 4 was identical to Model 3 except that the BLM returned to the MaxEnt features used by the USFS (Davis *et al*. 2011). The correlation between the USFWS 2006 GNN MaxEnt models and the Model 4 estimated relative habitat suitability for hexagons was 0.817, nearly identical to that of Model 3, indicating that models 3 and 4 were nearly identical in their predictive capabilities.

Model 5

Model 5 was identical to Model 3 except that the BLM added the abiotic variables elevation, curvature, and relative slope position index (USDI FWS 2011, p. C-25 and Table C9). The correlation between the USFWS 2006 GNN MaxEnt models and the Model 5 estimated relative habitat suitability for hexagons increased to 0.871. The BLM determined that this correlation coefficient met criterion 1, but it evaluated whether a stronger relationship was possible.

Model 6

Model 6 was identical to Model 5 except that the BLM redeveloped the variable rasters to match the methods used by the USFWS (USDI FWS 2011, p. C-60). The BLM generated GNN variable rasters using buffered USFS modeling regions to eliminate edge effect. Because variable values reflect the mean of all values within a 200-ha circle, the MaxEnt model for a modeling region can be influenced by the lack of data beyond the regional boundary (i.e., up to 800 m beyond the boundary, the area potentially within the radius of a 200-ha circle). Buffering the modeling region caused MaxEnt to clip data at the regional boundary and calculate mean values from only variable values within the region.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 6 estimated relative habitat suitability for hexagons was 0.873. The BLM evaluated whether a stronger relationship was possible.

Model 7

Model 7 was identical to Model 6 except that the BLM masked those portions of western Oregon, such as the Willamette Valley and Puget Lowlands that, due to limited habitat, support few, if any, northern spotted owls. This forced MaxEnt to consider more subtle associations between northern spotted owl sites and the habitat variables associated with those sites. In the BLM MaxEnt analyses, masked areas became unavailable to be included in the random subset of available locations to which MaxEnt compared locations occupied by northern spotted owls. Masking these areas resulted in MaxEnt formulas based on forests in which northern spotted owls occurred compared to other, available, forested areas rather than to the broader array of habitat types, some of which were unoccupied by northern spotted owls. This eliminated major areas of non-potential habitat from the models.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 7 estimated relative habitat suitability for hexagons was 0.875.

Through the development of Model 7, the BLM had worked to refine the compatibility of the BLM regional MaxEnt models with those used by the USFWS in its HexSim model. As stated earlier, the BLM saw the opportunity to use the unpublished USFS (Davis *et al*. 2011) LandTrendr data to help it forecast changes in relative habitat suitability values on other lands within the northern spotted owl range (lands other than BLM-administered lands in the planning area), and the BLM saw the opportunity to use the USFWS's HexSim model to forecast northern spotted owl population responses. With a 0.875 correlation between the Model 7 relative habitat suitability surfaces and those developed by the USFWS (both of which used 2006 GNN data), the BLM was confident of its reconciliation.

Model 8

Beginning with Model 8, the BLM replaced the 2006 GNN variable values for BLM-administered lands in the planning area with those produced by Woodstock for 2013. Because the BLM, at this stage, was developing relative habitat suitability surfaces for its administered lands within the planning area, the BLM also begin limiting this, and subsequent models, to the three western Oregon modeling regions

defined by the USFS: the Oregon Coast Range, Oregon and California Cascades, and Oregon and California Klamath modeling regions (Davis *et al*. 2011, p. 35). Finally, the BLM added the hinge feature to MaxEnt, adding this feature to the threshold, quadratic and linear features the BLM had added to Model 3. Adding the hinge feature allowed MaxEnt to consider more subtle associations between variables, an attempt to improve its predictive capability.

With these changes, the BLM began an iterative modeling process to—

1. Project the current MaxEnt model for each of the three western Oregon modeling regions to the Woodstock variables (i.e., beginning with Model 8, apply the Model 8 MaxEnt formulas to the 2013 Woodstock-generated variable values for BLM-administered lands in the planning area) by using the MaxEnt .lamdas files from the model developed with the 1996 GNN data[146];
2. Evaluate the projected MaxEnt outputs by (a) relative habitat suitability bins and (b) strength-of-selection habitat class distributions147 through the decadal time-series (2013-2063);
3. Refine the model variables (i.e., generate new models, beginning with Model 9), and;
4. Repeat steps 1 through 3 with each set of new and refined MaxEnt models until all three assessment criteria were met.

As further explanation: MaxEnt is a multivariate model; i.e., its predictions are influenced by both the state of individual variables and how each variable co-varies with the other model variables. The USFWS (USDI FWS 2011) and USFS (Davis *et al*. 2011) MaxEnt models were projected to 2006 GNN data. In contrast, for BLM-administered lands in the planning area, the BLM would use the variable values

146 To clarify: The BLM developed all of its Maxent models using 1996 GNN data, then projected those models to 2006 GNN, 2012 GNN and 2013 Woodstock data.

147 Based on its modeling needs (see Chapter 3, Northern Spotted Owl), the BLM divided northern spotted owl habitat into categories based on strength-of-selection. This was similar to the process used by the USFWS (USDI FWS 2011, pp. C-31 – C-39) but, in the BLM's case, the BLM used four categories: (1) "strongly selected against," (2) "selected against," (3) "selected for," and (4) "strongly selected for." The "strongly selected against" and "strongly selected for" categories were those areas with strength-of-selection values of less than -2.75 and greater than 2.75, respectively. "Selected against" areas were those with strength-of-selection values from -2.75 to 0, and "selected for" areas had strength-of-selection values of greater than 0 and less than or equal to 2.75. Strength-of-selection values represent the degree to which northern spotted owls disproportionately select for or against particular relative habitat suitability categories. Thus, "strongly selected for" areas (strength-of-selection greater than 2.75) means that the proportion of northern spotted owl nest locations in that category was at least 2.75 times greater than expected based on the proportion of the area with that relative habitat suitability value in the landscape. Similarly, "strongly selected against" areas (strength-of-selection less than 2.75) means that northern spotted owls nested in such relative habitat suitability areas at least 2.75 times less than would be expected based on their extent in the landscape. As an example: If the relative habitat suitability values greater than 45 represented 10 percent of a modeling region and 50 percent of the northern spotted owl nests in that region were in areas with relative habitat suitability greater than 45, the strength-of-selection value would be 5.0 (50 percent of the nests divided by 10 percent of the area), and categorized as "strongly selected for." Similarly, if 50 percent of the landscape were in areas with relative habitat suitability less than 15 and 10 percent of the nests in that region were in areas with relative habitat suitability less than 15, the strength-of-selection would be -5.0 (10 percent of the nest sites divided by 50 percent of the area, which means the area was used five times less than would be expected based on its availability), and categorized as "strongly selected against." The BLM created strength-of-selection curves separately for each of the three western Oregon modeling regions, and separately for each of the models. These strength-of-selection-defined categories provided a relatively simple and consistent way to track changes in the amount of area containing habitats of differing value to northern spotted owls; with value being defined by the owls' relative attraction or avoidance.

derived from Woodstock. Thus, the BLM began evaluating how the 2006 GNN- and 2013 Woodstock-derived variables co-varied.

Figure S-3 shows scatterplots of the relationship between each pair of the biotic variables from 2006 GNN data (left) and 2013 Woodstock data (right) for BLM-administered lands in the planning area. The BLM did not evaluate abiotic variables because the sources of those variables are the same for both models. For the initial comparisons, the BLM evaluated 2006 GNN data (the most recent dataset available at the time) and Woodstock's estimates for 2013 conditions on BLM-administered lands in the planning area. It is important to note that the GNN and Woodstock datasets were derived through substantively different processes, so the BLM anticipated substantive, albeit undefined, differences between the two datasets.

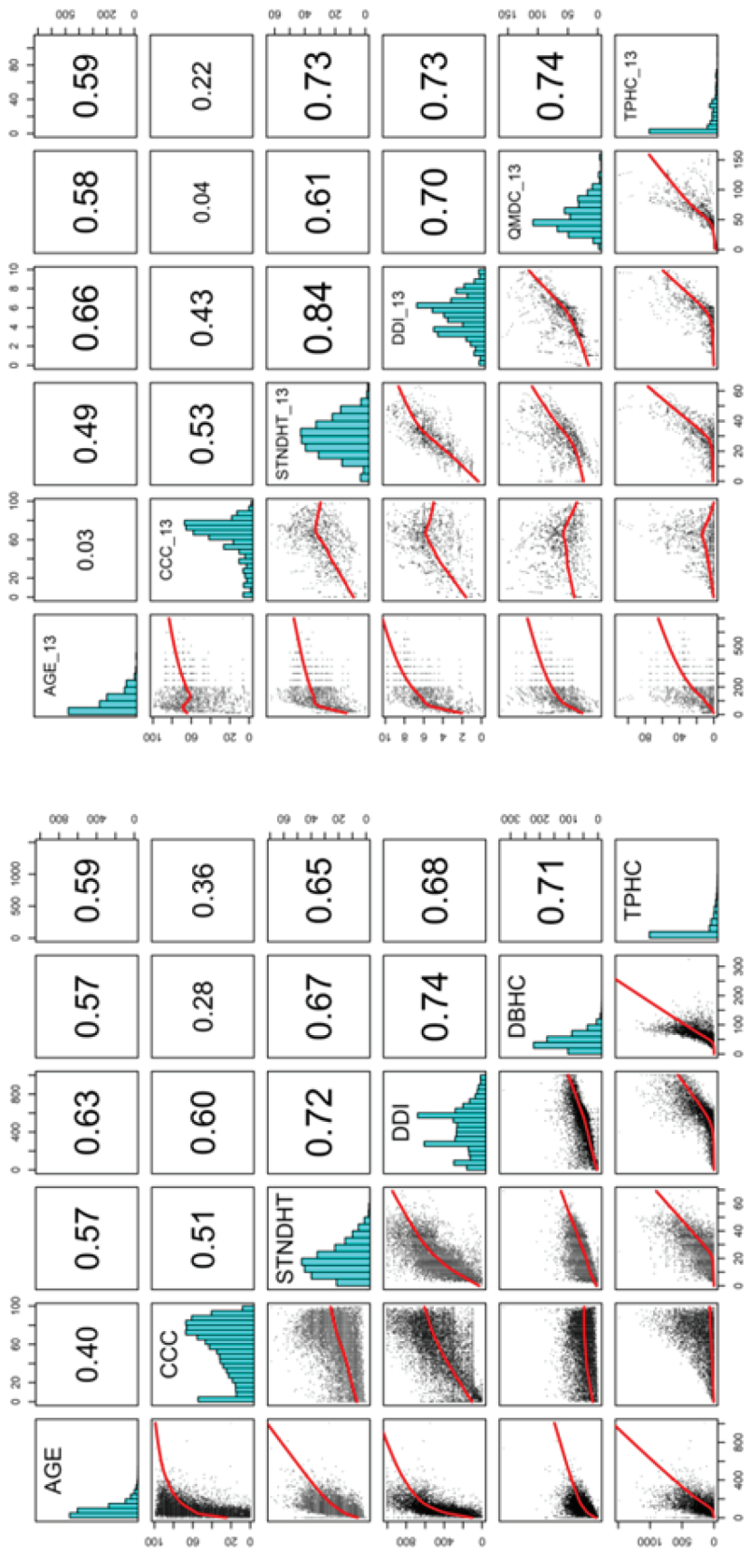


Figure S-3. Bivariate scatterplots for select 2006 GNN variables for the three western Oregon modeling regions (left) and 2013 Woodstock variables for BLM-administered lands in the planning area (right). Both matrices display the XY scatter plots for each pair of variables, using a non-linear LOWESS smoother (locally-weighted scatterplot smoothing, a type of non-parametric regression) for the fitted line, in the lower left, the covariate histogram for each pair of variables across the diagonal, and the Pearson's correlation coefficient for each pair of variables in the upper right. Variable abbreviations are defined in the text, below, except DBHC which refers to the mean trunk diameter of conifers, similar to quadratic mean trunk diameter of dominate and co-dominate conifers (QMDC_13).

The comparisons revealed very different relationships between: stand age (AGE in **Figure S-3**) and canopy cover of all conifers (CCC), stand age and stand height (STNDHT), stand age and the number of large conifer trees per hectare (TPHC), canopy cover of all conifers and stand height, canopy cover of all conifers and stand diameter diversity index (DDI), canopy cover of all conifers and quadratic mean trunk diameter of conifers (QMDC), and canopy cover of all conifers and the number large conifer trees per hectare. Most disconcerting were the differences in the relationships of conifer canopy cover to stand height, diameter diversity index, mean conifer trunk diameter, and the number of large conifer trees per hectare. In all cases, Woodstock estimated that, as canopy cover increased beyond approximately 70 percent, each of these variables would decrease. In contrast, GNN represented these same relationships as increasing in all cases, though the rate of increase varied from slight (number of large conifer trees per hectare) to rapid (stand height and stand diameter diversity index).

In accordance with assessment criterion 2 the BLM also compared the models in terms of decadal progressions of relative habitat suitability. To this point, the correlations the BLM had calculated were between the USFWS's 2006 GNN MaxEnt models and the BLM 2006 GNN MaxEnt models at both modeling region and range-wide scales. For the BLM Woodstock models, the focus of the evaluation was the temporal trend in relative habitat suitability and habitat distributions. Given that the first projection of habitat change in the BLM's Woodstock model was the No Timber Harvest scenario, the BLM expected that the percentage of BLM-administered land with low relative habitat suitability would decrease while the percentage in intermediate and higher relative habitat suitability would increase. The BLM based this expectation on its knowledge that northern spotted owls preferentially select areas with larger trees and more structural complexity and, as trees get older, they get larger and such forests acquire more structural diversity. The BLM did not have a specific expectation on the exact quantity or percentage of BLM-administered land in lower, intermediate, and high relative habitat suitability bins, only of the trends over time in each of those bins. The BLM's evaluations were meant to check on the trends.

However, as shown in **Figure S-4**, although the temporal trends in relative habitat suitability showed a reduction over time in the percentage of the landscape in the lowest relative habitat suitability categories and an increase in the highest relative habitat suitability category, the trend in the intermediate categories (40-50, 50-60, 60-70) were in the opposite direction than what was expected, particularity in the Oregon and California Cascades Modeling Region (**Figure S-4 B**).

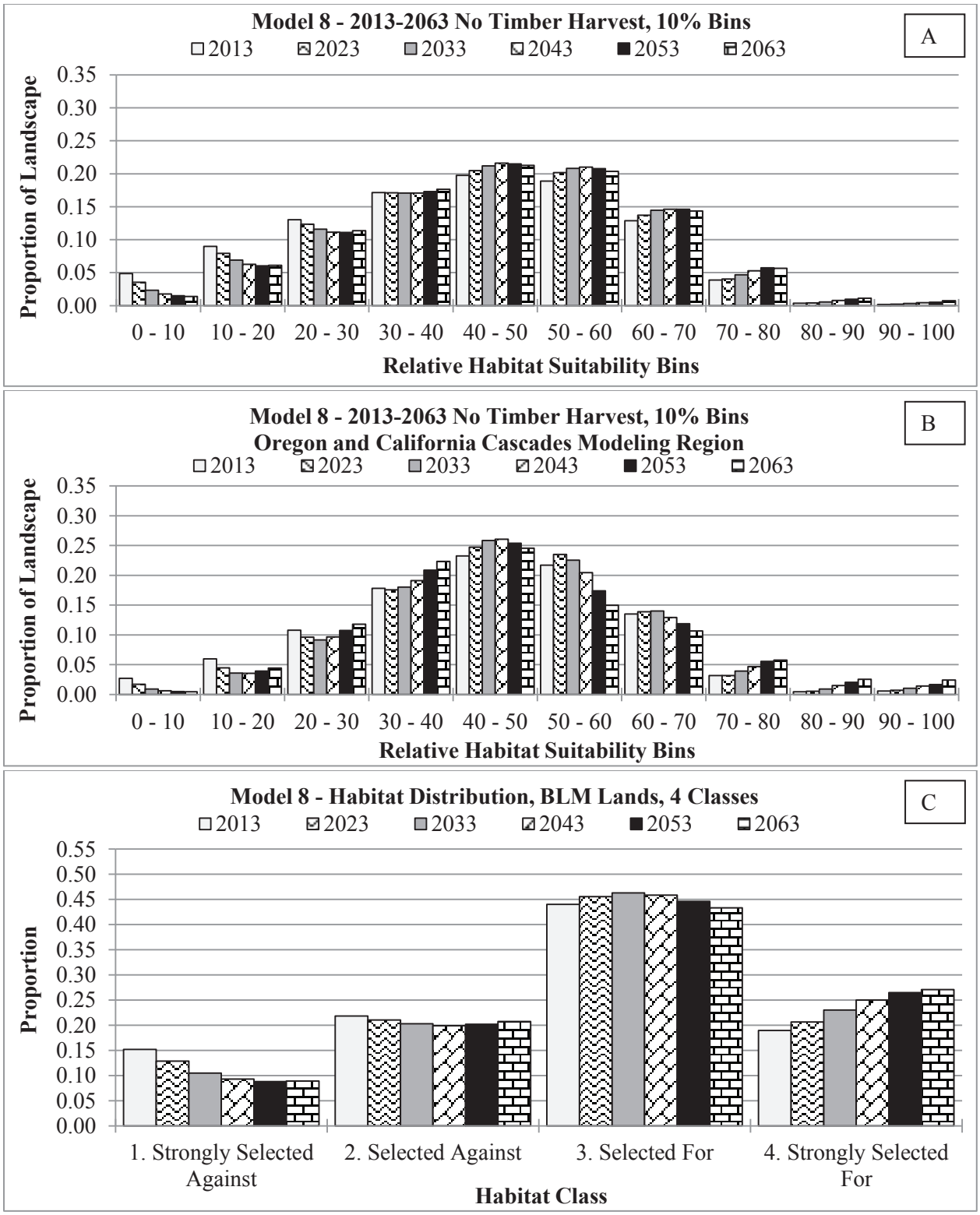


Figure S-4. No Timber Harvest: distribution of relative habitat suitability by decade for Model 8, on BLM-administered lands in the planning area (A and C), and on BLM-administered lands in the Oregon and California Cascades Modeling Region (B). Histograms A and B show the portion of BLM-administered lands in each relative habitat suitability bin at the start of each of six decades. Histogram C

shows the portion of BLM-administered lands in each strength-of-selection bin at the start of each of six decades.

In part, these trends in variable value with age and relative habitat suitability progression arose because the models generated from Woodstock variable data were not always indicative of how forests on BLM-administered lands develop. For example, an existing 140-year-old stand on BLM-administered land does not exhibit the structural characteristics that an existing 40-year-old stand would be expected to exhibit in one-hundred years. The 40-year old stand might have received commercial thinning and other silvicultural practices that would result in different stand metrics when it eventually becomes 140 years old. Timber harvests before 1960 tended to be more extensive and intensive than later harvests, and subsequent regeneration commonly occurred through natural seeding. In contrast, timber harvests after 1960 more likely left legacy trees and riparian buffers, and the subsequent regeneration more commonly was the result of planting, fertilization, and thinning. Thus, younger stands on BLM-administered lands commonly exhibit some structural characteristics, such as canopy cover, that are greater than those of some older stands.

