Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Environmental Assessment and Finding of No Significant Impact

Environmental Assessment Number DOI-BLM-OR-S050-2010-0006-EA

June 30, 2010

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Bureau of Land Management
Oregon State Office
Salem District
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Abstract: This environmental assessment (EA) discloses the predicted environmental effects of one project on BLM managed land located in multiple sections within the Lower Alsea River, Upper Alsea River, Five Rivers and Deadwood Creek Watersheds located in Benton and Lane Counties, Willamette Meridian. The project is a proposal for older forest legacy tree release within approximately 578 acres of LSR (Late Successional Reserve) and RR (Riparian Reserves) LUAs (land use allocations).

As the Nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering economic use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/PT-10/048+1792

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis (Environmental Assessment Number DOI-BLM-OR-S050-2010-0006-EA) for a proposal to implement one project as follows: conduct legacy tree release within approximately 578 acres of 40 to 90 year-old stands in Late-Successional Reserve (LSR), and Riparian Reserve (RR) Land Use Allocations (LUAs) to increase structural diversity.

The project is on BLM-managed lands within the Five Rivers, Deadwood Creek, Lower Alsea River and Upper Alsea River Watersheds located in Benton and Lane Counties, Willamette Meridian.

Implementation of the proposed action will conform to management actions and direction contained in the attached *Marys Peak Resource Area Fiscal Years 2010 to 2011 Legacy Tree Release Environmental Assessment* (Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA). The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA is attached to and incorporated by reference in this Finding of No Significant Impact (FONSI) determination. The analysis in this EA is site-specific and supplements analyses found in the Salem District Proposed Resource Management Plan/Final Environmental Impact Statement, September 1994 (RMP/FEIS) (EA p. 3).

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project has been designed to conform to the Salem District Record of Decision and Resource Management Plan, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM-managed lands within Marys Peak Resource Area (EA pp. 4-5). Consultation with U.S. Fish and Wildlife Service and National Marine Fisheries Service is described in Section 7.0 of the EA.

The EA and FONSI will be made available for public review June 30, 2010 to July 14, 2010. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 14, 2010 will be considered in making the decision for this project.

Finding of No Significant Impact

Based upon review of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA and supporting documents, I have determined that the proposed action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No site-specific environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, supplemental or additional information to the analysis done in the RMP/FEIS through a new environmental impact statement is not needed. This finding is based on the following information:

Context: Potential effects resulting from the implementation of the proposed action have been analyzed within the context of the Five Rivers, Deadwood Creek, Lower Alsea River and Upper Alsea River 5th-field Watersheds and the project area boundaries. The proposed action would occur on approximately acres of BLM LSR and RR LUA land, encompassing less than 0.7 percent of the BLM managed forest cover within the Upper Alsea River, Lower Alsea River, Deadwood Creek and Five Rivers Watersheds [40 CFR 1508.27(a)].

Intensity:

1. *The Project* is unlikely to a have any significant adverse impacts on the affected elements of the environment (EA sections 3.1 - vegetation, wildlife, soils, water, fisheries/aquatic habitat, and fuels/air quality resources).

The effects of legacy tree release is unlikely to have significant adverse impacts on these resources [40 CFR 1508.27(b) (1)] for the following reasons:

- Vegetation and Forest Stand Characteristics *(EA section 3.1.1):* Any known special status species sites located would be protected as described in the design features. The removal of some of the competing conifer trees around legacy trees may provide additional habitat for species requiring older forest conditions. This would be accomplished by allowing for an increase in sunlight into the lower forest and lower canopy of the legacy trees.

  Noxious Weeds - The implementation of this project would disrupt very little mineral soil and possibly only a small area of less than one foot square where the butt of the severed conifer hits the ground. It is unlikely this small amount of disturbed mineral soil would lead to any sustainable infestation of noxious weeds. The risk rating for the long-term establishment of noxious weeds and consequences of adverse effects on this project area is low because;

  - the amount of disturbance is localized and minimal,
  - the project areas are generally located in the middle of a coniferous stand away from local noxious weed sites,
  - the implementation of the Marys Peak integrated non-native plant management plan allows for early detection of non-native plant species which allows for rapid control,
  - the known noxious weeds species which occur in the project area are regionally abundant throughout the Oregon Coast Range Physiographic Province, and control measures generally consist of biological control,
  - generally these species often persist for several years after becoming established in mineral soil and soon decline as native vegetation increases within the project areas,

- Soils, Hydrology, and Fisheries *(EA sections 3.1.3 to 3.1.5)*:

  The felling, girdling, removal, or topping of trees as scattered individuals or in gaps up to one acre in size would have no visible or detectable effect on soil physical properties such as bulk density. Over time the material left on site would breakdown and add to the organic matter content of the soil and this could slightly alter some soil chemical properties (i.e., increased supplies of soil carbon and organic acids). Small disturbances to the soil surface (compaction/displacement) from foot traffic and repositioning of some material would occur during project operations. These effects would be dispersed across the treatment area and would not result in a loss of soil productivity or function.

  There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. The proposed action is unlikely to affect stream flow in a measurable manner because of the low amount of crown reduction and therefore any indirect effects to stream channels as a result of increases in peak flows is unlikely. Thus, the proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology. As no discernable changes in peak and base flows within the treatment area are anticipated no alternations to fish habitat would be anticipated.

  The proposed SPZ of 55 feet is anticipated to retain critical shade at more than 80 percent in the primary shade zone, primarily based on the limited nature of proposed actions.

  Based on the anticipated protection of stream shade, the hydrology report water quality analysis, and the project design features, the proposed actions are unlikely to impact fish habitat both at the treatment site and downstream.

Based on the dispersed nature of the proposed actions, 20 units spread amongst six drainages and the SPZ protection of most LWD, short term or long term impacts to LWD recruitment would likely be undetectable at the site scale.

- Wildlife (*EA section 3.1.2*): 1/ Existing snags and coarse woody debris (CWD) would be retained. The proposed legacy tree release units would treat about 8.7 percent of the mid-seral forest stands on BLM managed lands within the Five Rivers watershed. All proposed treatments would result in no discernable loss of function or connectivity of the mid-seral forest stands at the landscape scale. The slight reduction of small snag recruitment would only occur in patch cut areas (less than 33 percent of treatment area), and this reduction would largely be offset by the immediate creation of larger (greater than 15 inches) snags and down logs that have greater wildlife value. The special habitat component of CWD would increase in quality and quantity as a result of proposed action. The current rate of density dependent mortality would be unaffected in the portion of the treatment units that are outside of patch cuts (about 67 percent of treatment area).

- Air Quality and Fire Hazard/Risk (*EA section 3.1.6*): The fuel loading would increase 10 to 25 tons per acre of dead fuel in the 0 to 9 inch size class not counting the felled boles that are left for CWD recruitment.

  Risk of a fire start in the untreated slash would be greatest during the first season following cutting, the period when needles dry out but remain attached. The highly flammable needles generally fall off within one year and risk of a fire start greatly diminishes.

  Burning approximately 100 to 250 tons of dry, cured, piled fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality in the air shed.

  With the implementation of the project design features described in EA section 2.2.2, potential effects to the affected elements of the environment are anticipated to be site-specific and/or not measurable (i.e. undetectable over the watershed, downstream, and/or outside of the project areas). The project is designed to meet RMP standard and guidelines, modified by subsequent direction (EA section 1.4); and the effects of this project would not exceed those effects described in the RMP/FEIS [40 CFR 1508.27(b) (1), EA sections 3.0].

2. *The Project would not affect*:
   - ü Public health or safety [40 CFR 1508.27(b)(2)];
   - ü Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA section 3.0);
   - ü Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the proposed action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA section 3.0).

3. The *Project* is not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b)(4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b)(5)].

4. The *Project* does not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration [40 CFR 1508.27(b)(6)]. The BLM has experience implementing similar actions in similar areas without setting a precedent for future actions.

5. The interdisciplinary team evaluated the *Project* in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b)(7)]. Potential cumulative effects are described in the attached EA. These effects are not likely to be significant because of the project's scope (effects are likely to be too small

to be measurable), scale (project area of 578 acres, encompassing less than 0.02 percent of the forest cover within the Upper Alsea River, Lower Alsea River, Deadwood Creek and Five Rivers Watersheds and duration [direct effects would occur over a maximum period of four to six years (EA section 3.1)].

6. The *Project* is not expected to adversely affect endangered or threatened species or habitat under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b)(9)].

U. S. Fish and Wildlife Service (USFWS)

Due to potential affects to habitat for both spotted owls and marbled murrelets as outlined in Table 3, Section 7(a) of the Endangered Species Act requires that this proposed action receive consultation with the U.S. Fish and Wildlife Service. Consultation has been addressed by inclusion of the proposed action a batched Biological Assessment (BA) that analyzed projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards included in the BA. A Letter of Concurrence (LOC, #13420-2008-I-0125) has been received from the Service which concludes that the proposed action is not likely to adversely affect these listed species or their designated critical habitat. The LOC did not require any changes or additions to be incorporated into the proposed project design standards.

National Marine Fisheries Service

On February 11, 2008, the NMFS listed the Oregon Coast Coho salmon Evolutionarily Significant Unit as threatened under the Endangered Species Act (ESA). The project is not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b) (9)].

Consultation with NMFS is required for all actions which may affect listed fish species and critical habitat under the ESA [40 CFR 1508.27 (b)(9)].

Proposed actions which may affect will comply with existing programmatic consultation and relevant design criteria, and no additional consultation will be necessary. The proposed action is covered under NMFS *Endangered Species Act Section 7 Programmatic Consultation Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012*.