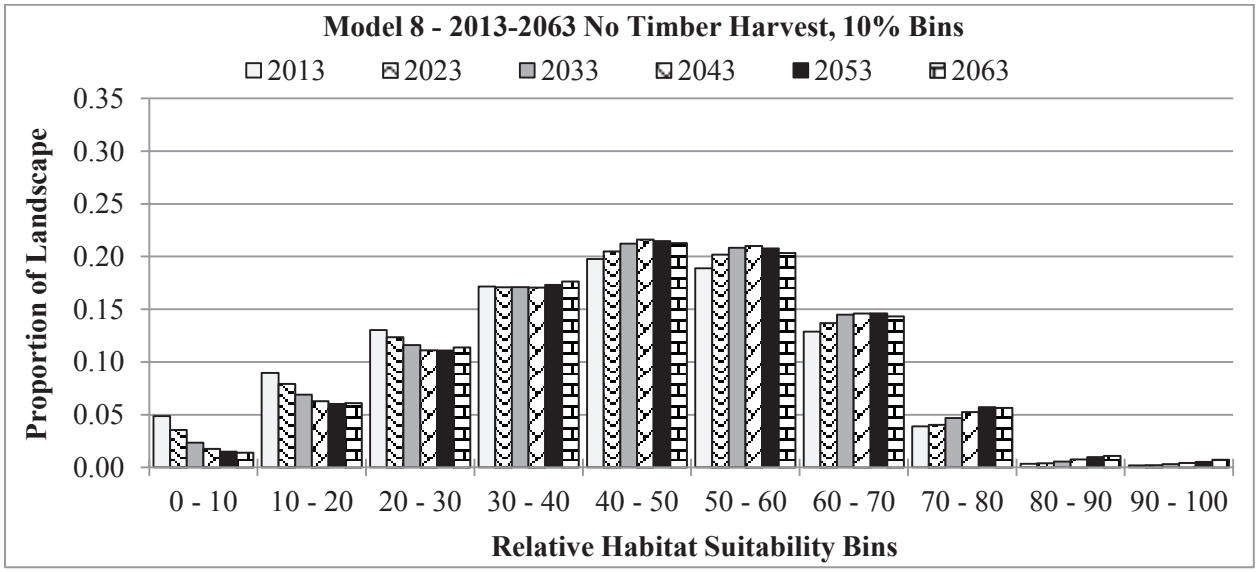
This analysis revealed that the BLM could not simply use Model 8 with the Woodstock-derived variable values. For example, as shown in **Figure S-3**, in the BLM 2013 Woodstock MaxEnt model, stand height was very influential. In the 2006 GNN data, stand height increased nearly linearly with stand age (**Figure S-3**, left matrix, STNDHT/AGE). In contrast, according to the 2013 Woodstock data, stand height increased rapidly with increasing age for young stands, but then the rate of increase decreased dramatically (**Figure S-3**, right matrix, STNDHT_13/AGE_13). The effect of these many differences was that, when the BLM used the Model 8 MaxEnt formulas (which were derived from 1996 GNN data) with the 2013 Woodstock variable values, relative habitat suitability decreased as stands got older, or, at least, their rate of increase was less than represented by the GNN data. Therefore, the BLM had to further modify its MaxEnt model to better reconcile how the 2013 Woodstock and 2006 GNN variables co-varied.

The BLM dealt with the appreciably different forms of relationships between the 2006 GNN and 2013 Woodstock variables by removing some of those variables, as described below. At this point, the BLM questioned whether it could meet model assessment criteria 2 and 3, especially given that age was an influential variable in the models. Additionally, similar to previous models, the BLM evaluated whether it could find stronger relationships between its newly-developed models and the model developed by the USDI FWS (2011).

Model 9

Model 9 was identical to Model 8 except that the BLM reduced the variable set of each modeling region based on its evaluation of differences in 2006 GNN and 2013 Woodstock variable distributions observed in the scatterplots and histograms generated by Model 8. The BLM removed those variables that strongly influenced a model's predictions and co-varied with other variables substantially differently within the 2006 GNN and 2013 Woodstock data. For the Oregon and California Klamath Region the BLM removed canopy cover of all conifers (CCC in **Figure S-3**) and the number of large conifer trees per hectare (TPHC); for the Oregon and California Cascades Region the BLM removed stand height (STNDHT) and the number of large conifer trees per hectare; and for the Oregon Coast Range Region the BLM removed stand height. Removing these variables allowed other variables to become more influential in the models. The reduced sets of variables produced what the BLM interpreted as a more reasonable distribution of changes in relative habitat suitability by decade, given the No Timber Harvest habitat change scenario.

Figures S-5 and **S-6** compare the results of Models 9 and 8; Model 9 demonstrated a more-expected distribution of relative habitat suitability by decade.



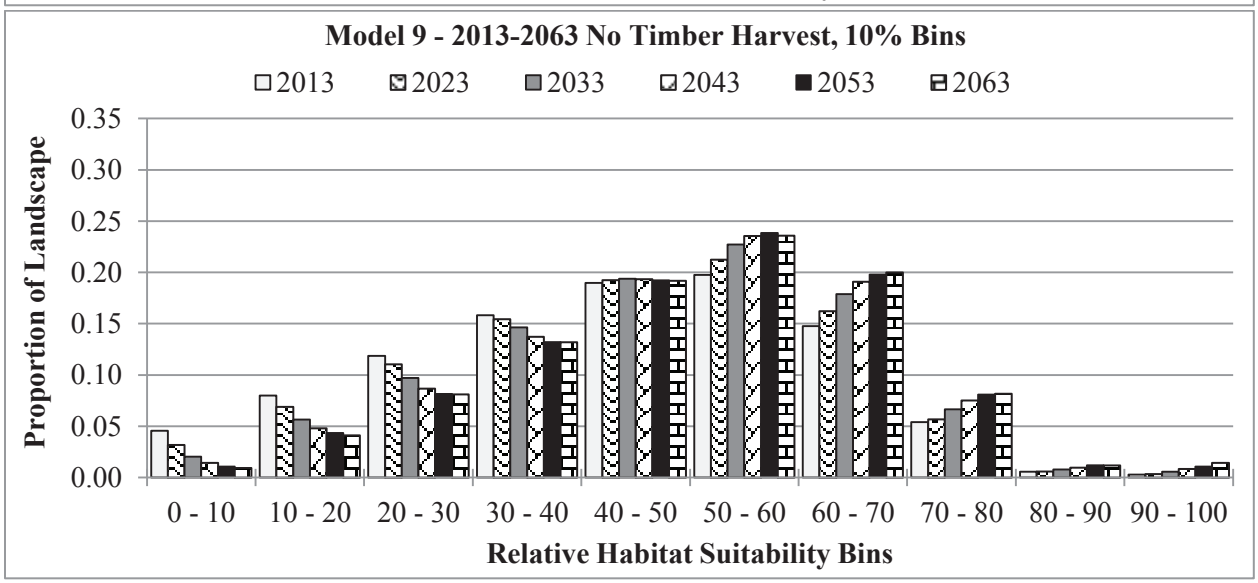


Figure S-5. No Timber Harvest: distributions of relative habitat suitability by decade for Model 8 and Model 9 on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each relative habitat suitability bin at the beginning of each of six decades.

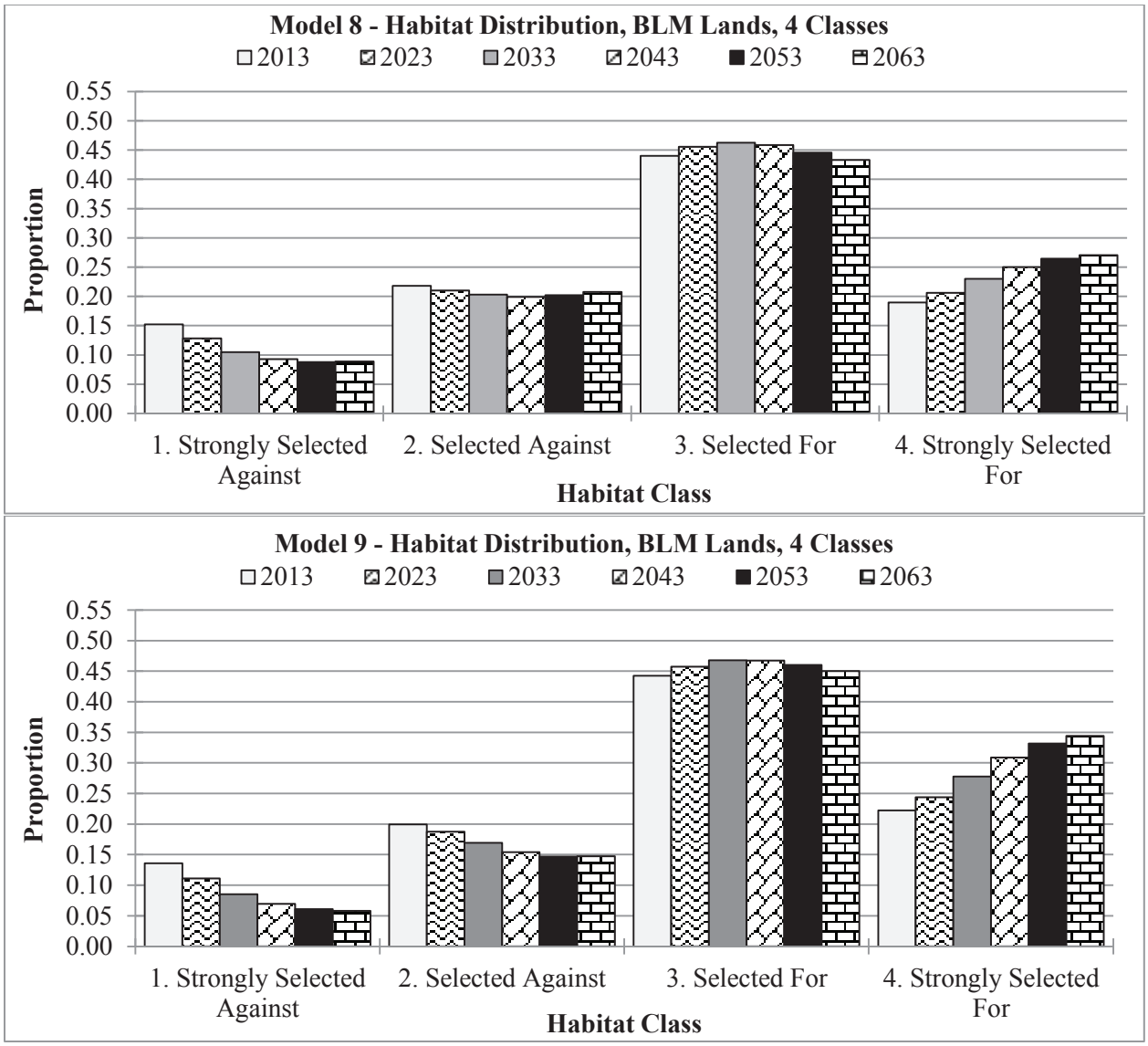


Figure S-6. No Timber Harvest: distribution of relative habitat suitability by decade for Model 8 and Model 9, on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each strength-of-selection bin at the beginning of each of six decades.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 9 estimated relative habitat suitability for hexagons was 0.875, identical to that of Model 7. Nonetheless, the lack of the expected increase in the selected-for habitat class in **Figure S-6** indicated the need for further refinement. The BLM still questioned whether it could meet model assessment criteria 2 and 3, given that age was an influential variable in the models.

Model 10

Model 10 was identical to Model 8 except that, for those modeling regions and for those variables that showed declines with age, the BLM created regression equations to predict each of those variables as a function of age. The regression equations that best fit the data always were logarithmic (threshold) relationships and had the effect of smoothing the associations. The BLM did this because these variables

appeared in the original 2006 GNN MaxEnt models, but, for the 2013 Woodstock representation of BLM-administered lands, they sometimes showed counter-intuitive relationships—such as mean tree diameter and stand height declining as stands aged—only to sometimes increase at older ages. In part, these relationships probably were an artifact of limited data; relatively few BLM inventory plots exist in forest stands with very old trees. The BLM developed these regression equations within each of the three western Oregon modeling regions. The BLM also removed canopy cover of all conifers from the set of modeling covariates because the distribution relative to age, even when regressed, was highly inconsistent with GNN canopy cover distributions.

As shown in **Figure S-7**, when compared to Model 9, Model 10 generated a more-expected and logical trend in relative habitat suitability change over time. The correlation between the USFWS 2006 GNN MaxEnt models and the Model 10 estimated relative habitat suitability for hexagons again was 0.875. However, the BLM subsequently determined that Model 10 was not viable due to issues with the stand age variable.

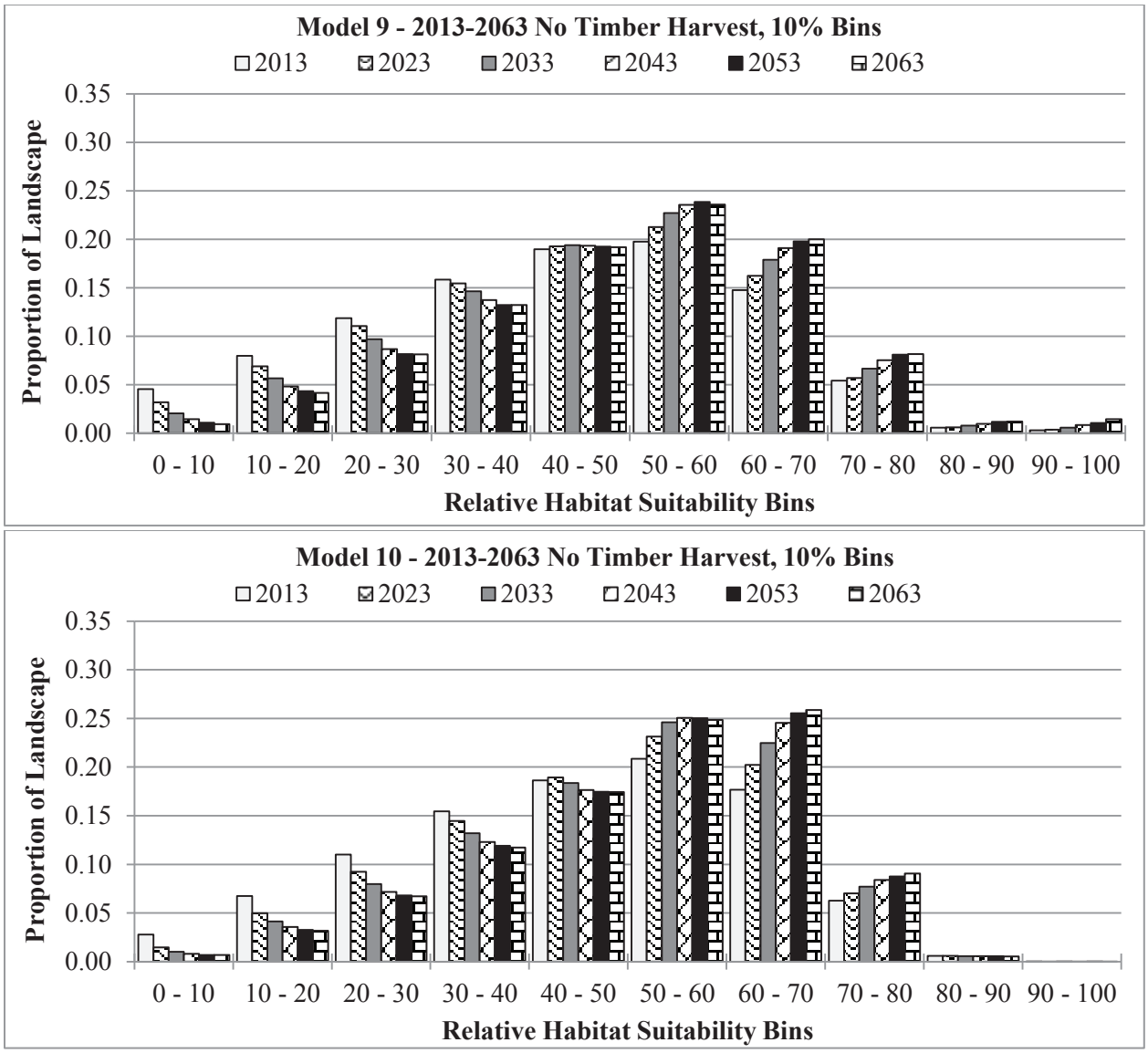


Figure S-7. No Timber Harvest: distributions of relative habitat suitability by decade for Model 9 and Model 10 on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each relative habitat suitability bin at the beginning of each of six decades.

Woodstock, when it forecasts the treatment of a stand, does not threat stand age consistently. Instead, when Woodstock forecasts a treatment, it retains the original stand age or resets the stand age to 0 depending on the nature of the treatment (e.g., light thinning versus regeneration harvest). Thus, over time, forest stands of the same age value could have substantially different values for other variables. Since the BLM was creating relative habitat suitability surfaces for different decadal time steps, it could not rely on stand age as a variable. For this reason, Model 10 was not viable.

Model 11

Model 11 was identical to Model 8 (using non-regressed covariates) except that the BLM removed age as a variable for the reason described under Model 10. Instead, the BLM added the Woodstock "structural condition" variable because structural condition is a GNN-defined categorical variable that also can be

derived from Woodstock data. The GNN structural condition classes included: sparse, open, sapling/pole, small/medium tree, large tree, and large/giant tree.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 11 estimated relative habitat suitability for hexagons was 0.876, almost identical to that of Model 9. Nonetheless, as shown in **Figure S-8**, regarding model assessment criterion 2, the modified set of variables resulted in relative habitat suitability progressions that the BLM interpreted as less-logical than expected.

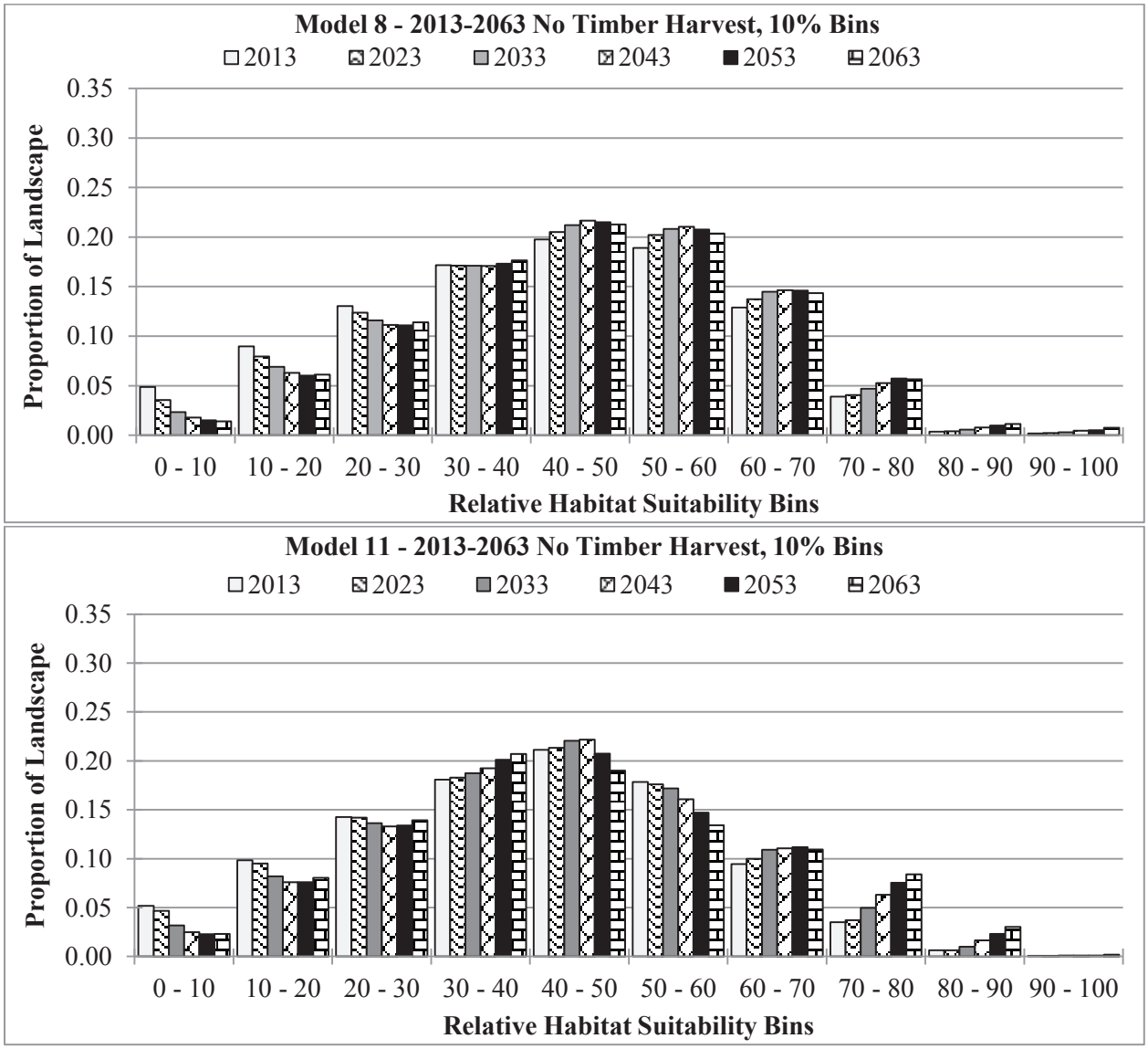


Figure S-8. No Timber Harvest: distributions of relative habitat suitability by decade for Model 8 and Model 11 on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each relative habitat suitability bin at the beginning of each of six decades.

Model 12

Model 12 was a combination of the refinements implemented in models 9 and 11. The BLM used the same reduced set of variables used in Model 9, and removed age (because of the age-related issues described under Model 10) and added structural condition as it had in Model 11.

Figures S-9 and **S-10** compare the decadal relative habitat suitability progressions under Models 9 and 12. Although Model 9 had generated the best previous distribution, it also included stand age as a variable, which Woodstock did not treat in a consistent manner. Model 12 was the best set of revised variables the BLM was able to develop. The Model 12 relative habitat suitability progressions were very similar to those for Model 9 in terms of showing the expected progression of relative habitat suitability by decade, but also showed slightly lower relative habitat suitability values overall (as seen in the higher suitability bins).

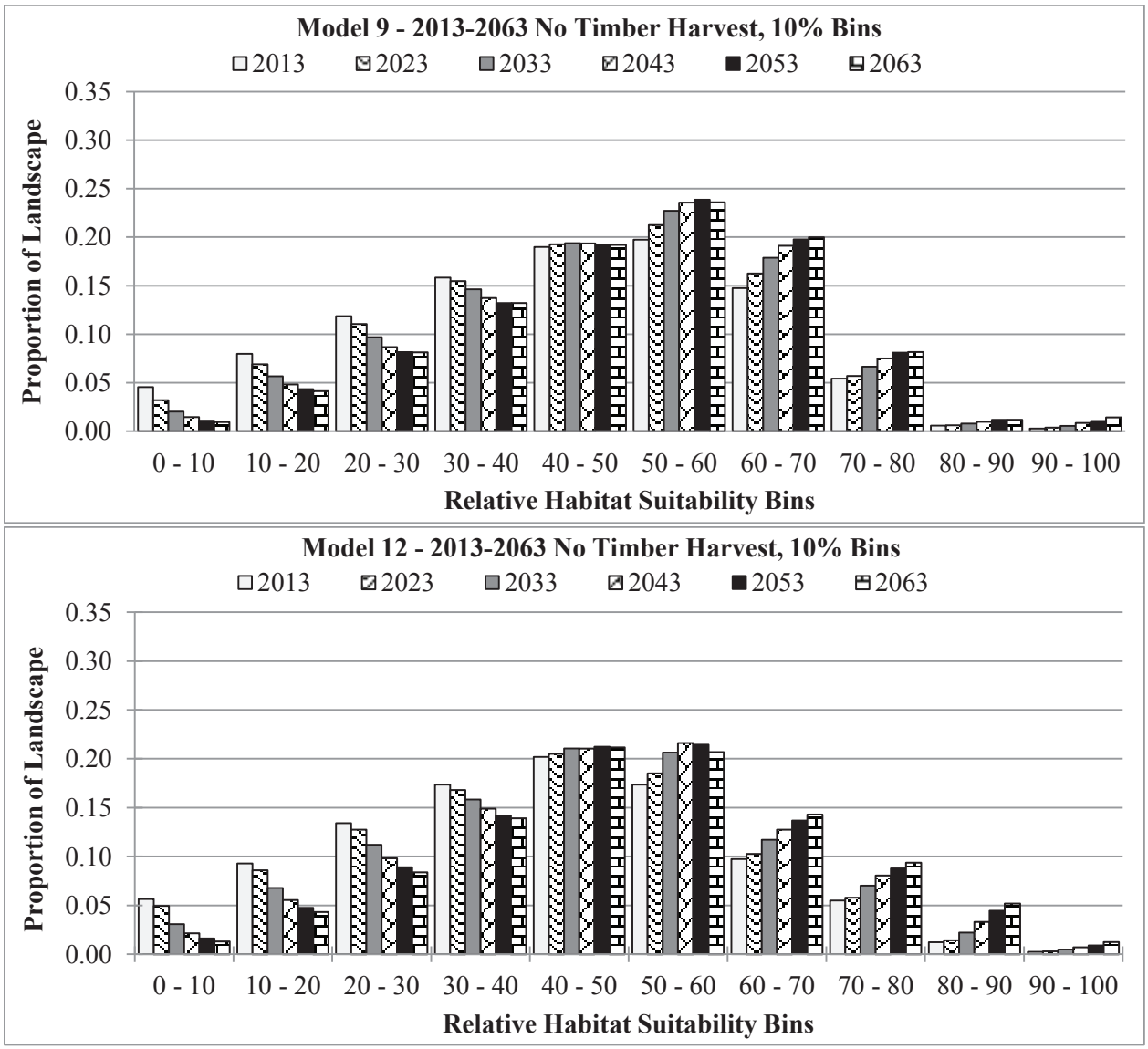


Figure S-9. No Timber Harvest: distributions of relative habitat suitability by decade for Model 9 and Model 12 on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each relative habitat suitability bin at the beginning of each of six decades.

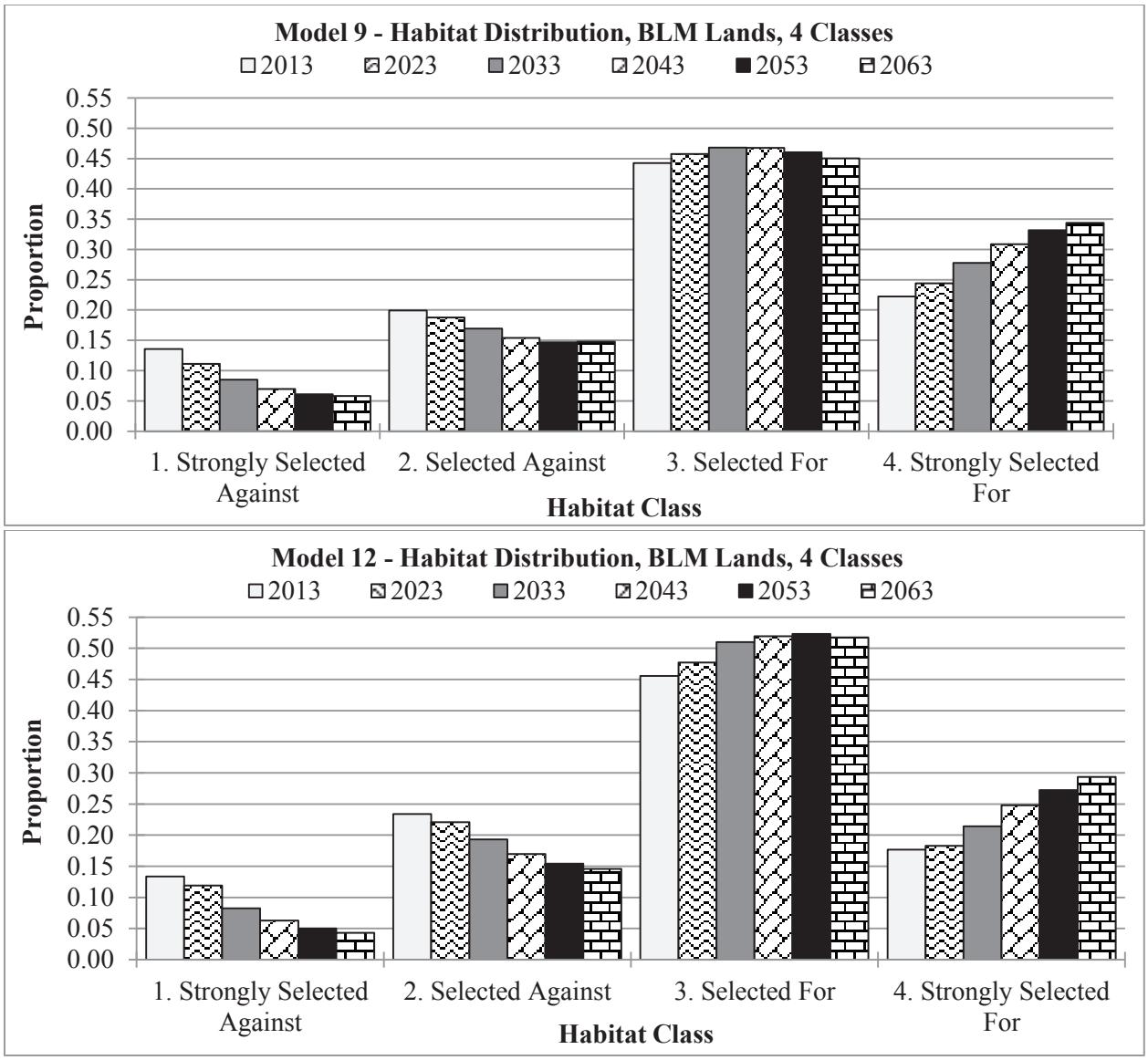


Figure S-10. No Timber Harvest: distribution of relative habitat suitability by decade for Model 9 and Model 12 on BLM-administered lands in the planning area. The histograms show the portion of BLM-administered lands in each strength-of-selection bin at the beginning of each of six decades.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 12 estimated relative habitat suitability for hexagons was 0.874. Based on this correlation coefficient and the progressions shown in **Figures S-9** and **S-10**, the BLM determined that Model 12 fulfilled its three model assessment criteria.

Model 13

Model 13 became the final BLM model. It was identical to Model 12 except that the BLM used floating point values, rather than integer values, to conform GNN covariate values to Woodstock output precision; i.e., to better reconcile the data going into the 2006 GNN and 2013 Woodstock models. Floating point values include decimals; integers are whole numbers.

The correlation between the USFWS 2006 GNN MaxEnt models and the Model 13 estimated relative habitat suitability for hexagons was 0.867. For the three western Oregon modeling regions, this set of models included eleven variables for each of the modeling regions. **Table S-1** shows the variables and their relative contributions. As described below, the BLM determined that Model 13 fulfilled its three model assessment criteria. The BLM's earlier attempts to fine-tune models so as to increase the correlation between its newly-developed models and those of the USDI FWS (2011) were reasonable but, by this point, the BLM recognized that hexagon correlations of 0.860 to 0.870 were as strong as it likely would get given inherent differences in the sources of the 2006 GNN and 2013 Woodstock variables[148].

Table S-1. Model 13 variables and percent contributions by modeling region. Missing values indicate that the BLM did not use the variable for the modeling region. The modeling regions are the Oregon and California Klamath (KLAMT), the Oregon and California Cascades (ORCAS), and Oregon Coast Range (ORCOA), described by Davis *et al*. (2011).

Covariate	Covariate Description	KLAMT	ORCAS	ORCOA
ccc	Canopy cover of all conifers		0.45	1.0213
curv	Topographic curvature	5.0242	3.122	2.3622
dbhc	Basal-area weighted mean diameter of all live conifers	1.0851	11.3159	0.2664
ddi	Diameter diversity index	5.5428	40.1345	12.9418
elev	Elevation	1.1043	4.1592	2.6962
evghwd	Evergreen hardwood composition type	2.4068	4.1657	7.8237
oak	Oak composition type	6.6165	0.8094	
pine	Pine composition type	2.0507	13.552	6.4613
rpi	Relative position index (% slope position in 200 ha window)	29.631	12.8439	9.5835
stndht	Stand height, computed as average of heights of all dominant and codominant trees	44.6563		
struccond	Structural condition (lumping of Johnson and O'Neil's (2001) SIZECL and COVCL	0.3544	4.4098	0.2031
subalp	Sub-alpine composition type	1.528	5.0377	1.6429
tphc	Density of all live conifers ≥ 75 cm DBH			54.9975

Before accepting Model 13, the BLM compared the Model 13 distribution of hexagons among relative habitat suitability bins with that of the USFWS (USDI FWS 2011) 2006 GNN MaxEnt model for: 1) BLM-administered lands in the planning area within the three western Oregon modeling regions and 2) all lands within those regions. To do this, the BLM "updated" the USFWS relative habitat suitability surfaces by projecting the Service's MaxEnt models, which the Service had trained on 1996 GNN data (see footnote on page 1), to newly-available 2012 GNN data (http://lemma.forestry.oregonstate.edu/data/structure-maps). (For brevity, these new models hereafter are referred to as the USFWS 2012 GNN MaxEnt models, even though the BLM created them.) The BLM did this to reduce the temporal differences between the 2006 GNN and the 2013 Woodstock datasets.

148 GNN variables are derived from vegetation measurements from regional networks of field plots and Landsat imagery data to characterize forest vegetation across a region; see Ohmann and Gregory (2002). Woodstock variables are derived from BLM Forest Operations Inventory (forest stand exam) data and USFS/BLM Current Vegetation Survey (https://www.fbo.gov/index?s=opportunity&mode=form&id=bed33e38414e6986bc3dbada90bde22a&tab=core&_cview=1) data.

The BLM evaluated relative habitat suitability distributions among eight relative habitat suitability bins (the largest bin being greater than 70 because so little of the landscape existed above that value). Thus, for the three modeling regions and eight bins there were 24 modeling region by bin comparisons for the two sets of models. As shown in **Figure S-11**, the largest absolute value of difference was 5 percentage points and the smallest difference was 0 percentage points. Of the 24 comparisons, the most frequent difference was an absolute value of 1 percentage point (nine times), followed by 5 percentage points and 4 percentage points (four times each), 2 percentage points and 0 percentage points (three times each), and 3 percentage points (one time). Thus, the two sets of models predicted similar amounts of the landscape (all lands within each modeling region or only BLM-administered lands within each modeling region) within each of the relative habitat suitability bins.

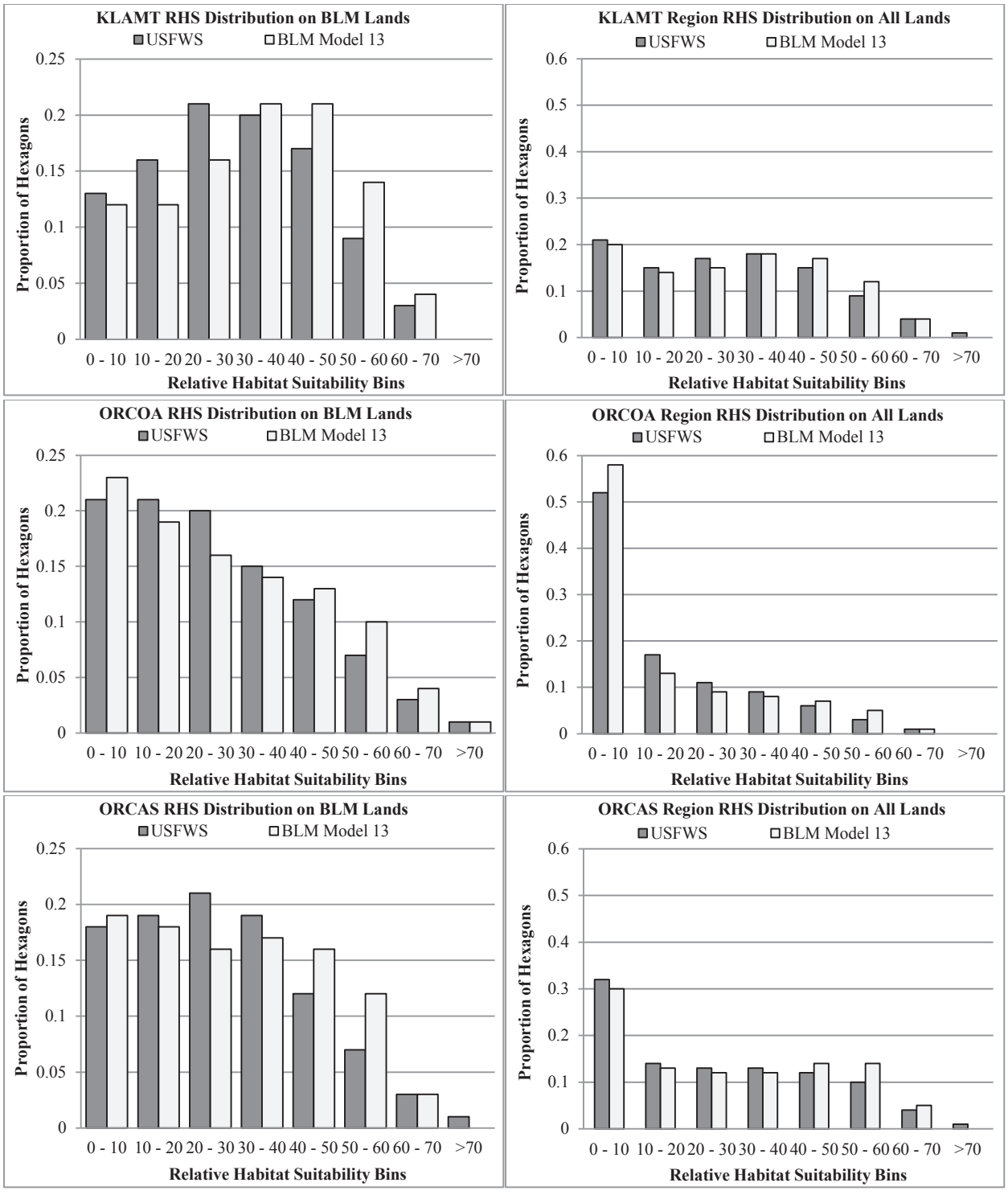


Figure S-11. Comparisons of the distribution of relative habitat suitability at the hexagon scale, on BLM-administered lands (left column), and all lands (right column), in the Oregon and California Klamaths, Oregon Coast Range and the Oregon and California Cascades modeling regions (described by Davis *et al*. 2011). The USFWS relative habitat suitability surfaces are based on the Service's 2012 GNN MaxEnt model. The BLM surfaces are based on the BLM 2013 Woodstock Model 13.

As shown in **Figure S-12**, the BLM also found, when mapped, a strong similarity in the spatial distribution of relative habitat suitability values between the two sets of models. Most differences were minor and represented a shade of green or red rather than one model predicting very high suitability for an area while the other model predicted very low suitability for that area.

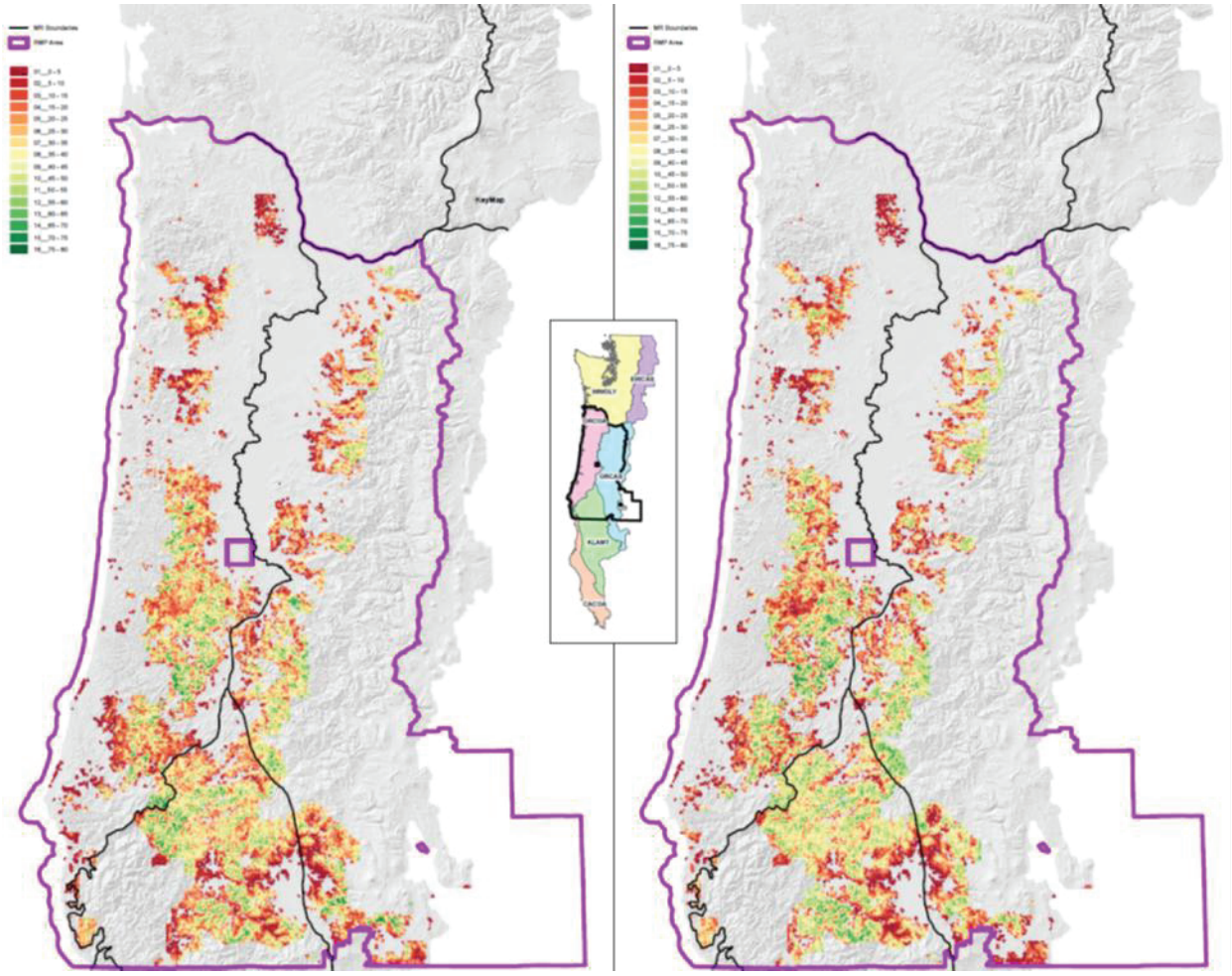


Figure S-12. Spatial distribution of relative habitat suitability for the USFWS 2012 GNN MaxEnt model (left) and the BLM 2013 Woodstock Model 13 (right). Greener areas represent higher relative habitat suitability whereas redder colors represent lower relative habitat suitability

Also, before accepting Model 13, the BLM examined the distribution of the northern spotted owl known sites used to train Model 13 (training sites) with those known sites withheld from model development (test sites) as described in the description of Model 3. There were 2,865 training sites in the northern spotted owl range of which 490 occurred on BLM-administered lands in the planning area, and 925 test sites in the range of which 164 occurred on BLM-administered lands.