Protection of Essential Fish Habitat (EFH), as described by the Magnuson/Stevens Fisheries Conservation and Management Act, and consultation with NMFS is required for all projects which may adversely affect EFH of Chinook or coho salmon in the action area. The proposed action, with the incorporation of project design features, is not expected to adversely affect EFH. Thus, no consultation with NMFS on EFH is required for this project. Actions and effects beyond the scope of the analysis provided will require additional review and potentially result in the need to consult with NMFS

7. *The Project* does not violate any known federal, state, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b)(10)].

Approved by: _____ _____

John Huston, Acting Field Manager Date

Marys Peak Resource Area

Glossary: Abbreviations, Acronyms, and Terms

Airshed	A geographic area that shares the same air mass due to topography, meteorology, and climate.
Alternative	Proposed project (plan, option, choice)
Anadromous Fish	Species that migrate to oceans and return to freshwater to reproduce.
BLM	Bureau of Land Management. Federal agency within the Department of Interior responsible for the management of 275 million acres.
BMP	Best Management Practice(s). Design features and mitigation measures to minimize environmental effects.
BO	Biological Opinion. The document resulting from formal consultation that states the opinion of the Fish and Wildlife Service or National Marine Fisheries Service as to whether or not a federal action is likely to jeopardize the continued existence of listed species or results in destruction or adverse modification of critical habitat.
Critical Habitat Units	Lands designated for the conservation and protection of threatened and/or endangered species
Crown	The portion of a tree with live limbs.
Cumulative Effects	Past, present, and reasonably foreseeable effects added together (regardless of who or what has caused, is causing, and might cause those effects)
CWD	Coarse Woody Debris refers to a tree (or portion of a tree) that has fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter as described in Northwest Forest Plan.
DBHOB	Diameter at breast height outside bark
EA	Environmental Assessment. A systematic analysis of site-specific activities used to determine whether such activities have a significant effect on the quality of the human environment.
EFH	Essential Fish Habitat. Anywhere Chinook or coho salmon could naturally occur.
Ephemeral Streams	Streams that contain running water only sporadically, such as during and following storm events.
ESA	Endangered Species Act. Federal legislation that ensures federal actions would not jeopardize or elevate the status of living plants and animals.
FEIS	Final Environmental Impact Statement
FSEIS	Final Supplemental Environmental Impact Statement
FWS	U. S. Fish and Wildlife Service. A division within the U.S. Department of the Interior
Fish-Bearing Stream	Any stream containing any species of fish for any period of time.
FONSI	Finding of No Significant Impact
Fuel Loading	The amount of combustible material present per unit of area, usually expressed in tons per acre (dry weight of burnable fuel)
Girdle	Removal of the inner bark from the entire circumference of a tree. This typically results in the death of the tree within 3 to 5 years.
Interdisciplinary Team	IDT. A group of individuals assembled to solve a problem or perform a task.

Intermittent Stream	Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. Includes ephemeral streams if they meet these two criteria.
Invasive Plant	Any plant species that is aggressive and difficult to manage.
Late-Successional	Forest conditions consisting of larger trees and multiple canopy layers that support numerous plant and animal species.
Legacy	A component of a previous forest stand (tree, snag, shrub patch, etc) that persists into a new forest stand that follows a disturbance event (e.g., fire or harvest)
LSR	Late-Successional Reserve (a NWFP designated land use allocation) Lands to be managed or maintained for older forest characteristics.
LUA	Land Use Allocation. NWFP designated lands to be managed for specific objectives
LWD	Large Woody Debris. Woody material found within the bankfull width of the stream channel and is specifically of a size 23.6 inches diameter by 33 feet length (per ODFW - Key Pieces)
Native Plant	Species that historically occurred or currently occur in a particular ecosystem and were not introduced
NEPA	National Environmental Policy Act (1969)
NMFS	National Marine Fisheries Service. Federal agency within which is responsible for the regulation of anadromous fisheries in the U. S.
Non-Native Plant	Any plant species that historically does not occur in a particular ecosystem
Noxious Weed	A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or diseases; or non-native, new, or not common to the United States.
NWFP/FSEIS	Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl, February 1994
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife. Oregon State Agency responsible for the management and protection of fish and wildlife.
Oregon Smoke Management Plan	The State of Oregon's plan for implementing the National Clean Air Act in regards to burning of forest fuels.
Perennial Stream	A stream that typically has running water on a year-round basis.
RMP	Salem District Record of Decision and Resource Management Plan (1995)
RMP/FEIS	Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994).
ROD	Record of Decision. Document that approves decisions to the analyses presented in the FEIS.
RR	Riparian Reserves (NWFP land use allocation). Lands on either side of streams or other water feature designated to maintain or restore aquatic habitat.
Seral	One stage of a series of plant communities that succeed one another.
Silviculture	The manipulation of forest stands to achieve desired structure.
Snag	A dead, partially dead, or defective tree at least 10 inches DBHOB and 6 feet tall.

SPZ	Stream Protection Zone is a buffer along streams and identified wet areas where no material would be removed and heavy machinery would not be allowed. The SPZ is measured to the slope break, change in vegetation, or 55 feet from the channel edge which ever is greater.
Standards and Guidelines	The primary instructions for land manager. Standards address mandatory actions, while guidelines are recommended actions necessary to a land management decision.
Succession	The stages a forest stand makes over time as vegetation competes and natural disturbances occur. The different stages in succession are often referred to as seral stages.
Topped	Completely severing the upper portion of a standing live tree. The typical purpose for this action is to enhance wildlife habitat by creating snags from standing live trees.
Turbidity	Multiple environmental sources that causes water to change conditions.
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
VRM	Visual Resource Management, all lands are classified from 1 to 4 based on visual quality ratings and the amount of modification allowed in the landscape.
Watershed	The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.
Noxious Weed	A plant considered undesirable and that interferes with management objectives for a given area at a given point in time.
Windthrow	Trees uprooted or blown over by natural events.

MARYS PEAK RESOURCE AREA FISCAL YEARS 2010 to 2011 LEGACY TREE RELEASE ENVIRONMENTAL ASSESSMENT

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1.0 INTRODUCTION

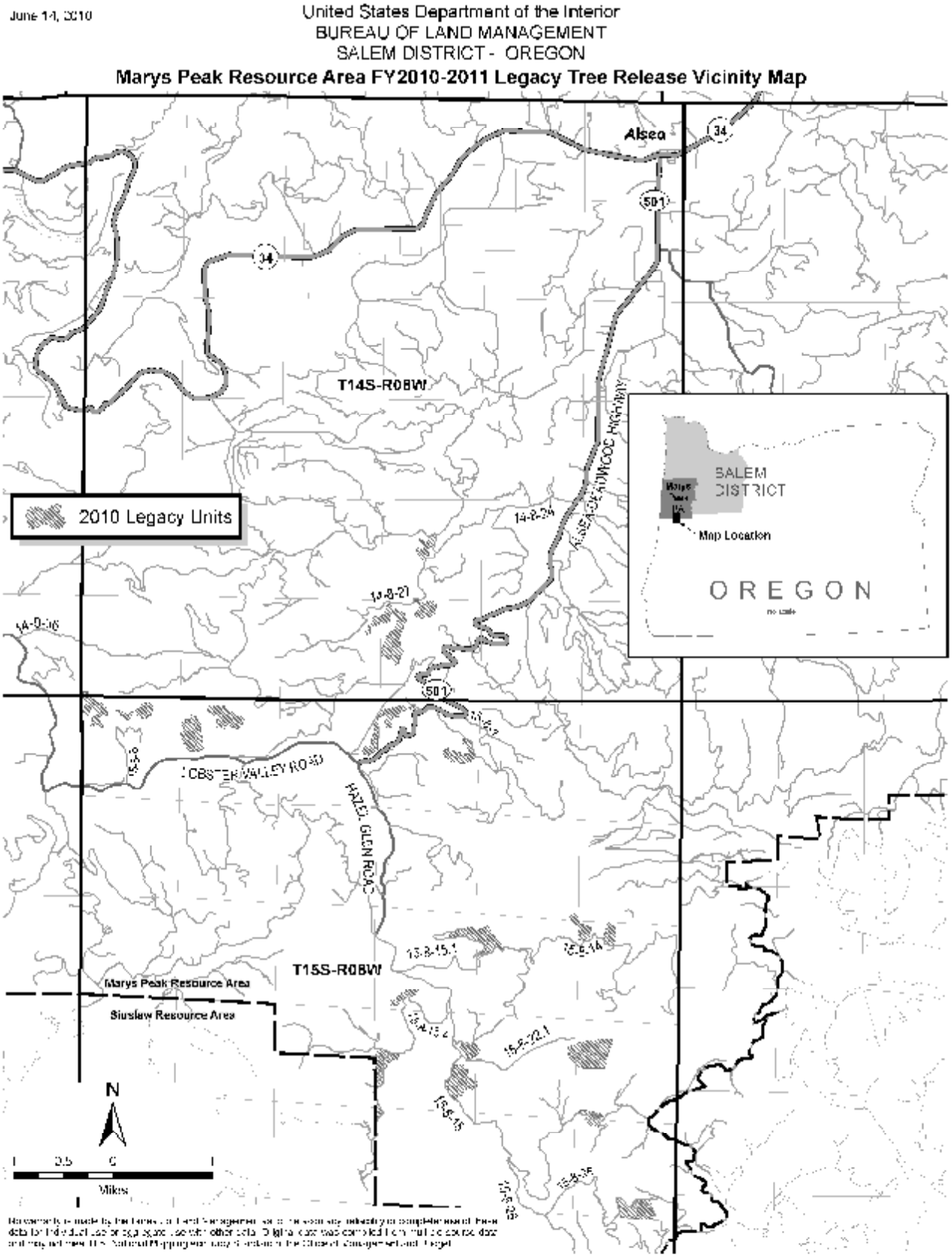
1.1 Project Covered in this EA

One project will be analyzed in this EA (Environmental Assessment): Legacy tree release is a proposal to release older forest legacy trees through the felling, girdling and topping of individual trees or creation of gaps (¼ acre to one acre in size). The felled, girdled or topped trees would function as snags and CWD adjacent to older forest legacy trees (mature open-grown trees or old-growth remnant trees). None of the felled trees would be harvested for commercial timber purposes. A small portion of the felled trees may be removed and placed into streams to improve fish habitat. Approximately 289 acres in forest stands aged 40 to 90 years old per year would be treated during a two year time period (total of 578 acres in 2010 to 2011).