Figure S-13 compares the range-wide distributions of training sites among relative habitat suitability bins for the USFWS 1996 GNN MaxEnt models and the BLM 1996 GNN Model 13[149]. The distributions are

149 As explained in the footnote on page 1, the USFWS used 1996 GNN data to train its MaxEnt models. The BLM developed Model 13 using the same data for the comparison.

similar. **Figure S-14** makes the same comparison of the test sites. The distributions are not as similar as for the training sites, which are expected because the models were trained on the training sites. Nonetheless, the two distributions in **Figure S-14** follow similar trends.

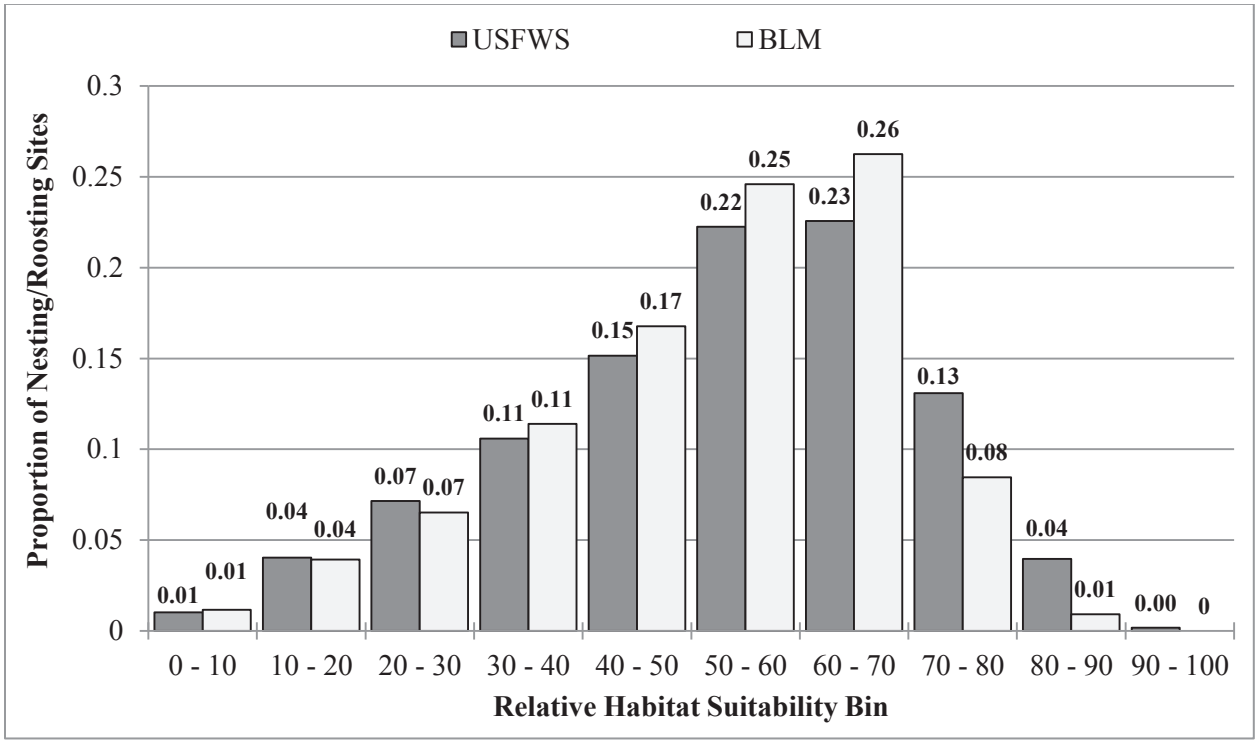


Figure S-13. Range-wide distribution of relative habitat suitability values among training northern spotted owl sites for the USFWS's 1996 GNN MaxEnt model and BLM's 1996 GNN Model 13.

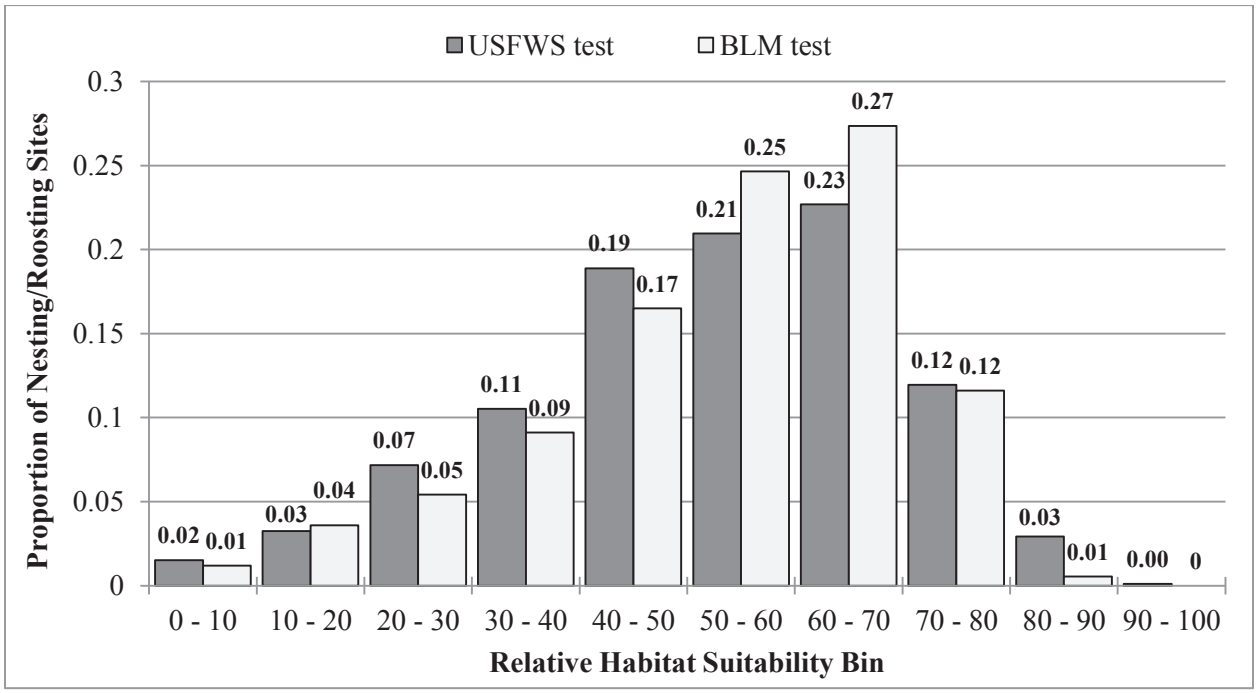


Figure S-14. Range-wide distribution of relative habitat suitability values among test northern spotted owl sites for the USFWS's 1996 GNN MaxEnt model and BLM's 1996 GNN Model 13.

The BLM made similar comparisons for BLM-administered lands in the planning area, this time using the USFWS 2012 GNN MaxEnt models and the BLM 2013 Woodstock Model 13. **Figure S-15** shows the distributions for training sites on BLM-administered lands in the planning area; Figure 16 shows the distributions for test sites on the same lands. As expected, the distributions are less similar than the range-wide distributions shown in **Figures S-13** and **S-14** because of the smaller numbers of sites associated with BLM-administered lands in the planning area and because of substantive differences in the origins of the 2012 GNN and 2013 Woodstock data. Because the Woodstock variables were derived from forest stand exam and Current Vegetation Survey plot data (i.e., on-the-ground examination and measurement), the BLM is confident of the accuracy of the Woodstock variables for BLM-administered lands in the planning area. Nonetheless, **Figures S-13** to **S-16** suggest that Model 13, as used by the BLM, inflates relative habitat suitability values. As explained below, this almost certainly is an artifact of truncating Model 13 to BLM-administered lands.

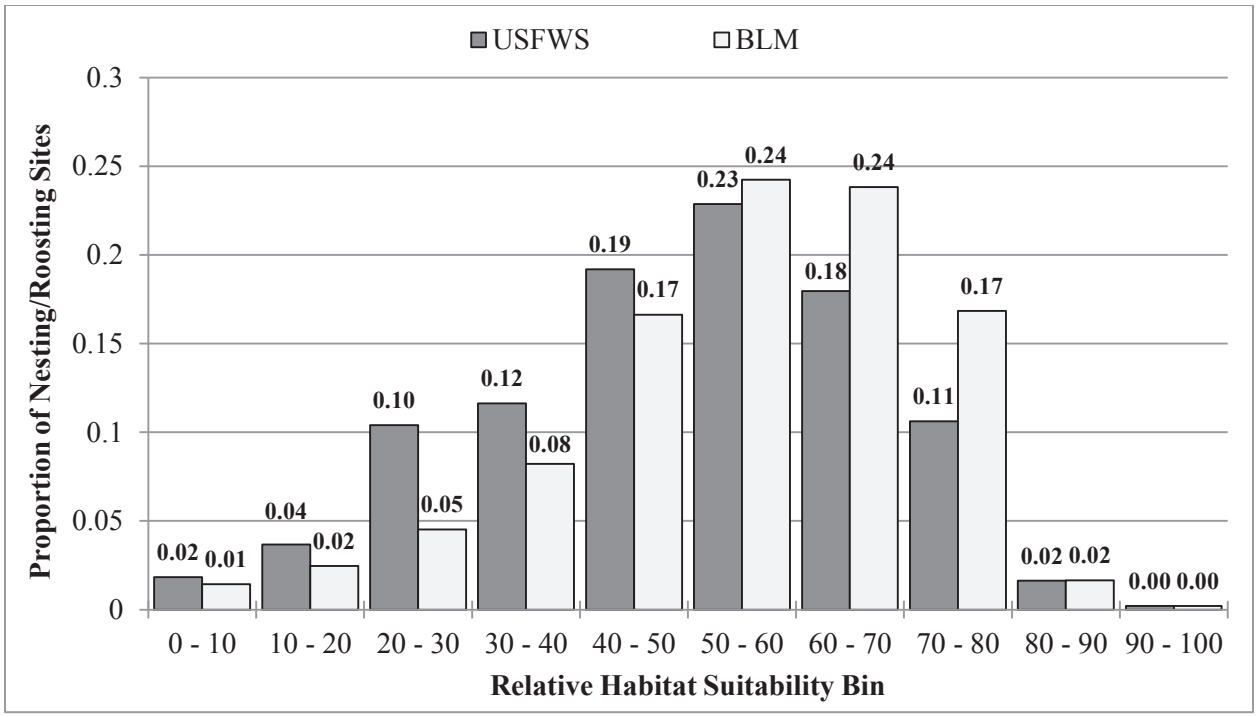


Figure S-15. Distribution of relative habitat suitability values among training northern spotted owl sites on BLM-administered lands in the planning area for the USFWS's 2012 GNN MaxEnt model and BLM's 2013 Woodstock Model 13.

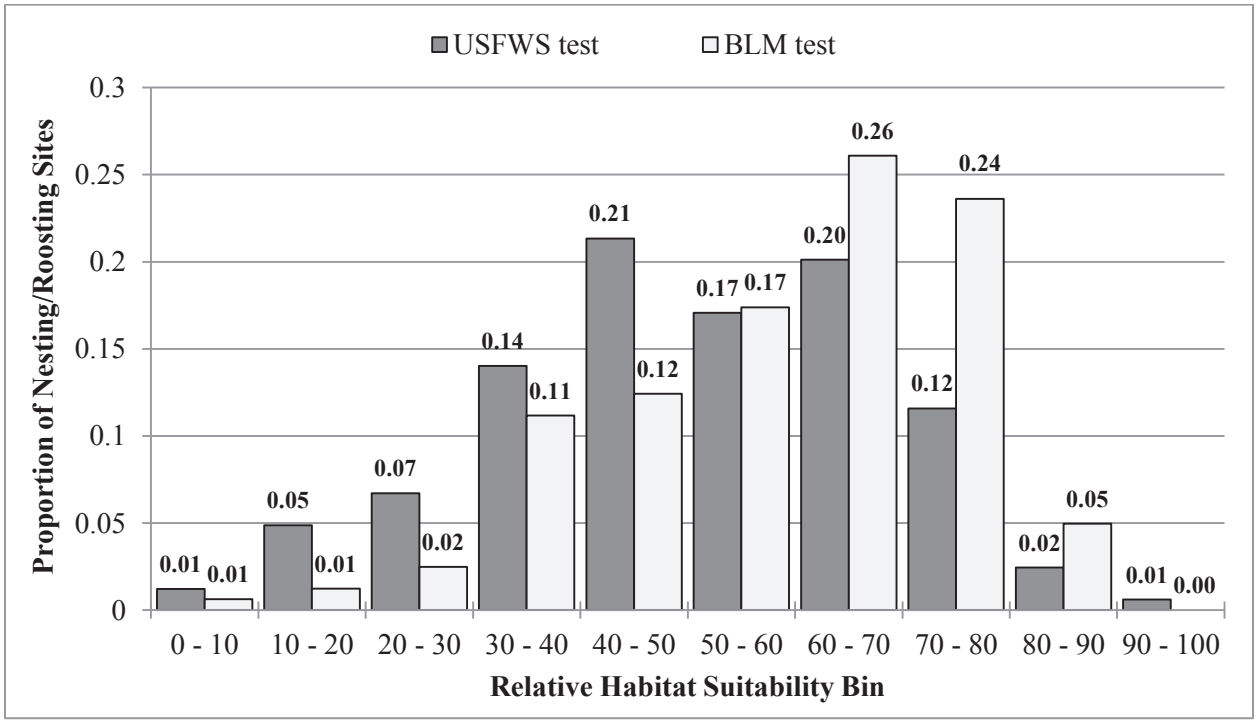


Figure S-16. Distribution of relative habitat suitability values among test northern spotted owl sites on BLM-administered lands in the planning area for the USFWS's 2012 GNN MaxEnt model and BLM's 2013 Woodstock Model 13.

As described above, MaxEnt calculates relative habitat suitability based on variable values within a 200-ha circle. GNN data, used in the USFWS MaxEnt models, were available for all lands within the northern spotted owl's range. However, the BLM developed Woodstock data only for BLM-administered lands in the planning area. The BLM uses Woodstock data because it is the most accurate data for BLM-administered lands. However, an artifact arises when the BLM applies Model 13 to BLM-administered lands that abut other lands (i.e., lands within 800 m of BLM-administered lands, the radius of a 200-ha circle). In this case, the BLM could use Model 13 to calculate relative habitat suitability values for 2013 based on 2013 Woodstock data for BLM-administered lands and 2012 GNN data for other lands. However, the BLM cannot do this for subsequent decades because there are no reliable data on how individual GNN values vary and co-vary over time. As described below, the BLM simulated changes in relative habitat suitability values on other lands by developing a 2012 relative habitat suitability surface for each modeling region, and then changing relative habitat suitability values according to the calculated effects of ingrowth, wildfire, and timber harvest on those values at decadal increments. But the BLM could not do the same for the underlying GNN variable values used to calculate relative habitat suitability. Stated another way, Woodstock generates new variable values for BLM-administered lands at decadal increments. But, after 2012, there are no comparable GNN values available for other lands abutting BLM-administered lands. Thus, after 2013, Model 13 must calculate relative habitat suitability values for BLM-administered land using only Woodstock data. Since forest conditions on BLM-administered lands commonly support northern spotted owls better than those on adjacent lands, which frequently are industrial timber lands, the BLM method appears to inflate relative habitat suitability values on its-administered lands.

This is not a weakness of Model 13. Instead, it is an artifact of data limitations for other lands within 800 m of BLM-administered lands in the planning area. Although the BLM is exploring options to evaluate and, if necessary, adjust its modeling to mitigate any inflation before preparing its Final EIS, preliminary evaluation by the BLM indicates that the current relative habitat suitability surfaces are valid for the Draft EIS because the inflation appears to be minor and consistent among all alternatives and No Timber Harvest reference analyses. Thus, inflation would not prejudice the analytical results, and it would be less of a factor in areas of BLM-administered land that are blocked up or adjacent to USFS reserves or Congressional Withdrawals, which are more important to BLM contributions to the conservation needs of the northern spotted owl.

Forecasting Change in Relative Habitat Suitability on Other Lands in Washington, Oregon and California

The BLM forecasted changes in relative habitat suitability from ingrowth, wildfire, and timber harvests for all lands within the U.S.-portion of the northern spotted owl range. Modifications in forest structure and composition at decadal increments on BLM-administered lands in the planning area were incorporated in the Woodstock models and reflected in the BLM's Model 13 relative habitat suitability surfaces. The BLM based its forecasted magnitudes of change on all other lands on differences between the USFWS's 1996 and 2006 GNN-based relative habitat suitability surfaces. That is, BLM assumed that the decadal change in relative habitat suitability from 1996 to 2006 would be realized during subsequent decades.

To estimate rates-of-change from forest ingrowth in decadal increments, the BLM calculated the mean difference between 1996 and 2006 for each integer relative habitat suitability value (i.e., the analysis determined the mean value in 2006 for all pixels with the same value in 1996). The BLM generated rates-of-change statistics separately for each physiographic province and, within each province, further stratified by congressionally withdrawn lands (e.g., wilderness areas), federal reserved lands (e.g., Late-successional Reserves), federal non-reserved lands (e.g., general forest management areas), and non-

federal lands. The BLM excluded pixels from the analysis within Monitoring Trends in Burn Severity (http://www.mtbs.gov/) fire perimeters and unpublished USFS LandTrendr harvest patches (see Davis *et al*. 2011) to minimize the influence of other agents of change on the ingrowth rates.

Initially, the BLM included only pixels showing positive or no change between 1996 and 2006 in the calculations. The BLM did this because negative change does not reflect forest ingrowth. The BLM used those derived rates-of-change to generate projected decadal relative habitat suitability surfaces for other lands, combined with the decadal Woodstock projections for BLM-administered lands. However, after examining the results, the BLM determined that the rate of ingrowth for forests in the drier portion of the northern spotted owl's range (i.e., most of California, and the eastern Cascades of Washington and Oregon) appeared to exceed observed rates. After additional consideration and testing, the BLM truncated all negative changes to 0 and all positive changes to 10 because negative changes in relative habitat suitability were not indicative of ingrowth and, knowing how habitat develops, rates higher than 10 were unrealistic. Although relatively few values exceeded 10, they were sufficiently high to affect mean rates-of-change. The final results were sets of range-wide ingrowth forecasts for strata within each physiographic province[150].

The BLM used results from Davis *et al*. (2014) to forecast changes in relative habitat suitability values following wildfires. The BLM applied changes only for moderate and high severity fires by habitat class because Davis *et al*. (2014) determined that low severity fires have a negligible effect on northern spotted owl habitat. These findings are supported by Manley's (2014) descriptions of the effects of fire on northern spotted owls. The BLM modeled the spatial locations, extents, and severity of future wildfires using the same predicted wildfire dataset included in the Woodstock models, which extends over the non-BLM portions of the northern spotted owl's range (see Appendix D).

Expanding on the methods described by Davis *et al*. (2011, pp. 28-30), the BLM used the unpublished USFS LandTrendr change detection data to develop range-wide forecasts of decadal rates of negative change in relative habitat suitability values following timber harvests. To create potential timber harvest patches on other lands, the BLM segmented the USFS 2006 GNN-based relative habitat suitability model using eCognition Developer 8 (Trimble Navigation Ltd., Westminster, CO). The BLM parameterized the software's segmentation routine to iteratively group neighboring pixels with similar relative habitat suitability values into discrete patches until the mean patch size ± 1 SD within each physiographic province and strata most closely approximated those observed in the LandTrendr dataset between 1996 and 2006 (**Tables S-2** and **S-3**). Segmenting the USFS 2006 GNN-based surface resulted in more realistic representations of harvest treatment patch shapes and dimensions than those created using the smoother, 200-ha-scale USFWS relative habitat suitability surfaces.

[150] The BLM is testing methods to refine its forecasts. Because the USFS LandTrendr analysis was based on a 200-ha scale relative habitat suitability surface—i.e., relative habitat suitability values are based on the means of variable values within 800 m of each pixel, the radius of a 200-ha circle—any negative change in burn and timber harvest areas would affect the relative habitat suitability values within 800 m, and not just within the treatment or burn area. The BLM tested masking areas within 800 m of burn and treatment areas, and recalculating relative habitat suitability change, and found that this eliminated much of the negative change the BLM had detected outside burn and harvest areas. However, the degree of change did not cause the BLM to replace its analyses for the Draft EIS. The BLM will test additional methods to refine its relative habitat suitability surfaces during its preparation of the Final EIS.

Table S-2. Metrics, calculated from data developed by Davis *et al*. (2011), used to forecast decadal (1996 – 2006) losses of northern spotted owl dispersal and nesting-roosting habitat from timber harvest on lands other than BLM-administered lands in the planning area.

Physiographic Province	Dispersal Habitat in 1996 (Acres)	Dispersal Habitat Harvested (Acres)	Dispersal Habitat Harvested (Percent)	Nesting-Roosting Habitat in 1996 (Acres)	Nesting-Roosting Habitat Harvested (Acres)	Nesting-Roosting Habitat Harvested (Percent)	Habitat Harvested that was Nesting-Roosting (Percent)	10-Year Mean Loss of Habitat to Harvest	Mean Harvest Patch Size (Acres)	Stand Harvest Patch Size (Acres)
Federal Non-Reserved Lands										
Washington										
Eastern Cascades	128,810	1,208	1%	207,310	1,819	1%	60%	1.0%	20	10
Olympic Peninsula	39,038	128	0%	37,275	47	0%	27%	0.2%	19	9
Western Cascades	143,116	404	0%	288,691	1,025	0%	72%	0.3%	19	8
Western Lowlands	11	-	0%	-	-	-	-	0.0%	-	-
Oregon										
Coast Range	34,732	265	1%	34,722	135	0%	34%	0.6%	21	11
Eastern Cascades	109,494	1,725	2%	145,704	1,756	1%	50%	1.4%	23	13
Klamath	111,577	628	1%	135,992	737	1%	54%	0.6%	18	7
Western Cascades	478,515	3,972	1%	844,548	6,669	1%	63%	0.9%	19	9
Willamette Valley	4	-	0%	-	-	-	-	0.0%	-	-
California										
Cascades	110,507	1,386	1%	63,151	1,858	3%	57%	2.1%	33	23
Coast Range	25,543	12	0%	11,191	-	0%	0%	0.0%	12	-
Klamath	576,849	2,482	0%	657,433	1,845	0%	43%	0.4%	17	7
Federal Reserved Lands										
Washington										
Eastern Cascades	139,270	606	0%	268,674	1,618	1%	73%	0.8%	17	8
Olympic Peninsula	89,086	73	0%	277,151	308	0%	81%	0.1%	16	5
Western Cascades	182,939	234	0%	486,969	443	0%	65%	0.1%	18	7
Oregon										
Coast Range	118,696	598	1%	266,301	1,103	0%	65%	0.5%	20	9
Eastern Cascades	73,898	397	1%	159,868	347	0%	47%	0.4%	19	8
Klamath	218,679	103	0%	210,418	232	0%	69%	0.1%	20	10
Western Cascades	264,104	328	0%	740,398	487	0%	60%	0.1%	18	7
California										
Cascades	67,741	267	0%	85,839	239	0%	47%	0.3%	22	15
Coast Range	30,071	31	0%	25,486	22	0%	42%	0.1%	13	3
Klamath	335,682	536	0%	579,128	526	0%	50%	0.1%	16	5
Non-Federal Lands										

Physiographic Province	Dispersal Habitat in 1996 (Acres)	Dispersal Habitat Harvested (Acres)	Dispersal Habitat Harvested (Percent)	Nesting-Roosting Habitat in 1996 (Acres)	Nesting-Roosting Habitat Harvested (Acres)	Nesting-Roosting Habitat Harvested (Percent)	Habitat Harvested that was Nesting-Roosting (Percent)	10-Year Mean Loss of Habitat to Harvest	Mean Harvest Patch Size (Acres)	Stand Harvest Patch Size (Acres)
Washington										
Eastern Cascades	319,729	18,536	6%	362,291	24,540	7%	57%	6.3%	30	20
Olympic Peninsula	275,885	33,068	12%	192,741	23,153	12%	41%	12.0%	41	27
Western Cascades	212,118	23,573	11%	120,707	11,207	9%	32%	10.2%	39	27
Western Lowlands	524,668	73,413	14%	149,848	19,729	13%	21%	13.6%	40	27
Oregon										
Coast Range	659,641	104,393	16%	483,985	106,584	22%	51%	18.9%	44	30
Eastern Cascades	132,149	15,728	12%	114,531	11,061	10%	41%	10.8%	37	25
Klamath	300,416	26,920	9%	244,411	23,492	10%	47%	9.3%	33	22
Western Cascades	411,318	63,999	16%	260,687	45,250	17%	41%	16.5%	46	33
Willamette Valley	50,477	3,220	6%	37,962	3,553	9%	52%	7.9%	22	12
California										
Cascades	184,094	9,049	5%	109,434	6,310	6%	41%	5.3%	20	9
Coast Range	1,189,363	41,598	3%	967,484	36,891	4%	47%	3.7%	20	9
Klamath	382,099	10,094	3%	353,724	10,157	3%	50%	2.8%	19	8
Non-Federal Land Totals by State†††										
Washington	1,332,399	148,590	11%	825,587	78,629	10%	35%	10.3%	38	26
Oregon	1,554,001	214,260	14%	1,141,576	189,940	17%	47%	15.2%	42	30
California	1,755,556	60,741	3%	1,430,642	53,358	4%	47%	3.6%	20	9

† Congressional reserved and BLM-administered lands in the planning area not included.
†† BLM-administered lands in the planning area not included.
††† Mean harvest patch sizes on non-federal lands by state are NOT averages of the above physiographic province averages.

Table S-3. Changes, calculated from data developed by Davis *et al*. (2011), in relative habitat suitability values from timber harvests occurring in northern spotted owl habitat between 1996 and 2006 by physiographic province and Northwest Forest Plan land-use allocation.

Physiographic Province	Federal Reserved Lands†			Federal Non-Reserved Lands††			Non-Federal Lands		
	Selected Against	Selected For	Strongly Selected For	Selected Against	Selected For	Strongly Selected For	Selected Against	Selected For	Strongly Selected For
Washington									
Eastern Cascades	-2	-2	-	-2	-4	-2	-3	-6	-10
Olympic Peninsula	4	3	-	5	-8	4	-7	-12	-13
Western Cascades	4	2	4	3	-1	-1	-9	-15	-19
Western Lowlands	-	-	-	-	-	-	-7	-12	-16
Oregon									
Coast Range	2	-2	-	-3	1	1	-5	-10	-13
Eastern Cascades	1	1	-4	-	-1	-2	-3	-7	-16
Klamath	-1	1	-10	-	-1	-	-3	-5	-4
Western Cascades	-	-2	-5	1	-	-1	-7	-9	-6
Willamette Valley	-	-	-	-	-	-	-6	-7	-27
California									
Cascades	4	-6	-4	-5	-13	-13	-3	-7	-13
Coast Range	-2	-3	-	-2	-	-	1	1	-1
Klamath	0	1	-1	-1	-	1	-1	-1	-3

† Congressionally reserved and BLM-administered lands in the planning area not included
†† BLM-administered lands in the planning area not included

Starting with the 2012 relative habitat suitability surface (i.e., the surface the BLM created using 2012 GNN data with the USFWS 1996 GNN MaxEnt models), the BLM forecasted changes on other lands from ingrowth, wildfire, and timber treatments before advancing in decadal increments for five decades (2013-2063). Modeling each decade in sequence was necessary because estimating change in future decadal intervals depended on adjusted values from the previous decade.

At the beginning of each decade, the BLM applied the rates-of-change in relative habitat suitability value from ingrowth and categorized the results into the four habitat suitability classes using the previously derived strength-of-selection class breaks: strongly-selected-against, selected-against, selected-for, and strongly-selected-for. Next, the BLM adjusted pixel values within the wildfire perimeters predicted to occur within the decade depending on the fire severity and corresponding relative habitat suitability class. The BLM categorized the resulting continuous surface into habitat classes a second time before adding the effects of timber harvests. Finally, the BLM calculated the median habitat class within each candidate harvest treatment patch (i.e., the results of the image segmentations described above), and randomly selected treatment patches in each province and strata until the area harvested approached, but did not exceed, the total decadal treatment area calculated from the LandTrendr data. The BLM then repeated the process for the next and subsequent decades.

The BLM applied four selection criteria when selecting timber harvest patches.

- All modeled harvest patches had to exceed 10 acres in size because the BLM anticipated smaller timber harvests would be commercially inviable.
- The BLM did not allow the selection of patches that were more than 500 m from a road because of anticipated limitations to commercial access.
- Patches classified as "strongly-selected-against" were not considered because such stands generally would be too young for commercial timber harvest.

- The BLM did not allow a patch to be selected for treatment twice during the 50-year forecast period. Once selected, the rates of change from harvest were applied to the relative habitat suitability values within each patch. After harvesting a patch, ingrowth within modeled harvests was allowed to progress, uninterrupted for the remainder of the planning horizon.

The BLM applied changes in relative habitat suitability to all lands before updating the pixel values on BLM-administered lands in the planning area with the results from Model 13 for the same decade.

The BLM created only one set of decadal relative habitat suitability surfaces for non-BLM lands across the northern spotted owl's range. The BLM used this single set of surfaces for all evaluations of the alternatives and the No Timber Harvest reference analyses (i.e., only the relative habitat surfaces for BLM-administered lands in the planning area changed by alternative). The BLM used this final set of relative habitat suitability surfaces, one for each decade between 2013 and 2063, for the HexSim population dynamics models.

Developing and Calibrating the BLM HexSim Model

As described above, the BLM determined that the HexSim model developed by the USFWS to inform its decisions on northern spotted owl recovery and critical habitat (USDI FWS 2011, Appendix C; and USDI FWS 2012), with specific changes, could help the BLM meet its planning needs. Therefore, the BLM took the Service's northern spotted owl HexSim model, fully parameterized, and modified it as necessary. The BLM made the following changes:

- As described above, the BLM developed different range-wide relative habitat suitability surfaces that reflected spatially-explicit estimates of how forest stands would respond over time to forest ingrowth, timber harvest and wildfire on all lands, and also to forest restoration treatments on BLM-administered lands in the planning area.
- Although the BLM altered relative habitat suitability values by decade on all lands, as described above, the BLM did not otherwise augment or suppress those values. In effect, unlike some USFWS simulations that limited northern spotted owl nesting to potential critical habitat units, the BLM always allowed simulated northern spotted owls to move, forage and establish nest territories on all lands according to local relative habitat suitability values.
- Because the BLM required both stochastic and non-stochastic simulations of northern spotted owl response for the reasons described in Chapter 3 (Northern Spotted Owl, Issue 4), the BLM completed 500 replicate simulations of each alternative. In contrast, after its Phase 1 modeling, the USFWS used only stochastic simulations, with 100 replicates per alternative (USDI FWS 2012, p. 29).
- Although the BLM calibrated the BLM model using the same method used by the USFWS (USDI FWS 2011, pp. C-71 – C-74), the BLM calibration, described below, yielded unique numbers and locations of female northern spotted owls to begin each of the replicate simulations.
- The BLM used observed barred owl encounter rates (Forsman *et al*. 2011, Appendix B; and USDI FWS 2011, p. C-66 and Table C-25) for reasons described in Chapter 3 (Northern Spotted Owl Issue 4).
- Also for reasons described in Chapter 3 (Northern Spotted Owl Issue 4), the BLM simulated 50 years (2013-2063) with relative habitat suitability values changing every 10 years according to the BLM forecasts, and then held habitat values constant for an additional 50 years.

The northern spotted owl HexSim model developed by the USFWS (see USDI FWS 2011 and Schumaker *et al*. 2014) is an individual-based, spatially-explicit, population simulation model. The Service parameterized the model based on empirically-derived estimates of age-specific survival, fecundity, territory and home-range size, and dispersal (USDI FWS 2011 and Schumaker *et al*. 2014). The Service

used its relative habitat suitability surface in HexSim to represent resource quality (higher values were of greater quality than lower values). Each of the eleven modeling regions (USDI FWS 2011, p. C-13) had different resource targets for northern spotted owls, and resource targets varied in relation to home range size (larger targets in areas with larger home ranges). For home range size variation, many empirical studies existed and the Service used them to guide its decisions in the development of HexSim (USDI FWS 2011, Appendix C and Schumaker *et al*. 2014). However, other than variation in home range size, no empirical information existed to guide specific decisions on resource targets. Because resource targets—as represented by relative habitat suitability—are not real, on-the-ground, quantities, they can have no empirical basis; they only can be associated with on-the-ground resources. Thus, the authors of the Service's northern spotted owl HexSim models varied resource targets until resulting simulated population sizes were similar to empirically-estimated populations of northern spotted owls (USDI FWS 2011, Appendix C and Schumaker *et al*. 2014). This model calibration happened by "tuning" (i.e., varying) resource targets by modeling region. The Service (USDI FWS 2011, Appendix C) also calibrated its HexSim model for dispersal such that simulated northern spotted owls that dispersed did so in a way that resulted in similar dispersal distance profiles to those estimated from empirical studies. For this portion of the calibration, the Service tuned the model by varying the attraction/repulsion of various habitats (relative habitat suitability values) as well as the maximum number of 86.6-ha hexagons a dispersing owl could move through while attempting to find a territory (see USDI FWS 2011 and Schumaker *et al*. 2014).

The BLM initially intended to use the 2012 GNN version of Model 13 for other lands within the northern spotted owl's range. However, as the BLM evaluated how Model 13 would be use for HexSim population dynamics modeling, it evaluated a range of factors that, instead, suggested using the USFWS MaxEnt model projected to newly-available 2012 GNN variables for other lands:

- The USFWS HexSim model had been developed to work with and calibrated to the USFWS 2006 GNN MaxEnt relative habitat suitability model, and had been demonstrated to be well-calibrated to those data (USDI FWS 2011, Appendix C).
- The BLM's 2006 GNN version of Model 13 demonstrated a high degree of correlation to the Service's 2006 GNN model (correlation coefficient of 0.867).
- BLM-administered lands in the planning area account for about 4 percent of lands in the northern spotted owl's range. As such, relative habitat suitability values on BLM-administered lands would likely have a proportionally small effect on overall population response.
- The USFWS initially calibrated its HexSim model by adjusting model parameters (i.e., resource targets) separately for each of its eleven modeling regions. BLM-administered lands in the planning area are constrained to four of those regions. This meant that, by using the Service's 2006 GNN MaxEnt relative habitat suitability surface, five of the eleven modeling regions would require no recalibration at all. And, because of the high degree of correlation between the Service's model and Model 13, the other modeling regions probably would require only minor recalibration.

Given these conditions, BLM determined that using the USFWS's 2012 GNN model for other lands was reasonable and would require less calibration and re-development of HexSim than would be required using the BLM 2012 GNN Model 13 relative habitat suitability surfaces for those lands.

The USFS released its 2012 GNN data at about the same time the BLM reached this phase in the project; up to this point, the latest release of these data was for 2006. To create the new 2012 version of the USFWS MaxEnt model, the BLM generated a full set of model variable surfaces from the 2012 GNN data, using the same GNN attributes and methods used by USFWS to generate the original 1996 and 2006 covariate rasters (USDI FWS 2011, Appendix C). The BLM then projected the original USFWS 1996

MaxEnt model to the 2012 covariate rasters separately for each of the eleven USFWS modeling regions, and merged them into a single, seamless range-wide relative habitat suitability surface.

To derive the relative habitat suitability surface needed to calibrate HexSim, the BLM then replaced the pixels in the USFWS 2012 GNN model for BLM-administered lands in the planning area with data from the final BLM 2013 Woodstock Model 13 raster.

Because the BLM created new MaxEnt surfaces for its-administered lands in the planning area, before running population simulations it sought to evaluate whether the "default settings" of HexSim, as used by USFWS, would work well for the BLM, or whether further calibration (fine tuning) were needed. In their calibration/tuning of the spotted owl HexSim model, the Service (USDI FWS 2011, Appendix C) found that time-step 50 represented a reasonable approximation of the present (at the time the Service did its work). The only differences between the data feeding into the northern spotted owl HexSim models between the Service and this effort by the BLM are that:

- The USFWS and the BLM used different MaxEnt relative habitat suitability surfaces for BLM-administered lands in the planning area, and;
- For BLM-administered lands in the planning area the relative habitat suitability surface was estimated for 2013, and for other lands the BLM projected the USFWS 1996 GNN MaxEnt models using GNN data from 2012 (as opposed to 2006, as used by the Service).

Thus, this new "base" relative habitat suitability surfaces used by the BLM used the identical MaxEnt models for all lands except BLM-administered lands in the planning area and, for those lands, the BLM developed a new MaxEnt model (Model 13). Since the correlation between the relative habitat suitability surfaces developed by the USFWS and Model 13 was so high, the BLM anticipated that its HexSim model would require minor, or no, recalibration.

The BLM began recalibration by using the USFWS default HexSim settings, and evaluated population estimates for the same eight demographic study areas for which the Service had data (USDI FWS 2011, pp. C-71 – C-75). The BLM ran 20 replicates of HexSim (without environmental stochasticity; see Northern Spotted Owl Chapter 3) for 70 time-steps. Replicates refer to the number of distinct simulations that are run. Because HexSim is not a deterministic model, several replicates are needed to get an estimate of mean responses (different replicates will almost always vary in their specific population responses). The BLM chose 70 time-steps because it initially wanted to evaluate whether, using default settings, simulated demographic study area population sizes were more/less similar to empirically-estimated populations before, during, or after time-step 50, the time-step that USFWS (USDI FWS 2011, pp. C-71 – C-75) found to be a good approximation of "now." The BLM used the mean population among the 20 replicates to estimate simulated population size. For the eight demographic study areas, the BLM used the mean of the three years with the largest population to estimate population size (see USDI FWS 2011, pp. C-71 – C-75).

Using default parameters in the northern spotted owl HexSim model, the BLM found that mean population size of territorial owls on the eight demographic study areas at time-step 59 corresponded most closely with the empirical population estimates. For the demographic study areas, empirical estimates of populations ranged from 30 to 130, with the total population on the eight study areas being 756. At time-step 59, mean simulated estimates of populations ranged from 32 to 145, with a total population of 763. The pairwise percent differences between empirical and simulated populations on each of the study areas varied from 0.54 percent to 41.75 percent, with a mean percentage difference of 4.7 percent. Time-step 55 had the smallest mean percent difference (-2.3 percent) but the estimate of total population size on the eight study areas was 6 percent higher than the empirical estimates. In contrast, the time-step 59 estimated

total population size on the eight study areas was 0.95 percent larger than the empirical estimate. **Figure S-17** compares empirical and time-step 59 population estimates in each of the study areas.