1.2 Project Area Locations

The project units are located in Benton and Lane Counties on forested land managed by the Marys Peak Resource Area, Salem District of the Bureau of Land Management (Map 1).

Map 1. Project Vicinity



1.3 Purpose of and Need for Action

The purpose for the proposed action is to release declining older forest legacy trees (see Figure 1) that are undergoing encroachment from densely-stocked younger conifer stands and to enhance terrestrial wildlife habitats by creation of snags and CWD within such forest stands where this structural component is lacking.

A mounting body of research has demonstrated the importance of maintaining and enhancing forest legacy features, CWD, and in-stream wood structures. The Northwest Forest Plan, *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP), Late Successional Reserve Assessment Oregon Coast Province-Southern Portion and local watershed analyses have all identified these types of treatments as a key component of restoration efforts within the LSR and RR LUAs.

Late Successional Reserve LUA (RMP p. 35-36): Manage forest stands and wildlife habitat in the LSR LUA to:

- Maintain habitat suitable for the northern spotted owl and the marbled murrelet.
- Promote development of habitat suitable for nesting, roosting, and foraging for the northern spotted owl in stands that do not currently meet suitable habitat criteria.
- Promote development of nesting habitat for the marbled murrelet in stands that do not currently meet nesting habitat criteria.

Manage mid-seral stands in RR LUA (RMP pp. 9-15) to:

- Maintain and restore access to stream channels for all life stages of fish species;
- Provide for conservation of special status (SS) fish and other SS aquatic species;
  - Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and streambank stability;
  - Enhance or restore habitat [(e.g. coarse woody debris (CWD), snag habitat, instream large wood)] for populations of native riparian-dependent plants, invertebrates, and vertebrate species;
  - Improve structural and spatial stand diversity on a site-specific and landscape level in the long-term.

<u>Need for Action</u>

The proposed action would address the immediate need for treatment of declining older forest legacy trees in forest stands where the ascending canopy of densely-stocked younger conifers threatens to shade out and kill these older forest legacy trees (see Figure 1). There is a need to cut, girdle or top individual trees or trees in clumps (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees. Patch treatments also help enhance the structural and spatial diversity within selected units, which would promote understory development, shrub layer diversity, and release minor conifers and hardwood species. Saving declining old forest legacy trees, creating high quality CWD, and creating patches with spatial and structural diversity is expected to benefit numerous wildlife species that are associated with late-successional forest structure. In particular, the federally threatened marbled murrelet is known to nest on large mossy limbs of live old-growth trees. This project would benefit the marbled murrelet by helping maintain and recover habitat quality within CHUs (Critical Habitat Units) that have been designated for this species.

1.4 Conformance with Land Use Plans, Policies, and Programs

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project has been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District:

- *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP): The RMP has been reviewed and it has been determined that the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project conform to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1);
- *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, April 1994 (the Northwest Forest Plan, or NWFP);
- *Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M ROD, January 2001).

The analysis in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The RMP/FEIS includes the analysis from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, February 1994 (NWFP/FSEIS). In addition, the EA is tiered to the *Final Supplemental Environmental Impact Statement For Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M FSEIS, November 2000).

The proposed action is located within the coastal zone as defined by the Oregon Coastal Management Program. This proposal is consistent with the objectives of the program, and the State planning goals which form the foundation for compliance with the requirements of the Coastal Zone Act. Management actions/directions found in the RMP were determined to be consistent with the Oregon Coastal Management Program.

The following documents provided additional direction in the development of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project:

- *Late Successional Reserve Assessment, Oregon Coast Province - Southern Portion* (June 1997);
- *Lower Alsea Watershed Analysis* dated October 1995
- *Five Rivers-Lobster Creek Watershed Analysis*, dated January 1997;
- *South Fork Alsea Watershed Analysis* dated October 1995

All of the above documents, along with the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release interdisciplinary team (IDT) reports (EA section 8.1.1), are hereby incorporated by reference in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA and available for review in the Salem District Office. Additional information about the proposed project is available in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA Analysis File (NEPA file), also available at the Salem District Office.

1.4.1 Survey and Manage Review

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project is consistent with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, as incorporated into the Salem District Resource Management Plan.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Rey, et al.*, No. 08-1067 (W.D. Wash.) (Coughenour, J.), granting Plaintiffs' motion for partial summary judgment and finding a variety of NEPA violations in the BLM and USFS 2007 Record of Decision eliminating the Survey and Manage mitigation measure.

Judge Coughenour deferred issuing a remedy in his December 17, 2009 order until further proceedings, and did not enjoin the BLM from proceeding with projects (including timber sales).

This project may proceed even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage Record of Decision. This is because the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project meets the provisions of the last valid Record of Decision, specifically the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (not including subsequent Annual Species Reviews). Details of the project surveys are described below:

There are no known sites of any Survey and Manage species within the project area. On-site plant and animal habitat evaluations (including some Survey and Manage botany protocol surveys) would occur prior to project implementation to ensure that any Survey and Manage species sites are buffered or excluded from treatment units.

1.4.2 Northern Spotted Owl (NSO) Status Review

"The following information was considered in the analysis of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release proposed activities: a/ *Scientific Evaluation of the Status of the Northern Spotted Owl* (Sustainable Ecosystems Institute, Courtney et al. 2004); b/*Status and Trends in Demography of Northern Spotted Owls,* 1985-2003 (Anthony et al. 2004); c/ *Northern Spotted Owl Five Year Review: Summary and Evaluation* (USFWS, November 2004); and *Northwest Forest Plan – The First Ten Years* (1994-2003): d/ *Status and trend of northern spotted owl populations and habitat, PNW Station Edit Draft* (Lint, Technical Coordinator, 2005).

The Salem District analyzed reports regarding the status of the northern spotted owl and although the agencies anticipated a decline of NSO populations under land and resource management plans during the past decade, the reports identified greater than expected NSO population declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California."

The reports did not find a direct correlation between habitat conditions and changes in NSO populations, and they were inconclusive as to the cause of the declines. Lag effects from prior harvest of suitable habitat, competition with barred owls, and habitat loss due to wildfire were identified as current threats. West Nile Virus and Sudden Oak Death were identified as potential new threats. Complex interactions are likely among the various factors. This information has not been found to be in conflict with the NWFP or the RMP (Evaluation of the Salem District Resource Management Plan Relative to Four Northern Spotted Owl Reports, September 6, 2005).

1.4.3 Compliance with the Aquatic Conservation Strategy

On March 30, 2007, the District Court, Western District of Washington, ruled adverse to the US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA-Fisheries) and USFS and BLM (Agencies) in *Pacific Coast Fed. of Fishermen's Assn. et al v. Natl. Marine Fisheries Service, et al and American Forest Resource Council,* Civ. No. 04-1299RSM (W.D. Wash)((PCFFA IV). Based on violations of the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA), the Court set aside:

- the USFWS Biological Opinion (March 18, 2004),
- the NOAA-Fisheries Biological Opinion for the ACS Amendment (March 19, 2004),
- the ACS Amendment Final Supplemental Environmental Impact Statement (FSEIS) (October 2003), and the
- ACS Amendment adopted by the Record of Decision dated March 22, 2004.

Previously, in *Pacific Coast Fed. Of Fishermen's Assn. v. Natl. Marine Fisheries Service*, 265 F.3d 1028 (9th Cir. 2001)*(PCFFA II)*, the United States Court of Appeals for the Ninth Circuit ruled that because the evaluation of a project's consistency with the long-term, watershed level ACS objectives could overlook short-term, site-scale effects that could have serious consequences to a listed species, these short-term, site-scale effects must be considered.

Environmental Assessment Section 5.0 shows how the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project meets the Aquatic Conservation Strategy in the context of the PCFFA cases. In addition, project design features (p. 11) would provide protection measures to meet ACS objectives.

1.5 Decision Criteria/Project Objectives for the Project

The MPRA Field Manager will use the following criteria/objectives in selecting the alternative to be implemented. The field manager would select the alternative that would best meet these criteria. The selected action would:

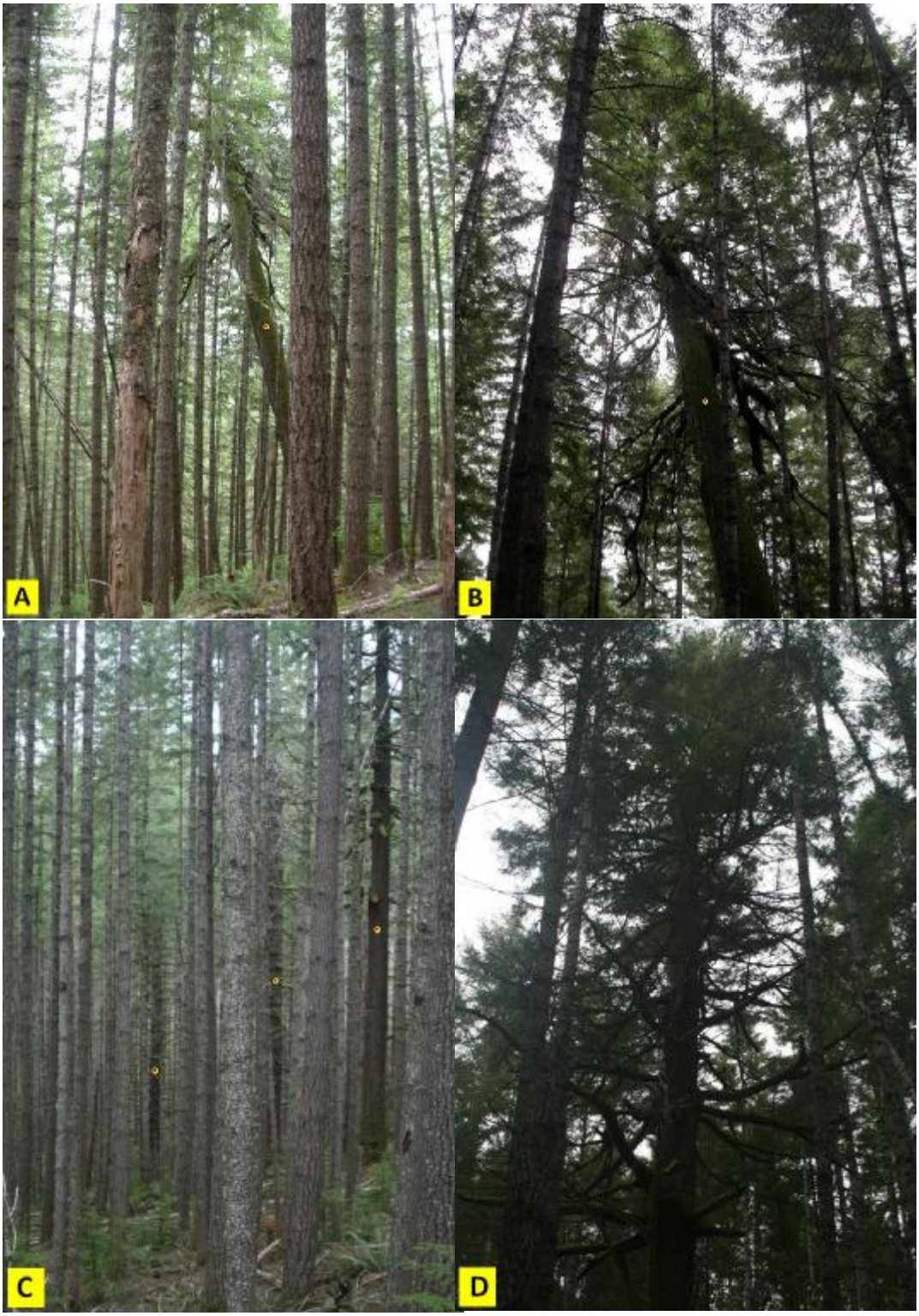
- Meet the purpose and need of the project (EA section 1.3).
- Comply with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA section 1.4).
- Would not have significant impact on the affected elements of the environment beyond those already anticipated and addressed in the RMP EIS.

1.6 Results of Scoping

A scoping letter, dated February 2, 2010, was sent to 24 potentially affected or interested individuals, groups, and agencies (pg. 45). Two responses were received during the scoping period. Comments received were evaluated and considered during the development of this EA and its alternatives.

A description of the project was included in the March and June 2010 project updates to solicit comments on the proposed project.

Figure 1. Examples of declining older forest legacy trees that would benefit from release from encroaching younger conifer forest stand. (A) Declining old forest legacy tree. (B) Older forest legacy tree showing dead lower limbs and deformed top. (C) Three older forest legacy trees within dense young conifer stand. (D). Older forest legacy tree showing dead lower limbs and canopy encroachment.



The project would be implemented through a service contract or staff and volunteer work which would be completed within a two year time period that would commence in October 2010.

2.0 ALTERNATIVE DEVELOPMENT

Pursuant to Section 102 (2) (E) of the National Environmental Policy Act (NEPA) of 1969, as amended, federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." No unresolved conflicts were identified. Therefore, this EA will analyze the effects of the proposed action and no action alternatives.

2.1 Alternative 1 (No Action)

This alternative serves to set the environmental baseline for comparing effects to the proposed action. Consideration of this alternative also answers the question: "What would it mean for the objectives to not be achieved?" The "No Action Alternative" means that no legacy tree release/CWD enhancement actions would occur. If this alternative were to be selected, the following items would not be done in the project area at this time:

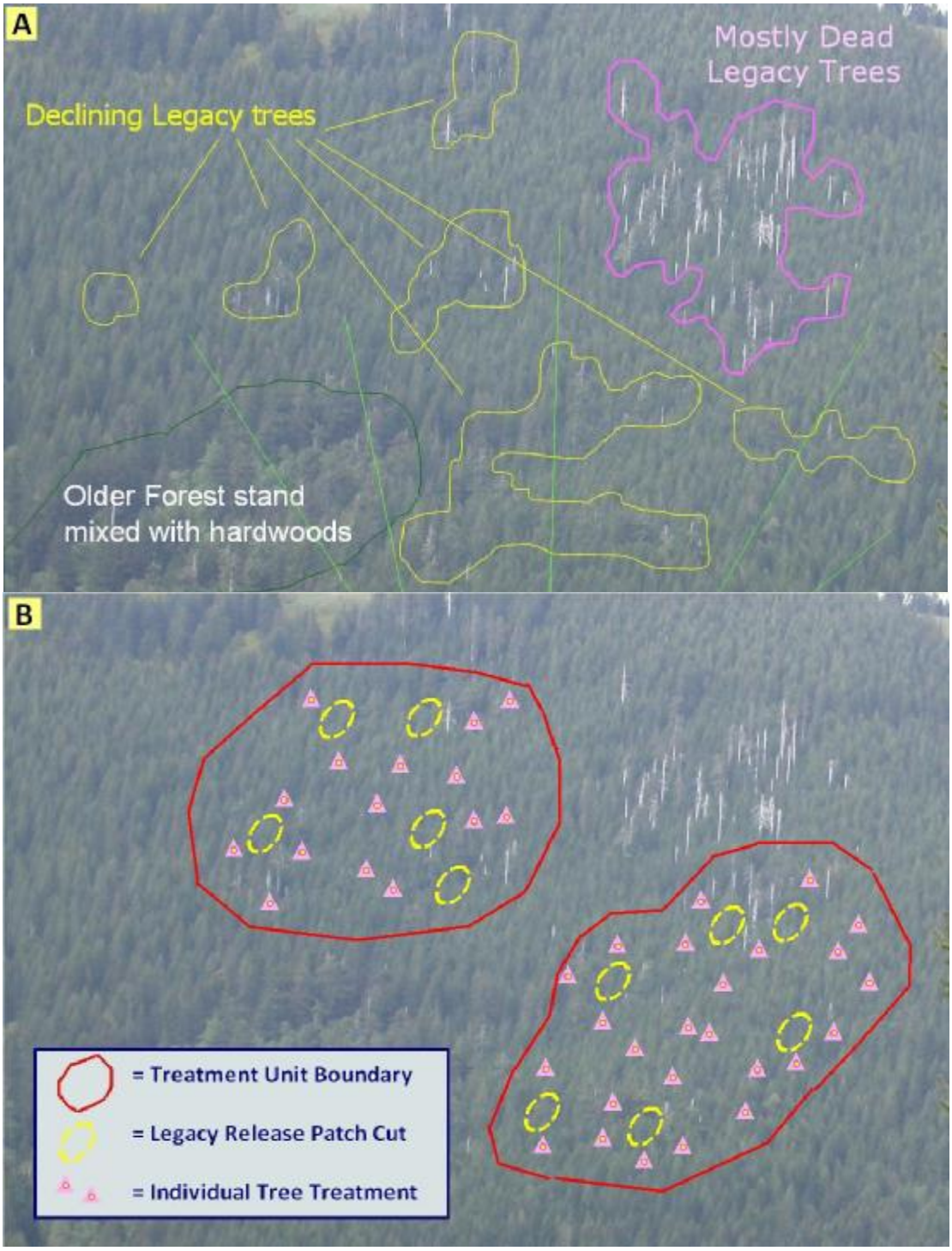
- Cut, girdle or top-cut individual trees or clumps of trees (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees.
- Creating high quality down logs and snags (collectively CWD).

Only normal administrative activities and other uses (e.g. road use, programmed road maintenance, harvest of special forest products on public land) would continue on BLM managed lands within the project area. On private lands adjacent to the proposed units, forest management and related activities would continue to occur. Selection of the No Action Alternative would not constitute a decision to change the land use allocations of these lands nor would not set a precedent for consideration of future action proposals.

2.2 Alternative 2 (Proposed Action)

Older forest legacy trees (mature open-grown trees or old-growth remnant trees) that occur in densely-stocked conifer stands (40 to 90 years old) would be released through the felling, girdling and topping of individual trees or creation of gaps (¼ acre to one acre in size). Treatments in selected forest stands would release the older forest legacy trees so that this complex crown structure would be released from adjacent tree competition for light and water. The majority of trees targeted to be felled, topped or girdled would be 7 to 20 inches DBHOB (diameter breast height outside bark) Douglas-fir trees and none would be greater than 30 inches DBHOB. The felled, girdled or topped trees would function as snags and CWD adjacent to older forest legacy trees. Some trees may be felled within the SPZ (stream protection zone) which consists of a buffer along streams and identified wet areas (minimum distance of 55 feet from streams). Figure 2 illustrates a potential treatment unit design, and Figure 3 provides an example of a patch cut treatment to release legacy trees. See Map 2 for approximate size and location of proposed treatment units.

Figure 2. Forest Landscape with declining legacy trees and potential treatment units. (A) Declining legacy trees within forest landscape. (B) Example of potential treatment unit to release declining legacy trees and enhance coarse woody debris structure.