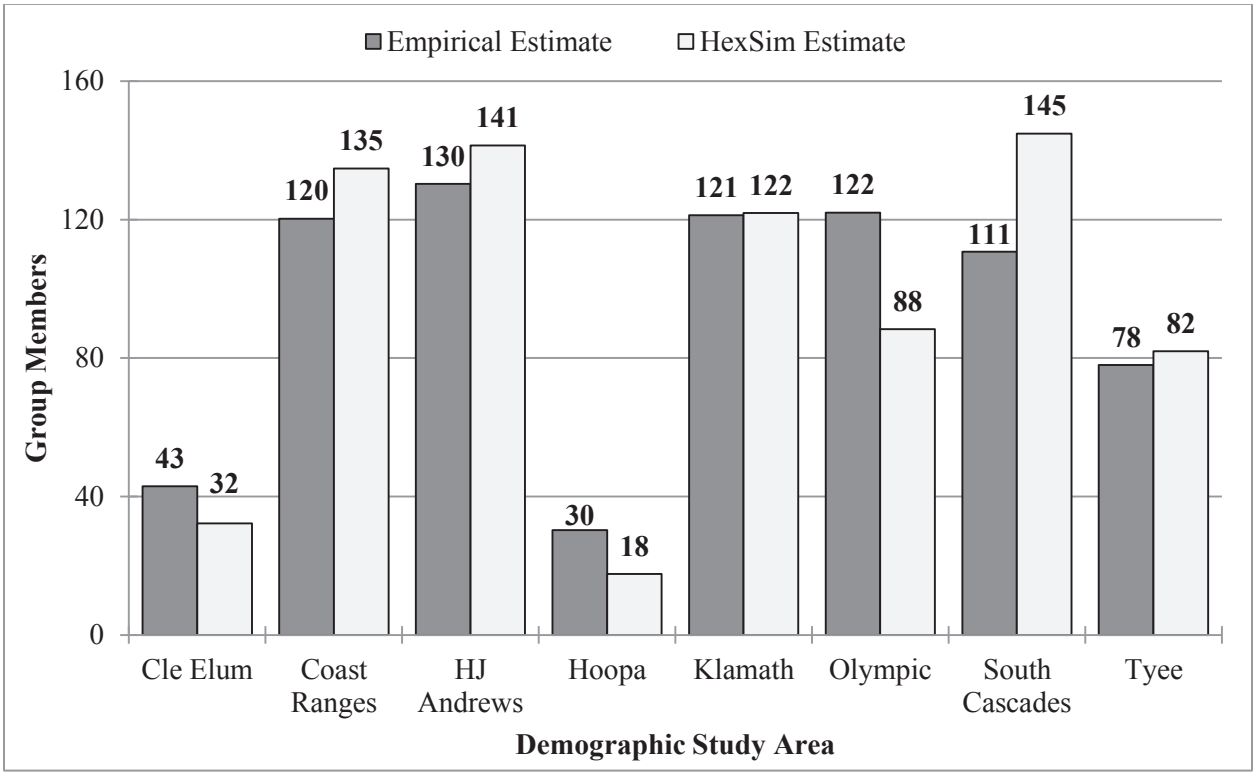


Figure S-17. Comparison of the mean of estimates of territorial northern spotted owls on eight demographic study areas estimated in the field (empirical estimates, n = mean of three highest years between 1996 and 2006) and estimated using the BLM northern spotted owl HexSim model (mean from 20 replicates of HexSim at time-step 59).

Because the default parameters worked well, the BLM did not further attempt to fine-tune any parameter settings and used the default settings. The only difference between the USFWS's (2011) and BLM's current use of the spotted owl HexSim model is that the e Service used time-step 50 to represent the current year and the BLM used time-step 59.

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Section S-B

Simulated Northern Spotted Owl Dispersal Flux During 2053-2063 Under Each Alternative and According to the No Timber Harvest Reference Analyses

Shown are simulated northern spotted owl dispersal flux during 2053 – 2063, based on 100 replicate, non-stochastic simulations, under each alternative and according to the No Timber Harvest. When compared to dispersal flux under current habitat conditions (Northern Spotted Owl **Figure 3-191**), each image shows a decrease due to the decline in the northern spotted owl population. All of the alternatives yield results that are comparable to those for the No Timber Harvest, indicating that none of the alternatives would appreciably limit northern spotted owl movement and survival in any part of western Oregon. However, there are subtle differences among the alternatives, many of which appear to conflict with the projections of the dispersal-capable landscape in 50 years, shown in Northern Spotted Owl **Figure S-18**.

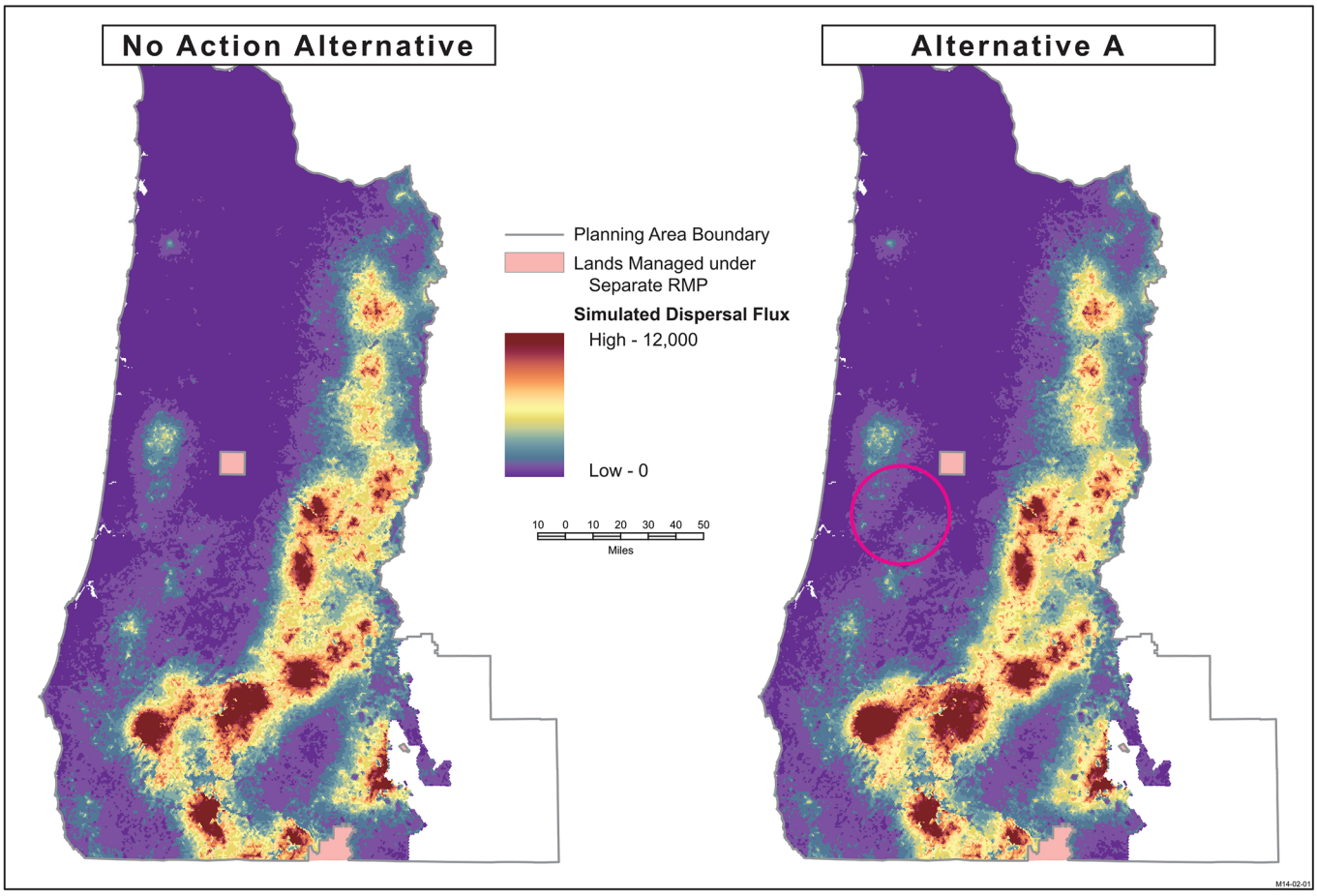
The circled areas in northern spotted owl **Figure S-18** suggest that, among the alternatives, the No Action alternative, Sub-alternative B and Alternative D best would support northern spotted owl east-west movement between the Coast Range and the western Cascades through the area south of the Willamette Valley. However, these simulations of dispersal flux indicate that the other alternatives support northern spotted owl movement and survival through this area better than the No Action Alternative, Sub-alternative B and Alternative D, and support movement and survival at levels comparable to that of the No Timber Harvest. Other curious results:

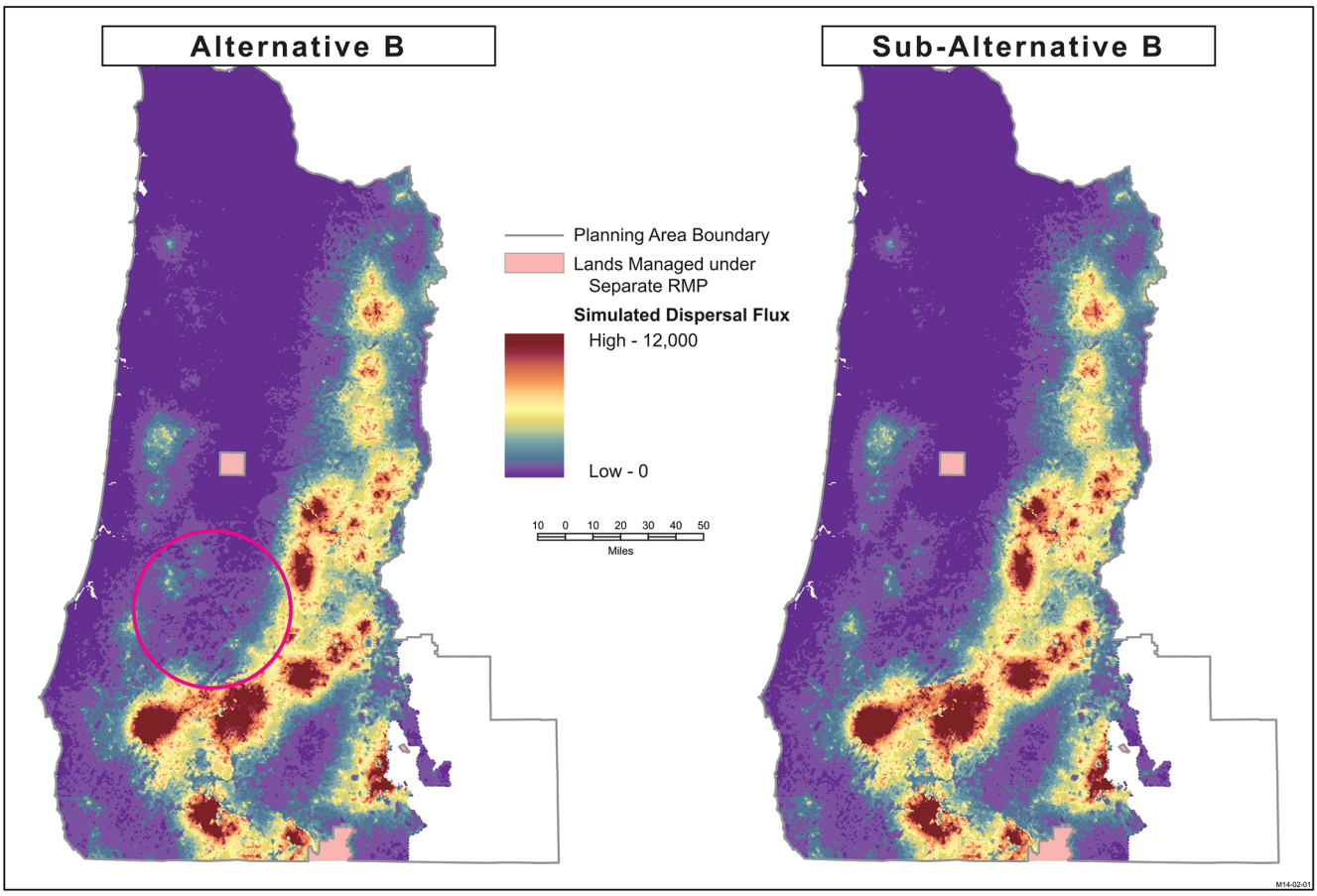
- Under Alternative A (yellow circle), which has the largest network of Late-Successional Reserves, simulated dispersal flux in the southern Coast Range is more limited than under the other alternatives.
- The only difference between Alternative B and Sub-alternative B is that Sub-alterative B reserves more forest stands associated with northern spotted owl known sites. Yet, simulated dispersal flux

through the area south of the Willamette Valley is slightly higher under Alternative B (green circle) than under Sub-alternative B.

- The only difference between Alternative C and Sub-alternative C is that all forest stands 80 years old and older are reserved under Sub-alternative C. But, simulated dispersal flux is slightly higher under Alternative C in the southern Coast Range and a portion of the Rogue River Valley (Alternative C, red circles).

These differences, although subtle, reflect simulations of how northern spotted owls would move through habitat under each alternative. Whereas the dispersal-capable landscape, shown in northern spotted owl **Figure S-18**, reflects a forecast of habitat condition under each alternative, independent of northern spotted owl use or occupancy, dispersal flux, shown here, reflects habitat condition and how northern spotted owl might occupancy such habitat. Thus, dispersal flux is more dynamic than dispersal-capability, and less able to define slight differences between alternatives, suggesting that these differences might not be real. That said, dispersal flux is valuable for evaluating the ability of a landscape to support northern spotted owl movement and survival. Taken collectively, the analyses of dispersal flux and the dispersal-capable landscape indicate that all alternatives would support northern spotted owl movement and survival at comparable levels, but that the No Action alternative, Sub-alternative B and Alternative D best would support northern spotted owl movement between the Coast Range and the western Cascades.


No Action Alternative
Alternative A
Planning Area Boundary
Lands Managed under Separate RMP
Simulated Dispersal Flux
High - 12,000
Low - 0
10 0 10 20 30 40 50
Miles
M14-02-01


Alternative B
Sub-Alternative B
Planning Area Boundary
Lands Managed under Separate RMP
Simulated Dispersal Flux
High - 12,000
Low - 0
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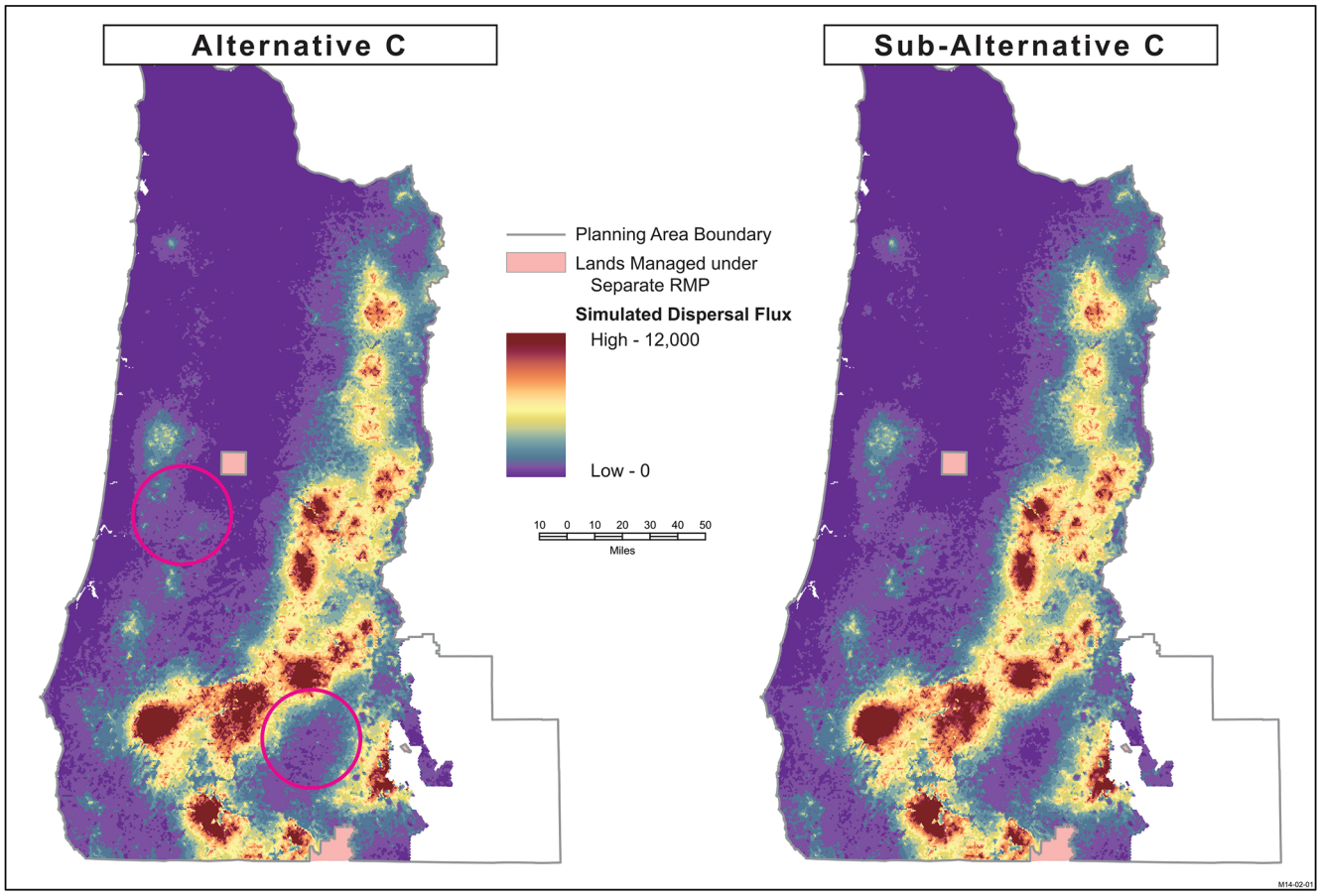
Miles
M14-02-01


Alternative C
Sub-Alternative C
Planning Area Boundary
Lands Managed under Separate RMP
Simulated Dispersal Flux
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Low - 0
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Miles
M14-02-01

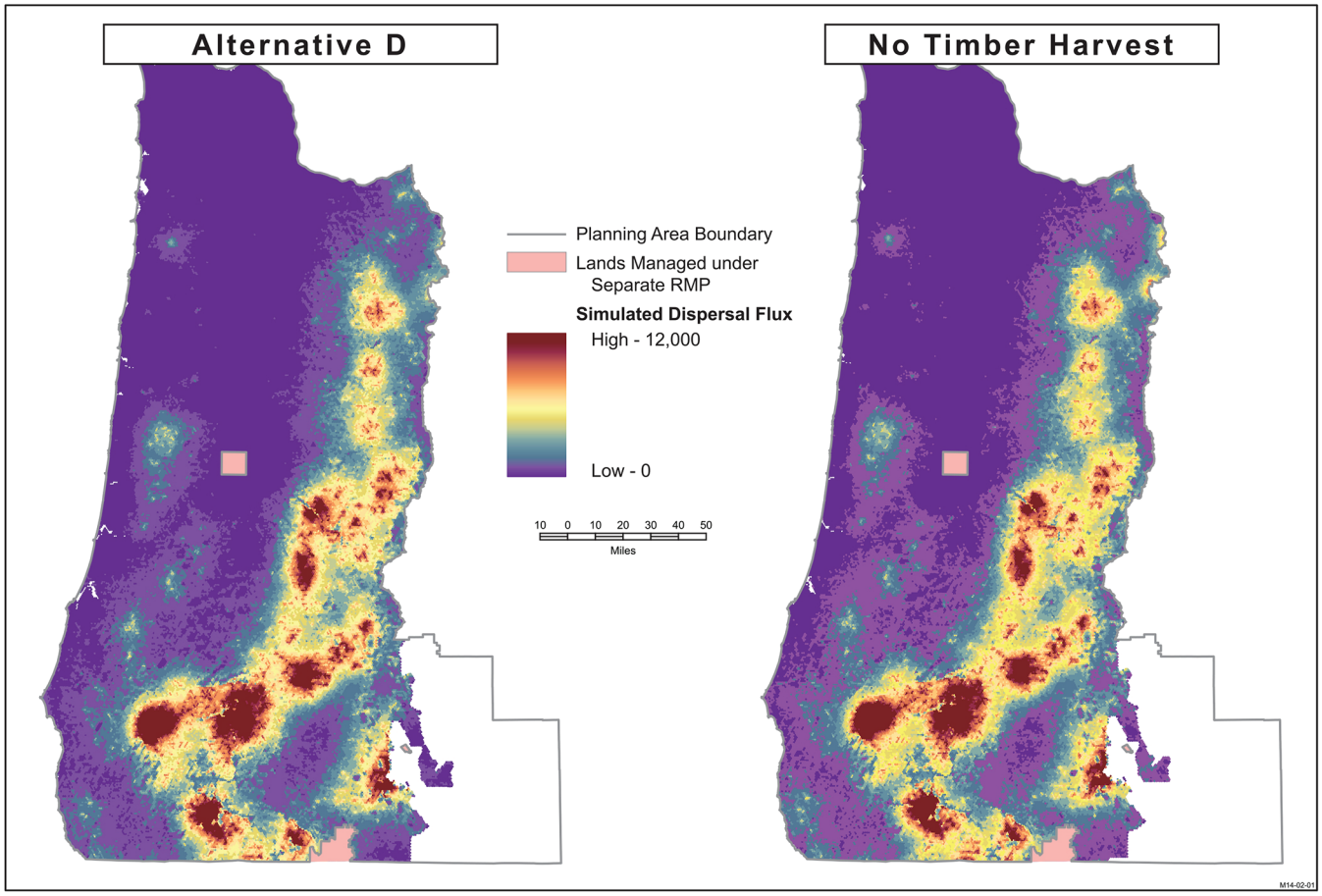


Figure S-18. Simulated northern spotted owl dispersal flux during 2053 – 2063 under each alternative and according to the No Timber Harvest reference analyses.

Section S-C

Summary of Population Risks under the Alternatives and According to the No Timber Harvest Reference Analyses

North Coast and Olympic Modeling Region

Under all alternatives, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is above 90 percent in 2013, reaches 100 percent within 30 years, and remains at 100 percent. There are no discernable differences among the alternatives.