Project Design Features by RMP Objectives

To protect and enhance stand diversity and wildlife habitat components:

- Treatment areas within defined boundaries have been identified that include one or more older forest legacy trees or dominant canopy trees selected for release (see EA Maps).
- Some trees selected for CWD treatment would be scattered singles or in small clusters (5 or less per clump). These trees may be felled, basal girdled, top-cut at 60 feet (creating dead snag), or crown girdled above 5 or more live branch whorls (creating dead top in live tree).
- Most trees selected for CWD treatment would be felled or basal girdled within patches (¼ acre to one acre in size) that surround or lie adjacent to older forest legacy trees. No more than one acre of patches would occur per three acres of treatment area (less than 33 percent in patches), and canopy closure greater than 60 percent would be maintained over the entire treatment unit.
- Up to 5 large trees per acre (greater than16 inches DBHOB) and up to 20 small trees per acre (less than 16 inches DBHOB) would be selected for CWD treatment within the patches.
- Patch cuts may also release minor hardwood species or re-open natural canopy gaps that are closing in with young conifers.
- No older forest legacy trees or large conifer trees exhibiting complex upper canopy structure would be cut.

To Protect Bureau Special Status Species:

- No suitable northern spotted owl or marbled murrelet nest trees would be cut or damaged to unsuitable conditions;
- No trees greater than 30 inches DBHOB would be felled, and no trees having existing stick nests would be selected for cutting;
- The resource area biologist or botanist would be notified if any T&E or SS animal or plant species are found occupying habitats proposed for treatment during project activities. If the species is a federal listed ESA species then all habitats necessary for the conservation of the species would be withdrawn from the activity and a new analysis of impacts would be completed. If the species is other than a federal listed ESA species, then appropriate mitigation action would be taken after additional analysis.
- Management of Survey and Manage Species found as a result of inventories would be accomplished in accordance with the *Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M ROD, January 2001).
- Project implementation would be conducted in conformance with the applicable biological opinion or letter of concurrence concerning federally listed wildlife species. Pertinent terms and conditions from these consultation documents would include:
    - ü No noise generating activities (use of chainsaws) would occur within 300 feet of unsurveyed suitable marbled murrelet habitat during the critical breeding period (April-1 to August-5);
    - ü Noise generating activities occurring within 300 feet of unsurveyed suitable marbled murrelet habitat during the period of August-6 to September-15 must not begin until 2 hours after sunrise, and must end 2 hours before sunset.
    - ü Proposed treatments would be restricted from occurring within 0.25 miles of an active spotted owl site from March-1 to July-7. This restriction can be lifted if resident owls are found to be non-nesting during this time.

To meet the objectives of the Aquatic Conservation Strategy (ACS) Component #1 (Riparian Reserves):

- Stream protection zones (SPZs) would be established along all streams and identified wet areas within the proposed treatment units. These zones would be a minimum of approximately 55 feet from the high water mark.
- Scattered individual trees or small clusters of trees (less than 5) may be cut for CWD within the SPZ, but no patch cuts would be located in the SPZ.
- Treated trees within the SPZ or within one tree height of SPZs would be felled toward streams.
- Up to 20 percent of felled trees in any unit may be removed and placed in streams to enhance aquatic habitat for fish.

To reduce fire hazard risk and protect air quality:

- Light accumulations of debris and along roads that would remain in drivable condition following the completion of the project would be scattered along the length of rights-of-way.
- Large accumulations of debris within 30 feet of the edge of existing roads would be machine or hand piled.
- Slash created by felled trees that is more than 30 feet from roads would generally be left in place, on site, untreated. If determined to pose an un-acceptable risk by the contract administrator, slash beyond 30 feet from roads may be treated in the patch cut areas where heavy concentrations exist. For example, if multiple trees are felled in close proximity, slash accumulations may be lopped and scattered, chipped and/or piled and burned to reduce the concentration of fuel.
- All piles would be located at least ten feet away from reserve trees and snags. Larger piles would be preferable over small piles. Windrows would be avoided unless approved by the contract administrator.
- The areas would be monitored for the need of closing or restricting access during periods of high fire danger. During the closed fire season the first year following harvest activities, while fuels are in the "red needle" stage, the areas may be posted and closed to all off road motor vehicle use.
- During the late summer before the onset of fall rains, all machine and hand piles to be burned would be covered at least 80 percent with 4 mil black polyethylene plastic.
- All burning would occur under favorable smoke dispersal conditions in the fall, in compliance with the Oregon State Smoke Management Plan (RMP pp. 22, 65).

To Protect Cultural Resources:

The project area occurs in the Coast Range. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope defined in the Protocol appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery.

2.3 Comparison of Alternatives With Regard To Purpose And Need

Table 1: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA Section 1.2)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)
Release declining older forest legacy trees that are undergoing encroachment from densely-stocked younger conifer stands and to enhance terrestrial wildlife habitats by creation of snags and CWD within such forest stands where this structural component is lacking (LSR Assessment p 42.).	No legacy trees would be released from encroachment of understory stand. Continued encroachment of young conifers expected to reduce live crown volume of most legacy trees and result in death of some legacy trees within the next decade. Conversion of some live legacy trees to high quality dead snags, and loss of minor hardwood species that get shaded out.	Release from encroachment of understory stand expected to increase live crown volume of legacy trees and enhance survival of legacy trees for 2 or more decades. Creation of larger sized snags and down logs, creation of larger sized crown-girdled trees, enhanced understory development, and retention of minor hardwood species
Maintain habitat suitable for the northern spotted owl and the marbled murrelet. (RMP pp.35 & 36). Promote development of habitat suitable for nesting, roosting, and foraging for the northern spotted owl in stands that do not currently meet suitable habitat criteria. (RMP pp.35 & 36). Promote development of nesting habitat for the marbled murrelet in stands that do not currently meet nesting habitat criteria. (RMP pp.35 & 36).	Expected decline and loss of legacy trees would result in habitat conditions for spotted owls and marbled murrelets slowly declining within proposed units for two or more decades before slowly recovering. Would not promote development of suitable habitat conditions within stands that are currently unsuitable.	Would help maintain nesting and roosting structure for spotted owls. Would promote development of foraging habitat conditions for spotted owls and promote development of nesting structure for marbled murrelets

Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and streambank stability; (RMP pp 5& 6). Enhance or restore habitat [(e.g. coarse woody debris (CWD), snag habitat, instream large wood) for populations of native riparian-dependent plants, invertebrates, and vertebrate species; (RMP p.7). Improve structural and spatial stand diversity on a site-specific and landscape level in the long-term. (LSR Assessment p 42).	Streamside shade, sediment filtering, leaf litter, and streambank stability would not be altered. Little or no large wood is likely to be contributed during the two decades, but would slowly improve after two or more decades. Un-impeded stand development processes would result in new coarse woody debris mostly in smaller size classes (suppression mortality), with a few very large snags resulting from death of some legacy trees. Structural and spatial diversity would remain unchanged, but slowly improve after two or more decades.	Sediment filtering, leaf litter, and streambank stability would not be altered. Streamside shade may incur minor disturbance from individual trees that are girdled, topped, or felled with the SPZ. Immediate input of a small amount of large wood is likely in SPZs with a few trees reaching the stream channel. Provides an immediate input of small to large trees as snags and down logs. An average of 10 trees per acre would be treated in proposed units, providing between 400 and 800 cubic feet per acre of new CWD. Suppression mortality is expected to continue as most of the treatment unit area that lies outside of patches. Release of legacy and dominant canopy trees within patches would immediately improve the spatial and structural diversity of treated stands.
There is a need to cut, girdle or top individual trees or trees in clumps (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees(LSR Assessment p 42).Saving the declining old forest legacy trees and creating high quality CWD is expected to benefit numerous wildlife species that are associated with late-successional forest structure. LSR Assessment p 42.).	Legacy trees would not be relieved from encroachment by young dense conifer stand. Some legacy trees would suffer further decline, with a few legacy trees dying within a decade. Any legacy trees that die due to encroachment would function at high quality snags for numerous wildlife species. Snags and down logs resulting from suppression mortality are smaller in size and provide for the needs of relatively few wildlife species.	All declining legacy trees would be relieved from encroachment. Legacy trees would stabilize or reverse their decline by building back more live green grown. No legacy trees are expected to be lost in next decade. The threat of canopy encroachment would be set back for two or more decades. Legacy trees usually provide for a greater variety of wildlife species than large dead snags. Newly created snags and down logs would supplement suppression mortality to provide for relatively more wildlife species than would benefit from suppression mortality alone.

Figure 3. Wide-angle photo set of Legacy Tree Release Patch Cut from 2008. This 0.25 acre (60 foot radius) patch cut shows two large legacy trees that were released by felling 20 small diameter Douglas-fir (down logs) and basal-girdling 10 Douglas-fir (snags are still green). About 20 live trees within 60 feet of the central legacy tree were left untreated.

United States Department of the Interior
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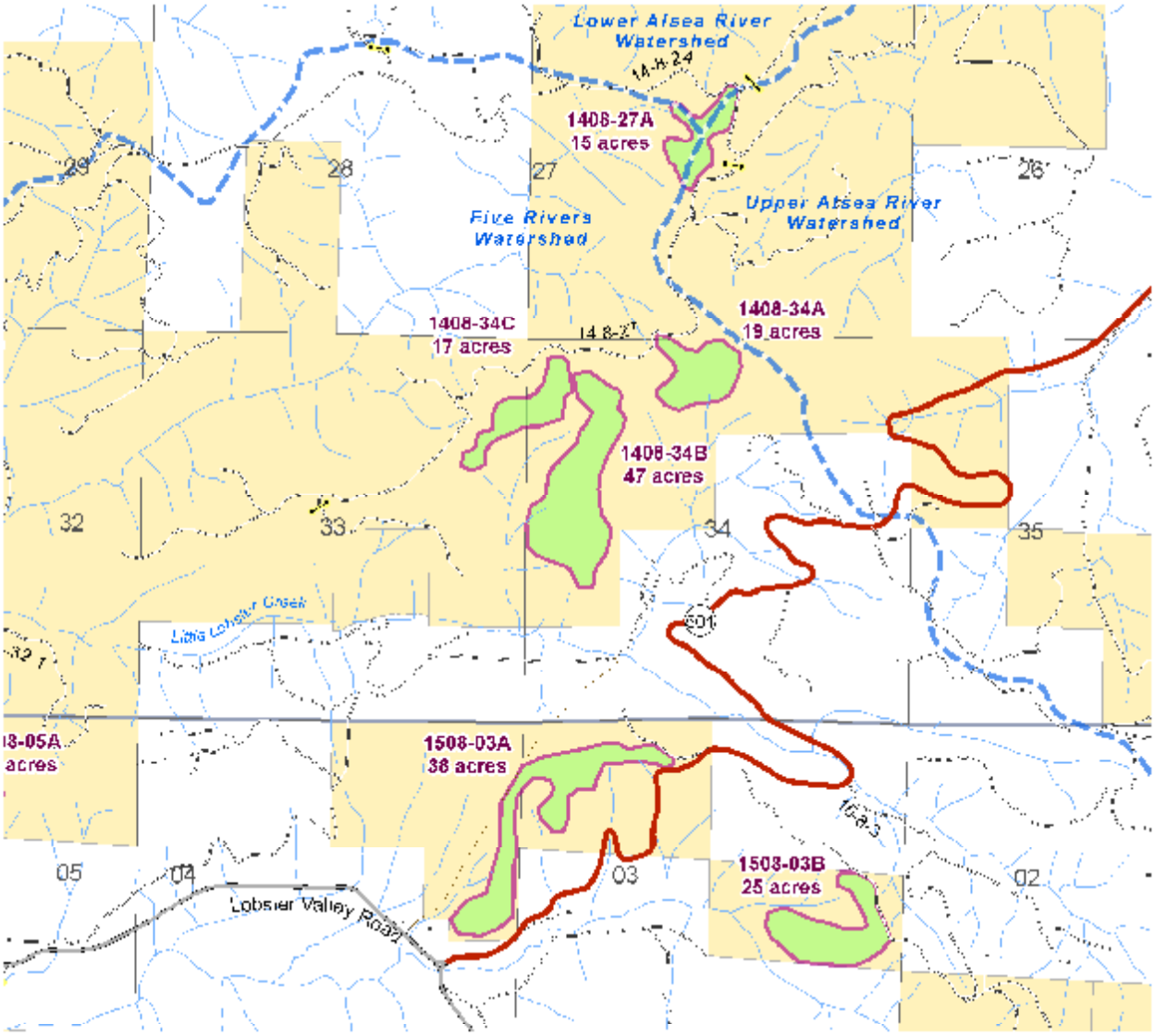
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T14S-R08W and T15S-R08W



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June 2010

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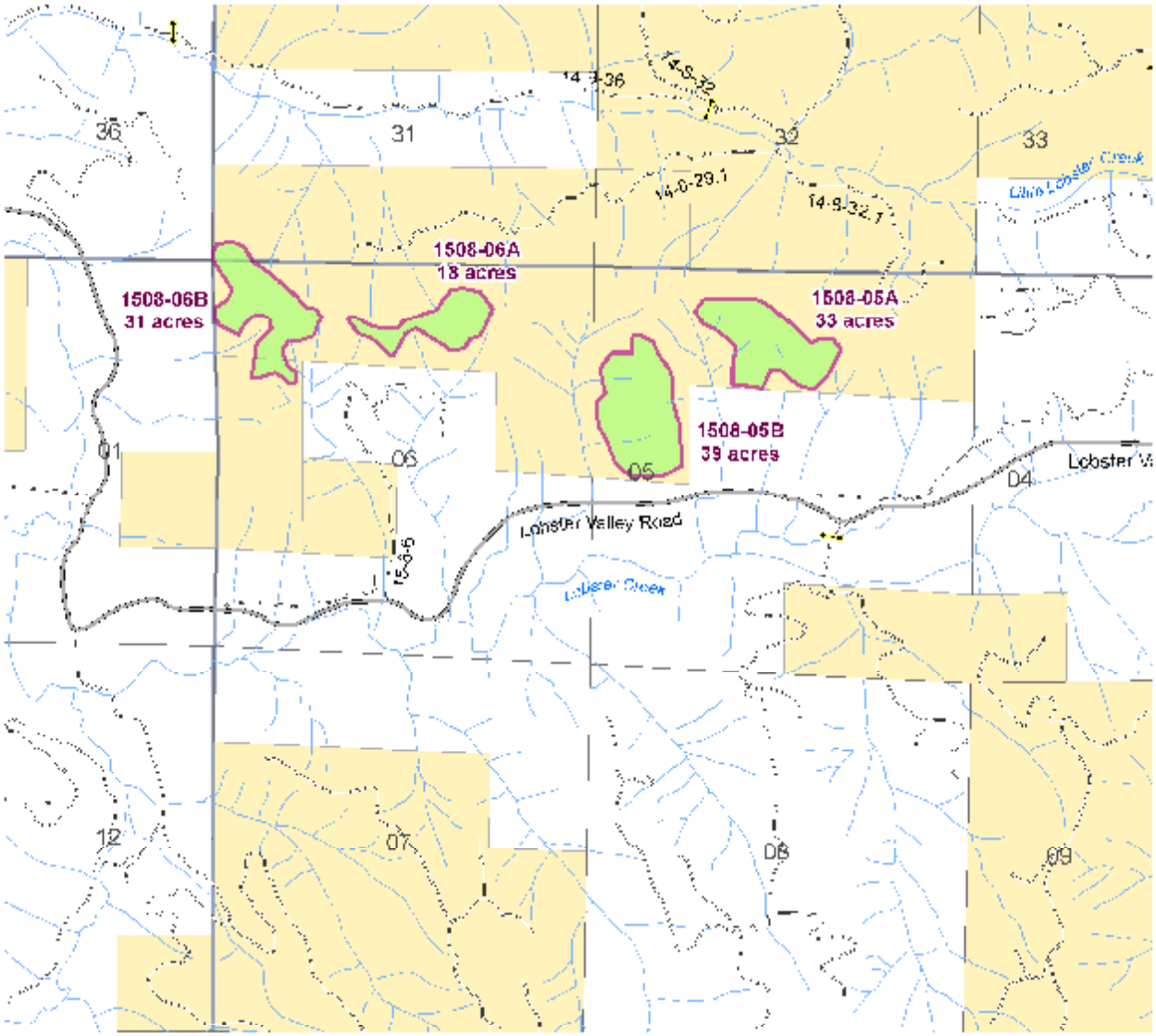
BUREAU OF LAND MANAGEMENT
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W



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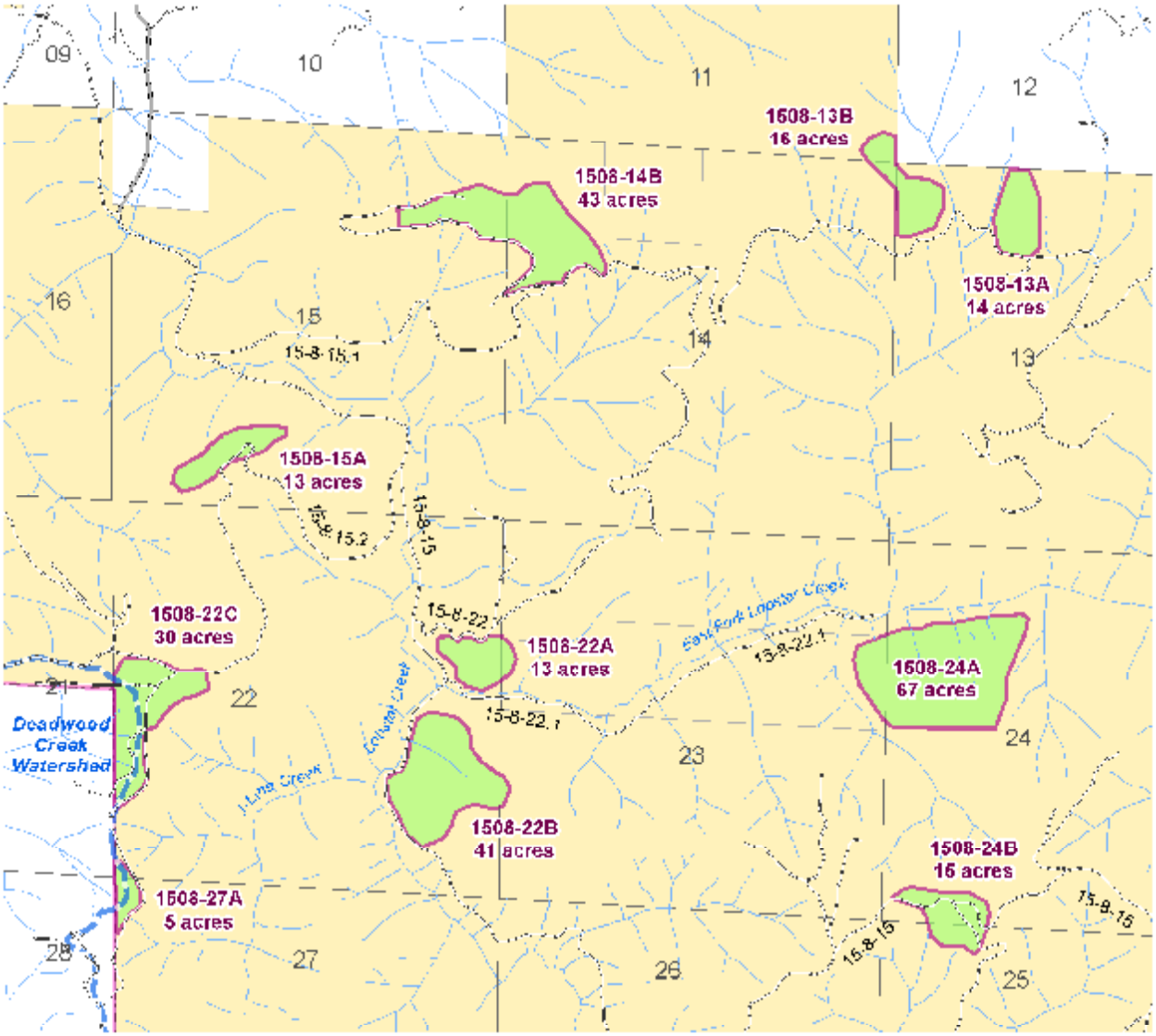
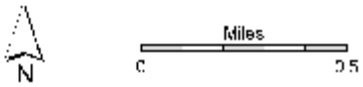
June 2010