Under the No Timber Harvest reference analyses using both current and modified barred owl encounter rates, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is above 90 percent in 2013, reaches 100 percent within 30 years, and remains at 100 percent. There are no discernable differences between the reference analyses or between the reference analyses and the alternatives.

Figures S-19 and **S-20** show mean probabilities over time, by alternative and for the No Timber Harvest reference analyses, of the northern spotted owl population declining to 100 females.

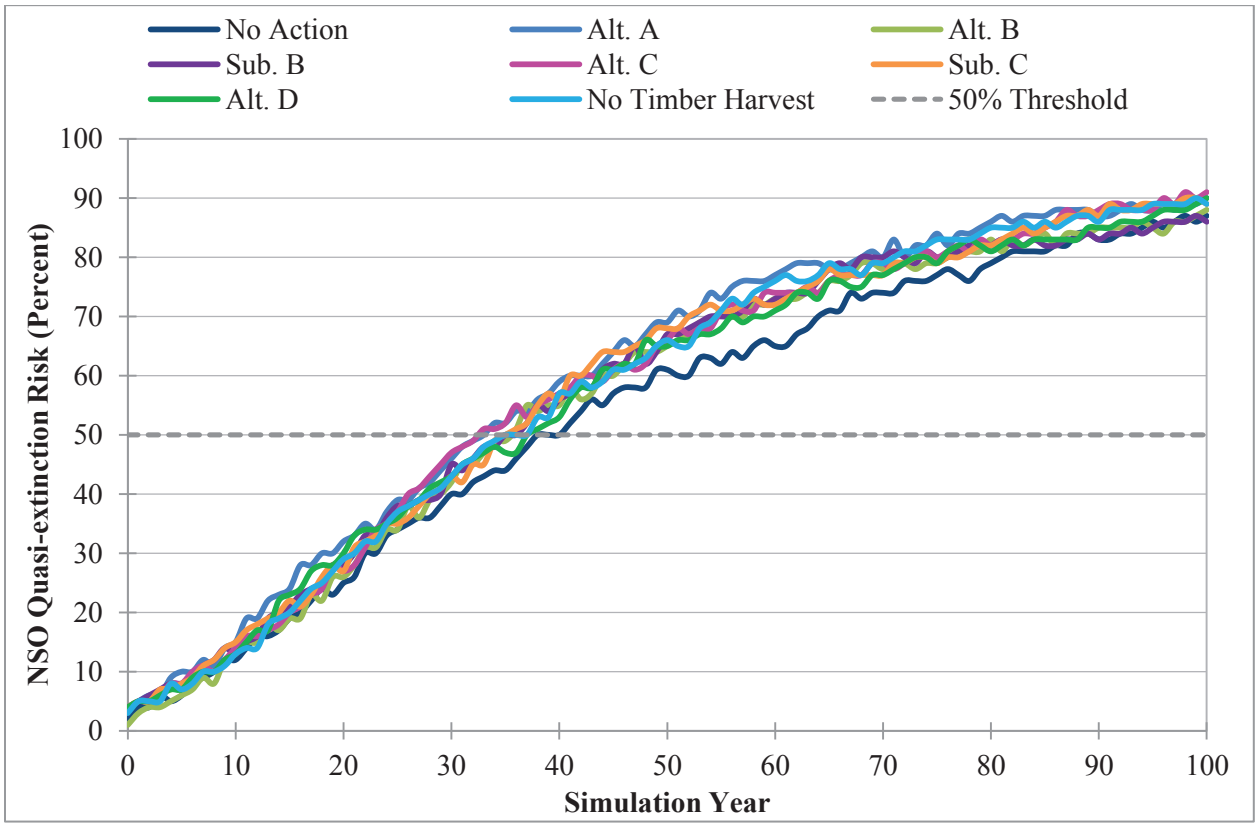


Figure S-19. Extinction risk as a function of time, by alternative, using a quasi-extinction level of 100 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 100 females.

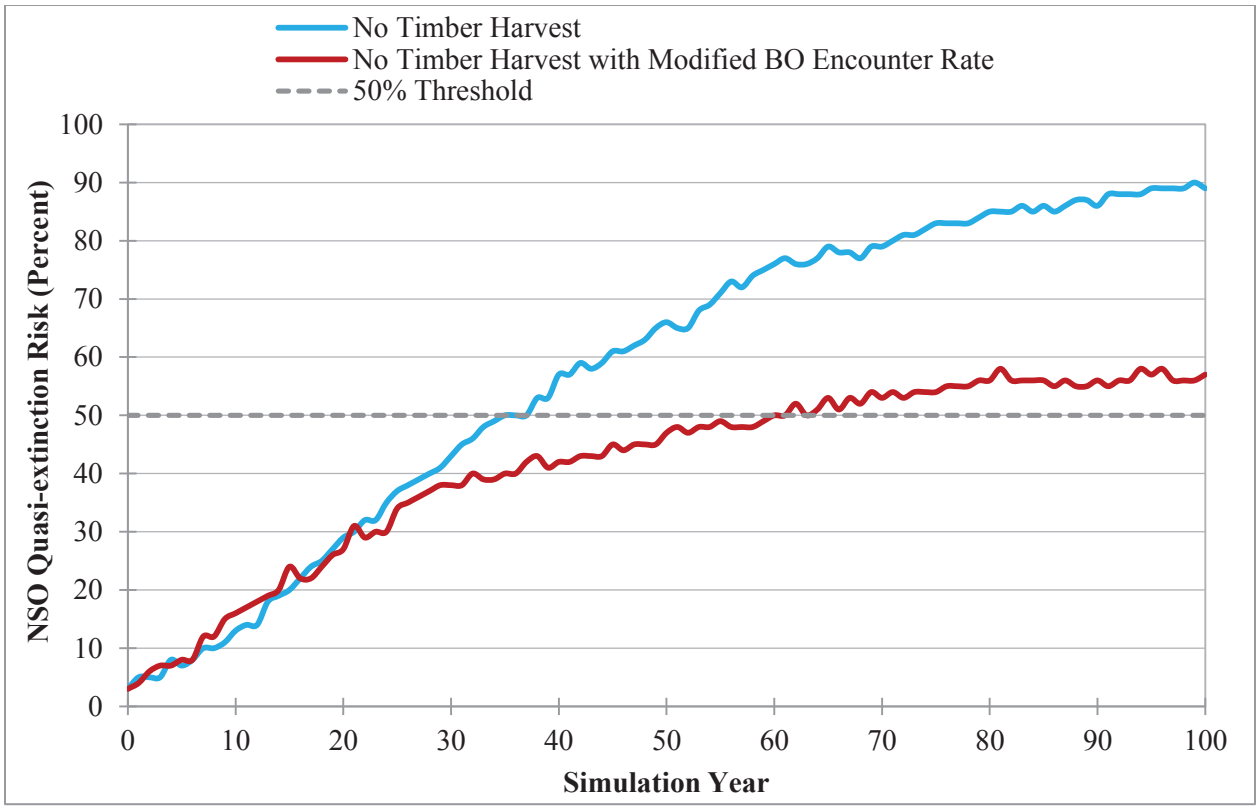


Figure S-20. A comparison of extinction risk as a function of time, under the No Timber Harvest reference analyses—using both current (blue) and modified (red) barred owl encounter rates—based on a quasi-extinction level of 100 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 100 females.

Table S-4. Year (after 2013) that the northern spotted owl population reached a 50-percent probability of declining to 100 females, based on 500 stochastic simulations.

Alternative	Simulation Year
No Action	38
Alt. A	33
Alt. B	36
Sub. B	35
Alt. C	33
Sub. C	35
Alt. D	37
No Timber Harvest (with Current Barred Owl Encounter Rate)	35
No Timber Harvest with Modified Barred Owl Encounter Rate	60

Oregon Coast Modeling Region

Figures S-21 and **S-22** show mean probabilities over time, by alternative and for the No Timber Harvest reference analyses, of the northern spotted owl population declining to 250 females.

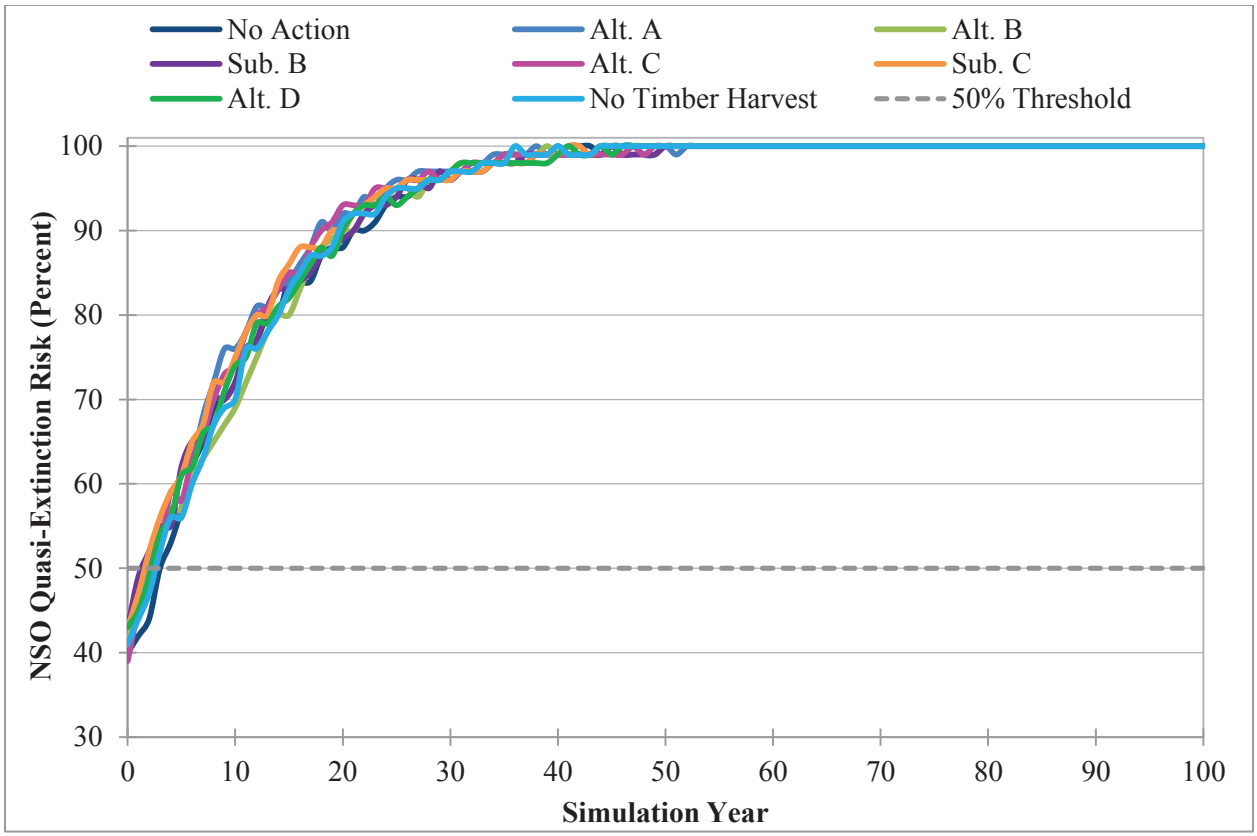


Figure S-21. Extinction risk as a function of time, by alternative, using a quasi-extinction level of 250 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 250 females.

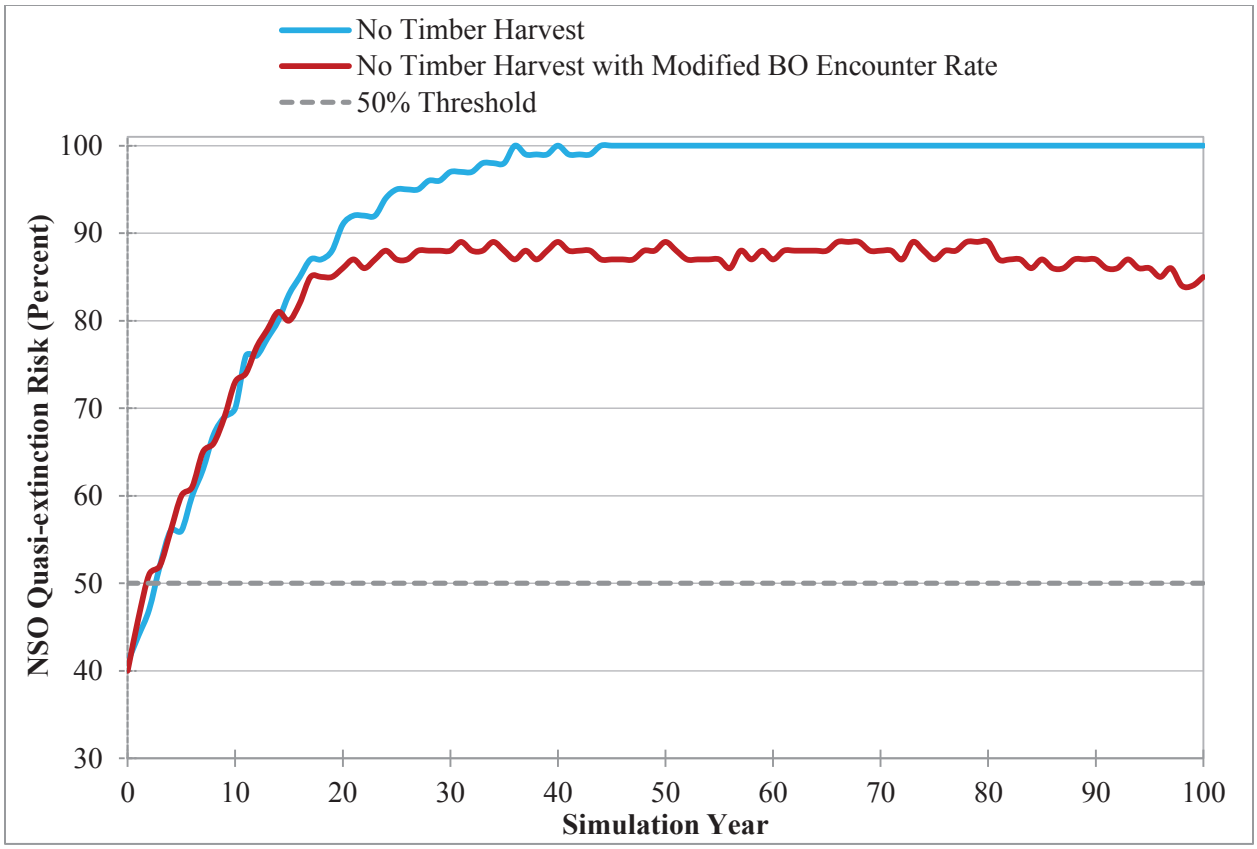


Figure S-22. A comparison of extinction risk as a function of time, under the No Timber Harvest reference analyses—using both current (blue) and modified (red) barred owl encounter rates—based on a quasi-extinction level of 250 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 250 females.

Table S-5. Year that the northern spotted owl population reached a 50-percent probability of declining to 250 females, based on 500 stochastic simulations.

Alternative	Simulation Year
No Action	3
Alt. A	2
Alt. B	3
Sub. B	2
Alt. C	3
Sub. C	2
Alt. D	3
No Timber Harvest (with Current Barred Owl Encounter Rate)	3
No Timber Harvest with Modified Barred Owl Encounter Rate	2

Figures S-23 and **S-24** show mean probabilities over time, by alternative and for the No Timber Harvest reference analyses, of the northern spotted owl population declining to 100 females.

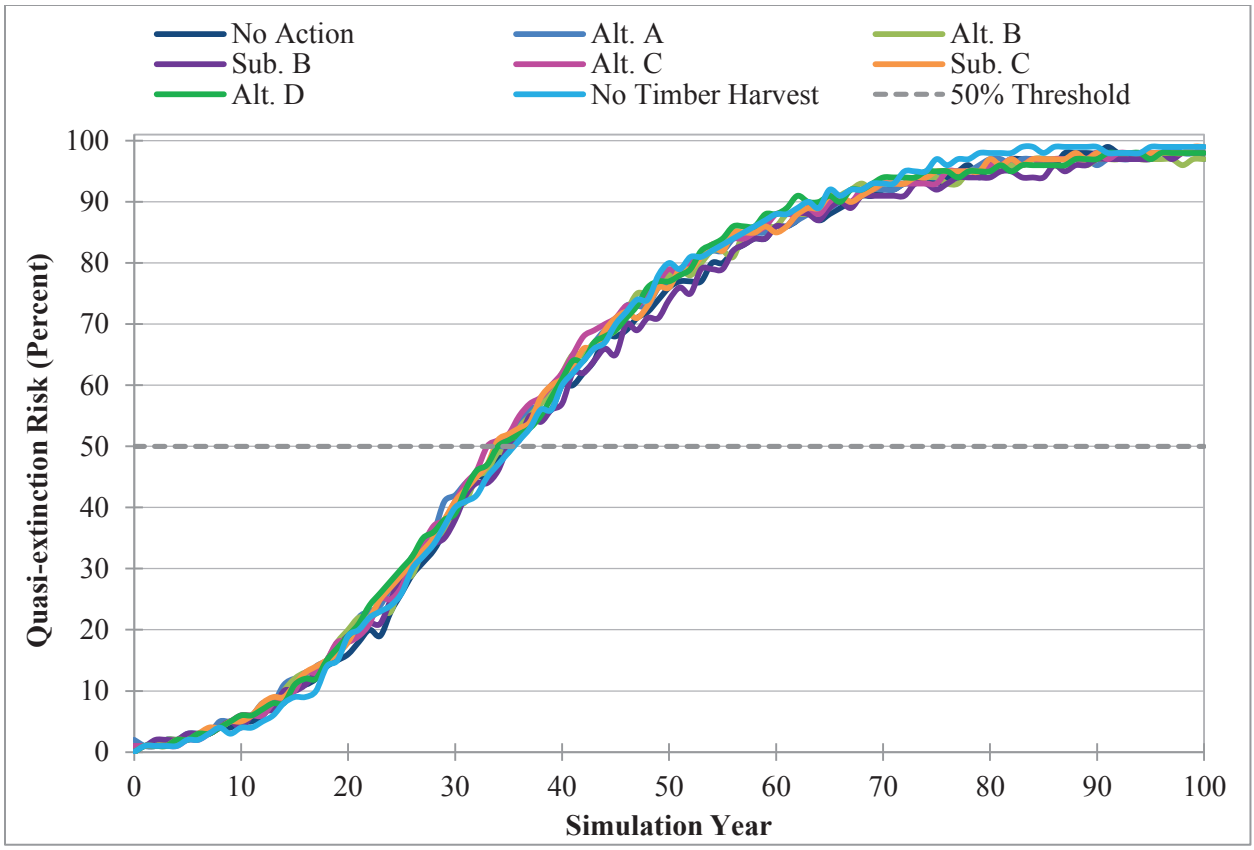


Figure S-23. Extinction risk as a function of time, by alternative, using a quasi-extinction level of 100 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 100 females.