- Legacy Project Unit
- BLM Land
- Section
- Township
- Closed Gate
- Highway
- Major Access Road
- Other Road
- Utility Line
- Stream
- 5th Field Watershed Boundary

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W





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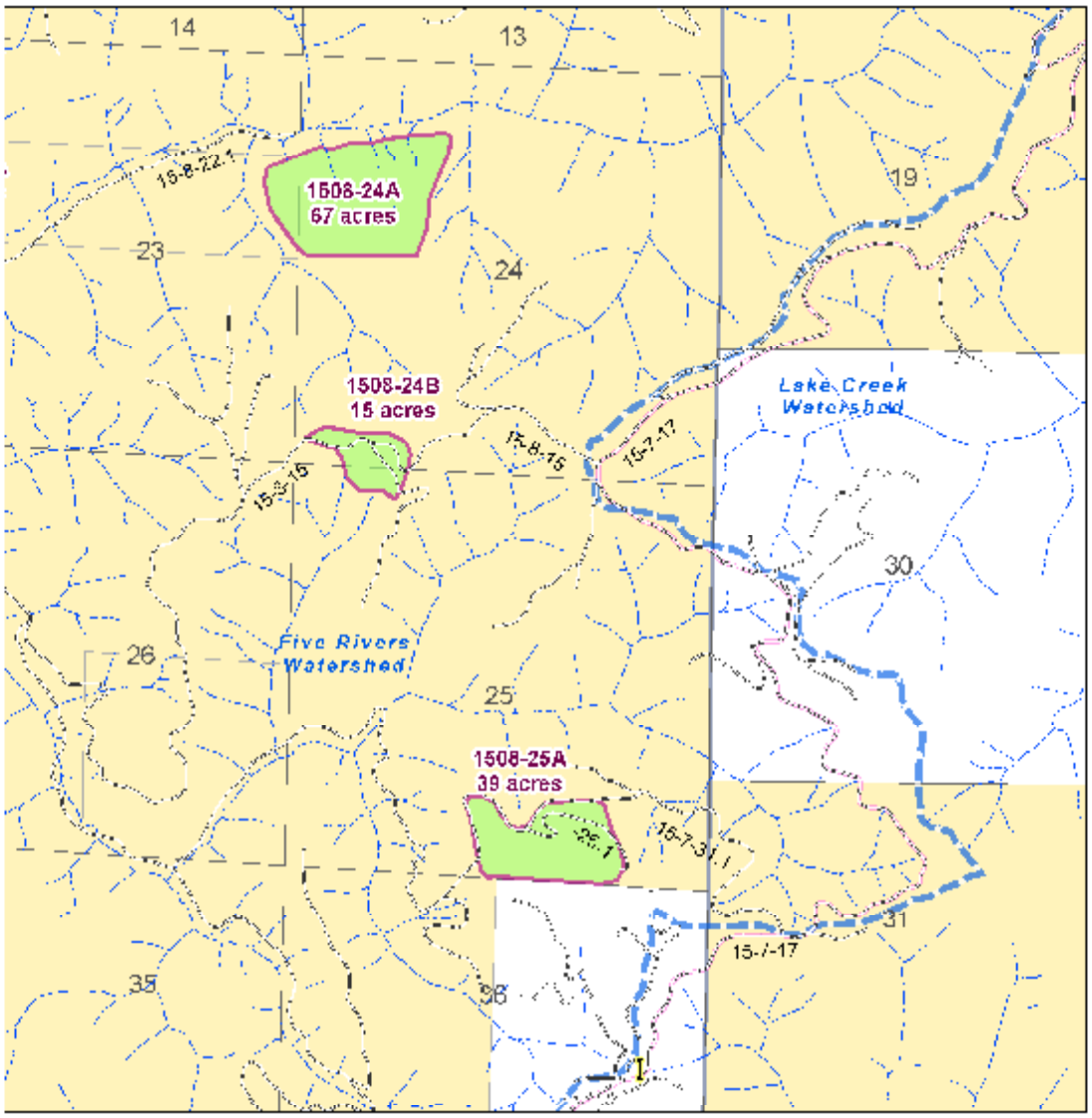
June 2010

- Legacy Project Unit
- BLM Land
- Section
- Township
- Closed Gate
- Highway
- Major Access Road
- Other Road
- Utility Line
- Stream
- 5th Field Watershed Boundary

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W



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June 2010

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- BLM Land
- Section
- Township
- Closed Gate
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- Utility Line
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3.0 REVIEW OF ELEMENTS OF THE ENVIRONMENT BASED ON AUTHORITIES AND MANAGEMENT DIRECTION

Table 2: Elements of the Environment Review based on Authorities and Management Direction

Element of the Environment /Authority	Remarks/Effects
Aquatic Conservation Strategy	In compliance with PCFFA IV (Civ. No. 04-1299RSM), this project complies with the Aquatic Conservation Strategy described in the Northwest Forest Plan and RMP. This project also complies with the PCFFA II (265 F.3d 1028 (9th Cir. 2001)) by analyzing the site scale effects on the Aquatic Conservation Strategy. EA section 5.0 shows how the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project meets the Aquatic Conservation Strategy in the context of the PCFFA cases.
Air Quality (Clean Air Act as amended (42 USC 7401 et seq.)	This project is in compliance with this direction because air quality impacts would be of short duration (one burn period during implementation of pile burning). Addressed in Text (EA Section 3.1.6).
Cultural Resources (National Historic Preservation Act, as amended (16 USC 470) [40 CFR 1508.27(b)(3)], [40 CFR 1508.27(b)(8)]	This project is in compliance with this direction and the project would have no effect on this element because Cultural resource sites in the Oregon Coast Range, both historic and prehistoric, occur rarely. The probability of site occurrence is low because the majority of BLM managed Oregon Coast Range land is located on steep upland mountainous terrain that lack concentrated resources humans would use. Post-disturbance inventory would be conducted according to Appendix D of the *Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Oregon.* Inventoried areas would be based on percent slope and topographic features
Ecologically critical areas [40 CFR 1508.27(b)(3)]	This project would have no effect on this element because there is no ecologically critical areas present within the project area.
Energy Policy (Executive Order 13212)	This project is in compliance with this direction because this project would not interfere with the Energy Policy (Executive Order 13212).
Environmental Justice (E.O. 12898, "Environmental Justice" February 11, 1994)	This project is in compliance with this direction because the project would have no effect on low income populations.
Fish Habitat, Essential (Magnuson-Stevens Act Provision: Essential Fish Habitat (EFH): Final Rule (50 CFR Part 600; 67 FR 2376, January 17, 2002)	This project is in compliance with this direction. NMFSs Biological Opinion (2008) addresses habitat restoration actions potential adverse effects to EFH. Effects to this element is addressed in text (EA Section 3.1.5).
Farm Lands, Prime [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because no prime farm lands are present on BLM land within the Marys Peak RA.
Floodplains (E.O. 11988, as amended, Floodplain Management, 5/24/77)	This project is in compliance with this direction because the proposed treatments would not change or affect floodplain functions.
Hazardous or Solid Wastes (Resource Conservation and Recovery Act of 1976 (43 USC 6901 et seq.) Comprehensive Environmental Repose Compensation, and Liability Act of 1980, as amended (43 USC 9615)	This project would have no effect on this element because no Hazardous or Solid Waste would be stored or disposed of on BLM lands as a result of this project.

Element of the Environment /Authority	Remarks/Effects
Healthy Forests Restoration Act (Healthy Forests Restoration Act of 2003 (P.L. 108-148)	This project is in compliance with this direction because treatments would help restore forests to healthy functioning condition (EA Section 3.1.1).
Migratory Birds (Migratory Bird Act of 1918, as amended (16 USC 703 et seq)	This project is in compliance with this direction because treatments would restore natural resources that could degrade habitat for migratory birds. Addressed in text (EA Section 3.1.2).
Native American Religious Concerns (American Indian Religious Freedom Act of 1978 (42 USC 1996)	This project is in compliance with this direction because no Native American religious concerns were identified during the scoping period.
Noxious weed or non-Invasive, Species (Federal Noxious Weed Control Act and Executive Order 13112)	This project is in compliance with this direction because Project Design Features would prevent establishment of new populations of invasive plant species and because vegetation development would result in decline in both number and vigor of invasive plant populations in the project area. Addressed in text (EA Section 3.1.1).
Park lands [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because there are no parks within or adjacent to the project area.
Public Health and Safety [40 CFR 1508.27(b)(2)]	The project would have no effect on this element because the public would be restricted from the project area during operations and the project would not create hazards lasting beyond project operations.
Threatened or Endangered Species (Endangered Species Act of 1983, as amended (16 USC 1531)	This project is in compliance with this direction because there would be no adverse effects on Threatened or Endangered Species (EA Sections 3.1.1, 3.1.2 and 3.1.5).
Water Quality –Drinking, Ground (Safe Drinking Water Act, as amended (43 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.)	This project is in compliance with this direction because Oregon State water quality standards would be adhered to and the area hydrology would not be changed measurably. Addressed in text (EA Section 3.1.4)
Wetlands (E.O. 11990 Protection of Wetlands 5/24/77) [40 CFR 1508.27(b)(3)]	This project is in compliance with this direction because wetlands within the project area would be protected by buffers. (EA Section 3.1.4)
Wild and Scenic Rivers (Wild and Scenic Rivers Act, as amended (16 USC 1271) [40 CFR 1508.27(b)(3)]	This project is in compliance with this direction because there are no Wild and Scenic Rivers within or adjacent to the project areas.
Wilderness (Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.); Wilderness Act of 1964 (16 USC 1131 et seq.)	This project is in compliance with this direction because there are no Wilderness Areas or areas being considered for Wilderness Area status in or adjacent to the project areas.