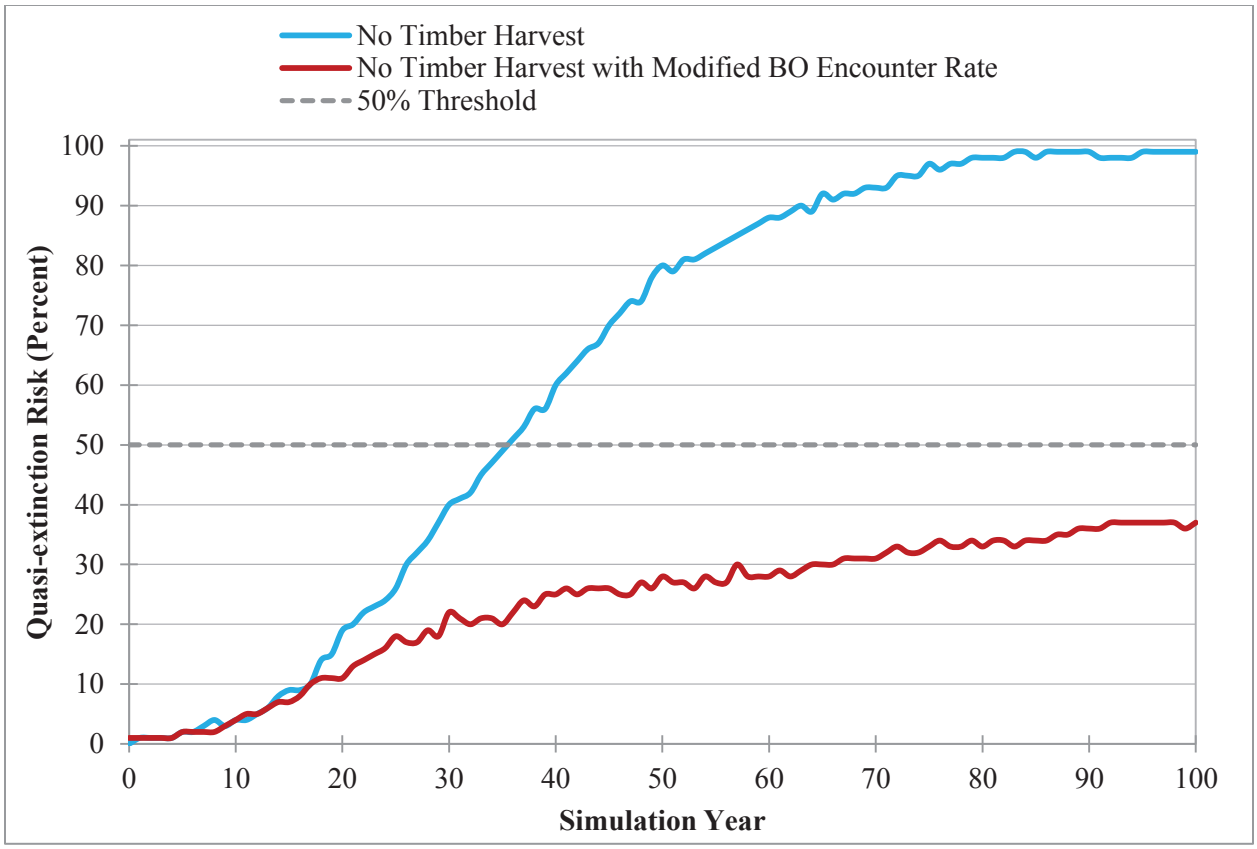


Figure S-24. A comparison of extinction risk as a function of time, under the No Timber Harvest reference analyses—using both current (blue) and modified (red) barred owl encounter rates—based on a quasi-extinction level of 100 females. This graph shows the mean probability, by year (0 = 2013), that 500 simulated stochastic populations declined to 100 females.

Table S-6. Year that the northern spotted owl population reached a 50-percent probability of declining to 100 females, based on 500 stochastic simulations.

Alternative	Simulation Year
No Action	35
Alt. A	35
Alt. B	36
Sub. B	35
Alt. C	33
Sub. C	34
Alt. D	34
No Timber Harvest (with Current Barred Owl Encounter Rate)	36
No Timber Harvest with Modified Barred Owl Encounter Rate	-

West Cascades-South Modeling Region

Under all alternatives, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females begins at 0 percent in 2013 and remains below 5 percent for 50 years. There are no discernable differences among the alternatives.

Under the No Timber Harvest reference analyses using both current and modified barred owl encounter rates, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is 0 percent in 2013 and remains below 5 percent for 50 years. There are no discernable differences between the reference analyses or between the reference analyses and the alternatives.

Under all alternatives and reference analyses, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 100 or fewer females begins at 0 percent in 2013 and remains at 0 percent for 50 years. There are no discernable differences among the alternatives.

East Cascades-South Modeling Region

Under all alternatives, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is above 85 percent in 2013 and reaches 90 percent within 20 years. There are no discernable differences among the alternatives.

Under the No Timber Harvest reference analyses using both current and modified barred owl encounter rates, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is above 85 percent in 2013 and reached 90 percent within 20 years. There is slight differentiation between the reference analyses using the current and modified rates, with the current rate performing 4 percent better over 100 years. There are no discernable differences between the reference analysis using the current rate and the alternatives.

Under all alternatives and reference analyses, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 100 or fewer females is below 5 percent in 2013 and remains at or below 5 percent for 50 years. There are no discernable differences among the alternatives.

Klamath-Siskiyou-West Modeling Region

Under all alternatives, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females begins at 0 percent in 2013 and remains below 2 percent for 50 years. There are no discernable differences among the alternatives.

Under the No Timber Harvest reference analyses using both current and modified barred owl encounter rates, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is 0 percent in 2013 and remains below 2 percent for 50 years. There are no discernable differences between the reference analyses or between the reference analyses and the alternatives.

Under all alternatives and reference analyses, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 100 or fewer females begins at 0 percent in 2013 and remains at 0 percent for 50 years. There are no discernable differences among the alternatives.

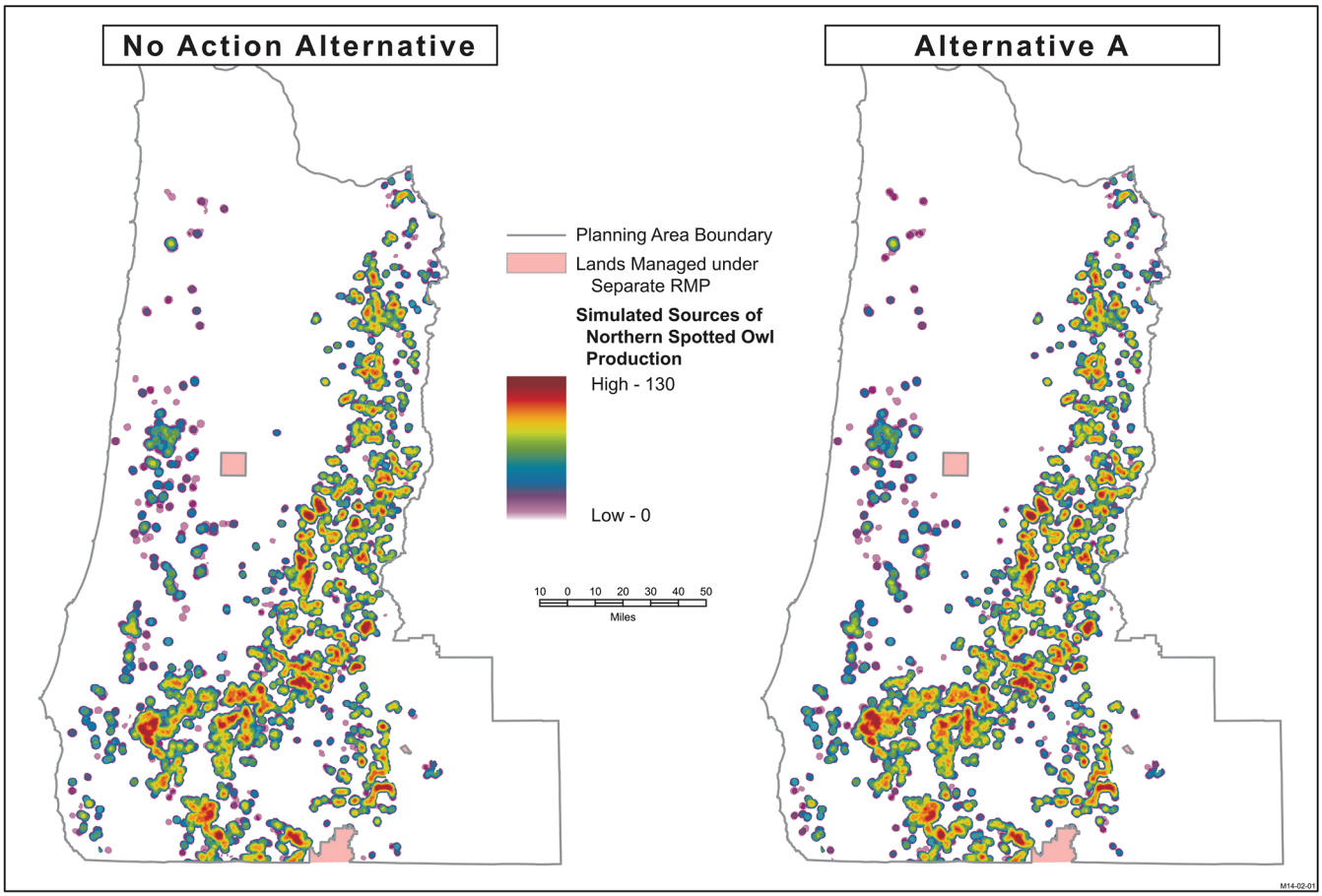
Klamath-Siskiyou-East Modeling Region

Under all alternatives, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females begins at 0 percent in 2013 and remains below 2 percent for 50 years. There are no discernable differences among the alternatives.

Under the No Timber Harvest reference analyses using both current and modified barred owl encounter rates, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 250 or fewer females is 0 percent in 2013 and remains below 2 percent for 50 years. There are no discernable differences between the reference analyses or between the reference analyses and the alternatives.

Under all alternatives and reference analyses, the mean probability—based on 500 replicate stochastic simulations—that the northern spotted owl population will decline to 100 or fewer females begins at 0 percent in 2013 and remains at 0 percent for 50 years. There are no discernable differences among the alternatives.

Section S-D


No Action Alternative
Alternative A
Planning Area Boundary
Lands Managed under Separate RMP
Simulated Sources of Northern Spotted Owl Production
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Low - 0
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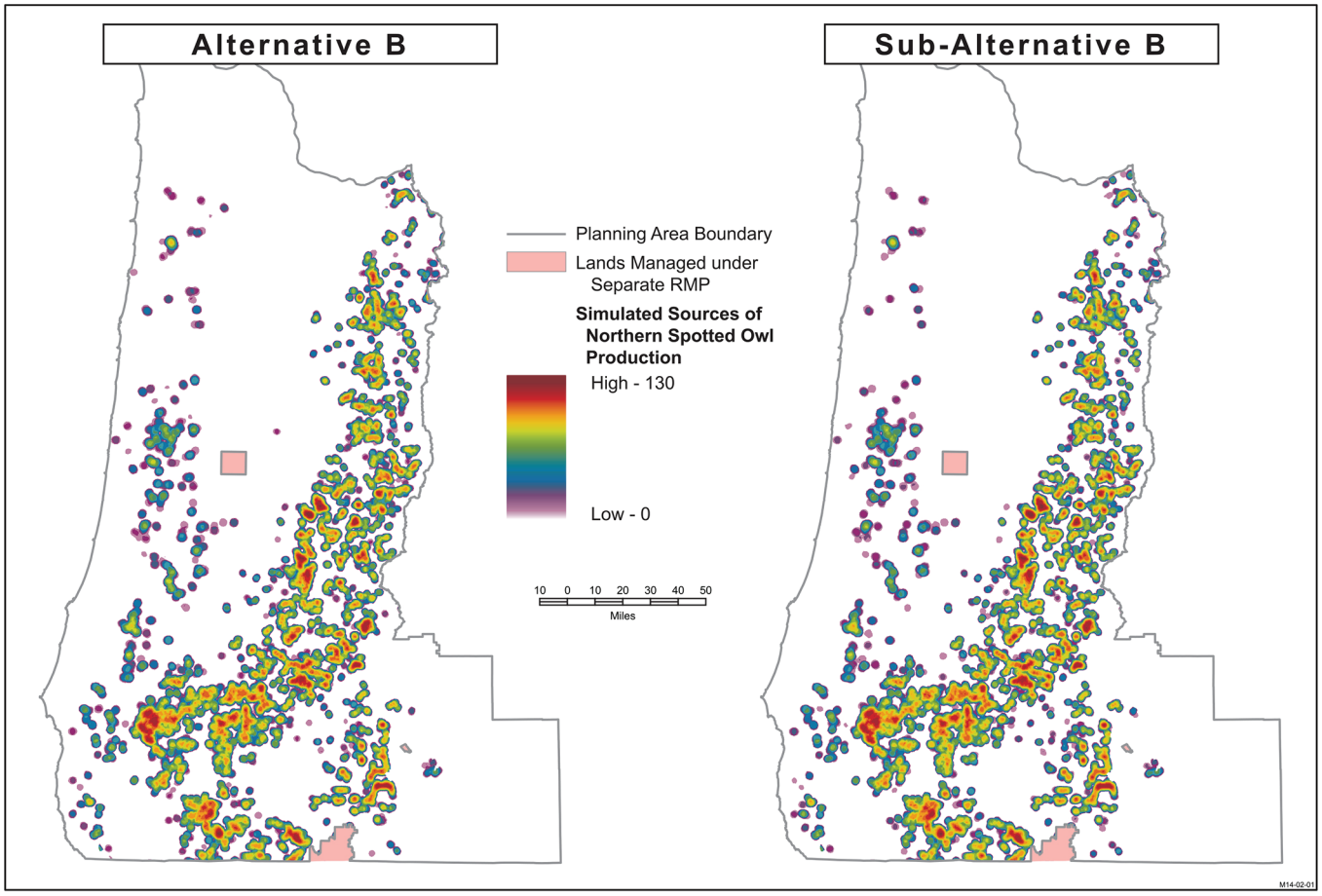
Miles
M14-02-01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Sub-Alternative B
Planning Area Boundary
Lands Managed under Separate RMP
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Low - 0
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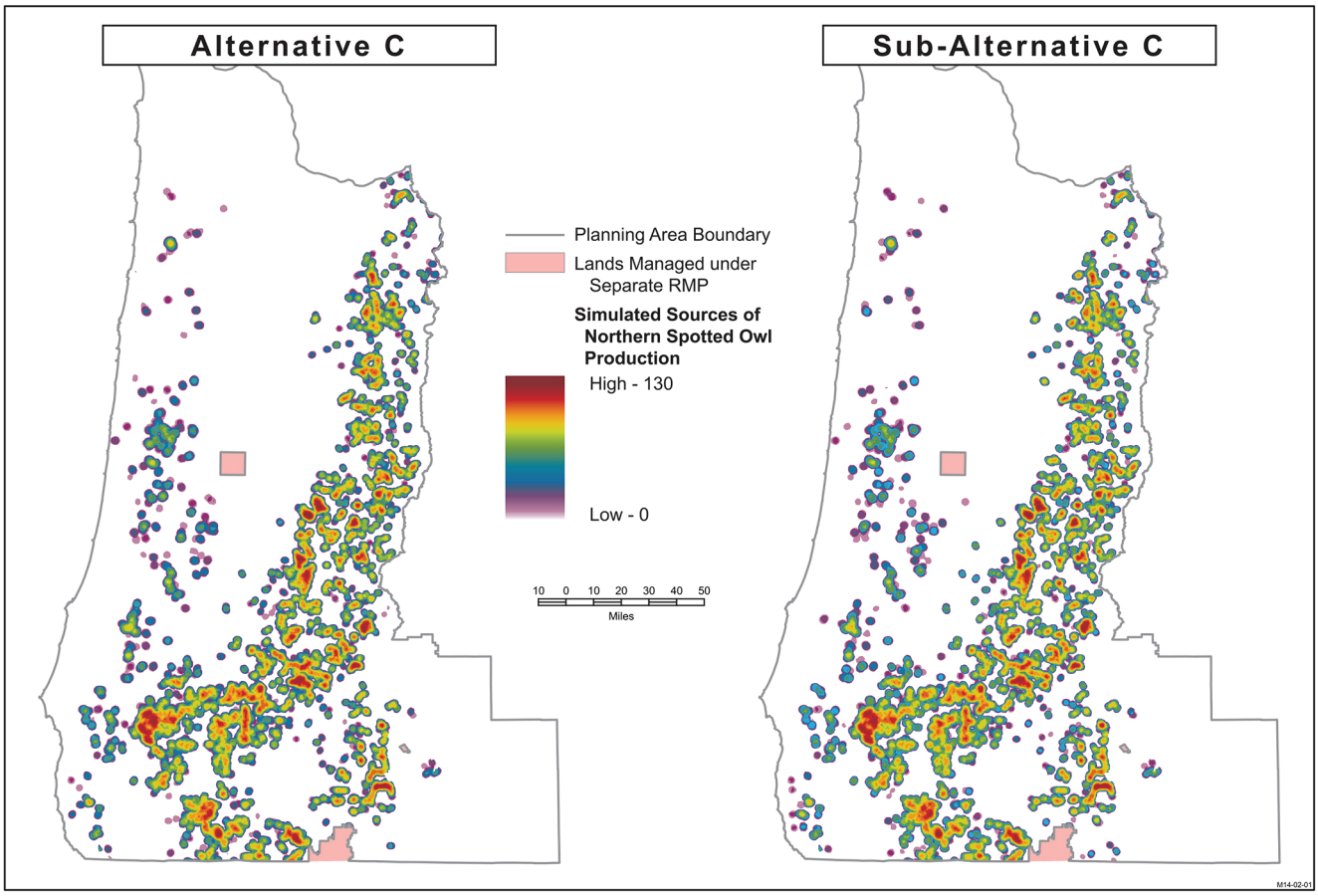
Miles
M14-02-01


Alternative C
Sub-Alternative C
Planning Area Boundary
Lands Managed under Separate RMP
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Low - 0
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Miles
M14-02-01

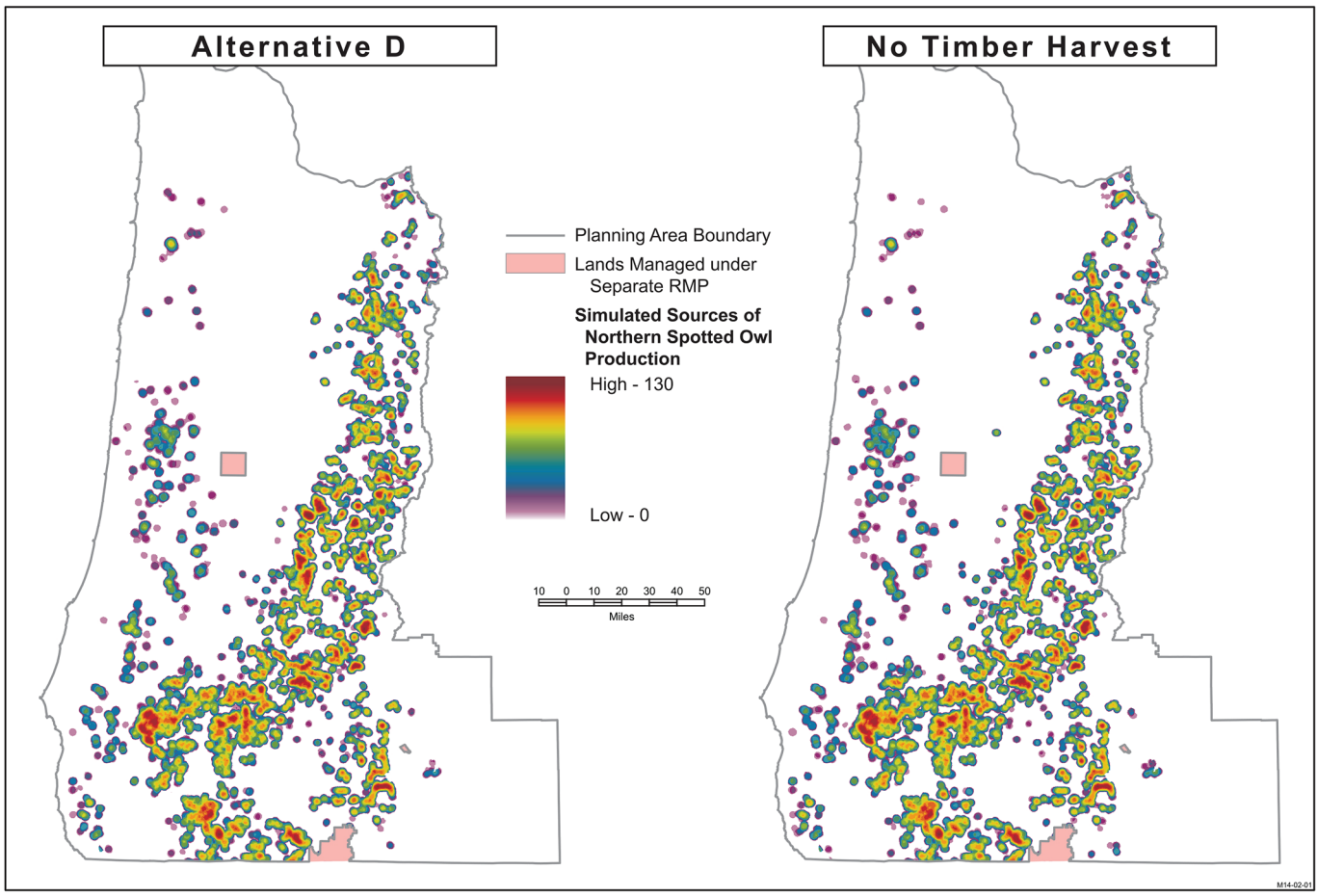

Figure S-25. Simulated sources of northern spotted owl production during 2053 – 2063 under each alternative and according to the No Timber Harvest with Modified Barred Owl Encounter Rate.
Colors reflect 1 – 130 births per hexagon (mean source value) during 100 replicate, non-stochastic simulations.

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