3.1 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, wildlife, soils, water, fisheries/aquatic habitat, and fuels/air quality*. Those elements of the human environment that were determined not to be affected are recreation, visual resources and rural interface. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

3.1.1 Vegetation

Affected Environment

Present Stand Condition and History

The proposed treatment areas consists of approximately 150 acres of conifer forest stands of moderate to high density. The stands are dominated by Douglas fir with smaller components of western hemlock, western red cedar, and red alder. The stands originated with natural regeneration or planting, following fire or harvest, and are aged 40 to 90 years.

A scattering of Douglas-fir and western hemlock trees originated before the majority, as they are relatively large (about 36 inches to 60 inches dbh), full-crowned, and open-grown. These trees form a layer somewhat taller than the majority of the conifer in the stands aged 40 to 90 years, and are generally 100 to over 200 years old. They are a small component of these early to mid-seral stands, but are a very important structural and functional component of them because of their size, crown structure, deep and fissured bark, large limbs, and (in some cases) defect, dead or broken tops, and cavities. These trees either survived past fire or harvest, or established after fire or harvest a decade or more before the majority of the stand. Because they experienced little inter-tree competition for a majority of their growth period, they grew rapidly, achieved large diameters, and developed very large crowns and long, thick limbs. A subset of these older forest legacy trees are targeted for release under the proposed action. The proposed action would cut, girdle or top only the younger stand component of trees aged 40 to 90 years old.

Understory vegetation is limited by overstory density and is generally sparse, but is more abundant in the canopy openings.

Coarse Woody Debris

Coarse wood is an important component of the late-successional structure desired for the treatment area. It includes downed wood, snags, and live trees with dead or broken tops or decay. Typically, mid-seral stands in the Marys Peak Resource area such as those in the project area have relatively low levels of coarse wood (less than1200 cubic feet per acre), especially in the more recent (sound) decay classes. This is due to past disturbance that removed or burned much of the previous stand, and what coarse wood that remains from the previous stand has decayed for many decades.

Forest Health

There are no known current threats to forest health beyond the following endemic processes in the proposed project area, including laminated root rot, caused by the fungus *Phellinus weirii*, and Douglas-fir bark beetles. These sites are within 25 miles of the coast and are mildly to moderately affected by Swiss needle cast, *Phaeocryptopus gaeumannii*, a fungal needle blight. Climatic or other conditions can increase the severity of the disease. Thinning can create more acute symptoms from Swiss needle cast because trees are more exposed to drying conditions.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Because surveys have not been completed on this project area, it is not known if any special status or special attention species occur in the project area. If any known sites are found they would be protected as indicated in the project design features.

Non-native (Noxious Weeds, Invasive Non-native Species):
Because the project areas have not been surveyed it is not clear which, if any noxious weeds occur in the project areas. However, due to project locations it is estimated the following noxious weeds are known from within or adjacent the project area; Armenian blackberry (*Rubus armeniaca*), Canadian thistles and bull thistles (*Cirsium arvense* and *C. vulgare*), False brome (*Brachypodium sylvaticum*)Scot's broom (*Cytisus scoparius*) St. John's wort (*Hypericum perforatum*), and Tansy ragwort (*Senecio jacobaea*).

Environmental Effects

3.1.1.1 Alternative 1 (No Action Alternative)

Stand Development

Without treatment, only natural disturbance agents such as disease, insects, and wind would create stand structural diversity and contribute to late-successional structural development. These events would generally be small in scale and random locations, and unlikely to contribute to release of declining legacy trees.

Stand development would remain on the current trajectory of increasing density and decreasing individual tree growth rates. Declining older forest legacy trees would continue to slow in growth and to lose crown depth and width due to competition from surrounding trees. The effectiveness of release treatments decrease as decline of the legacy trees continues because the condition of legacy trees becomes irreversible – large diameter lower limbs once lost cannot be re-grown, and as total crown area is reduced, the capacity to rebound after release is greatly reduced.

The main input of coarse woody debris would come from density mortality, would result in gradual recruitment of coarse wood. Typically, high density mid-seral stands would produce annual mortality of 0.5 to 2 snags per acre due to density mortality (based on Organon modeling, Hann, 2003). However, they would be of the smallest diameter classes, generally less than 16 inches dbh. Mortality from disturbance and stochastic events could produce coarse wood as well. One study of stands aged 14 to 38 years, over 22 years showed total annual stem mortality of 1 to 5 percent. Since the stands in the project area are older than the researched stands and have fewer trees per acre, annual mortality would likely be somewhat less. In the study, wind damage accounted for 18 percent of the stem mortality, but represented 50 percent of the bole biomass lost because mortality resulting from wind is relatively larger than density mortality (Lutz and Halpern, 2006).

There would be no short-term elevated risk of bark beetle infestation resulting from tree cutting, girdling or topping.

This alternative does not meet the objectives to release declining older forest legacy trees that are undergoing encroachment from densely-stocked younger conifer stands or to enhance terrestrial wildlife habitats by creation of snags and downed wood.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Any positive or detrimental effects would not occur to these species if any occur in the project areas.

Non-native plants (Noxious Weeds, Invasive Non-native Species):
Without any new human caused disturbances in the proposed project area any established noxious weed populations would remain at the same level.

3.1.1.2 Alternative 2 (Proposed Action)

Stand Development

The proposed action to cut, girdle or top up to 5 large trees and up to 20 smaller trees, within a patch ¼ to one acre in size surrounding older forest legacy trees would have a very small impact at the stand level, but would effectively meet the purpose and need to release declining older forest legacy trees and increase levels of snags and downed wood. Removing competition affecting older forest legacy trees would increase their growth rates, halt the loss of lower crown limbs due to shading, and maintain or increase crown depth and width. Maintaining or increasing vigor of the legacy trees may result in greater longevity.

Cut, girdled or topped trees that remain on site would directly increase the quantity of coarse wood in the project areas. The coarse wood would be of high wildlife habitat value because it would be in early decay classes and of larger size than coarse wood through density mortality.

There would be a short term (one to three years) elevated risk of a bark beetle infestation from the increased fresh down wood, resulting from the creation of snags and down wood. Fresh downed wood allows bark beetles to lay their eggs and produce brood unimpeded by the natural 'pitching out' response of a living tree. This can lead to a buildup of bark beetle populations that are then more likely to attack and overwhelm nearby live trees. A study of beetle response to coarse wood creation of larger magnitude than the proposed action resulted in less than one tree per acre of live tree mortality from bark beetles (Ross and Hostetler, 2006).

At the stand level, cutting, girdling or topping a small proportion of the stand would be similar in scale to small natural disturbances such as root disease or bark beetle mortality, or small-scale wind disturbance. The proposed action would increase diversity and increase late-successional stand attributes by creating small gaps, snags, and down logs that are important components of older forest structure, and help restore species diversity by retaining hardwood trees, and allowing development of understory vegetation.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Any known sites located would be protected as described in the design features. The removal of some of the competing conifer trees around legacy trees may provide additional habitat for species requiring older forest conditions. This would be accomplished by allowing for an increase in sunlight into the lower forest and lower canopy of the legacy trees.

This project could affect any species that are not practical to survey for and known sites were not located during subsequent surveys. These species would mainly include special status hypogeous fungi species. However, the majority of these species have no known sites within the Marys Peak Resource Area or the Northern Oregon Coast Range Mountains.

Non-native plants (Noxious Weeds, Invasive Non-native Species):
The implementation of this project would disrupt very little mineral soil and possibly only a small area of less than one foot square where the butt of the severed conifer hits the ground. It is unlikely this small amount of disturbed mineral soil would lead to any sustainable infestation of noxious weeds. The risk rating for the long-term establishment of noxious weeds and consequences of adverse effects on this project area is low because;

- the amount of disturbance is localized and minimal,
- the project areas are generally located in the middle of a coniferous stand away from local noxious weed sites,

- the implementation of the Marys Peak integrated non-native plant management plan allows for early detection of non-native plant species which allows for rapid control,
- the known noxious weeds species which occur in the project area are regionally abundant throughout the Oregon Coast Range Physiographic Province, and control measures generally consist of biological control,
- generally these species often persist for several years after becoming established in mineral soil and soon decline as native vegetation increases within the project areas,
- there are no other Oregon listed noxious weed species that are anticipated to become established with the implementation of this project.

3.1.2 Wildlife

Affected Environment

The stands proposed for treatment occur on BLM managed lands in four 5th Field Watersheds (Five Rivers, Lower Alsea River, Upper Alsea River and Deadwood Creek) in the north central Oregon Coast Range. Most of the proposed project area lies within Five Rivers Watershed (about 558 acres). The portion of proposed project area that lies in the Upper Alsea, Lower Alsea, and Deadwood Creek Watersheds (7, 2, and 13 acres, respectively) is considered negligible, and therefore only the landscape level conditions in the Five Rivers Watershed will be considered.

A broad-scale analysis of federal lands within this part of the Oregon Coast Range was presented within the *Late Successional Reserve Assessment, Oregon Coast Province - Southern Portion (RO267, RO268),* [USDA-FS and USDI-BLM 1997, referred to as *LSRA*]. The LSRA describes how, over the past 150 years since settlement, extensive timber harvest and several forest fires have resulted in the loss and fragmentation of late-successional and old-growth forest conditions (LSOG) within these watersheds. Old-growth forests (stands over 200 years old) have been essentially eliminated from private forest lands and represent only a small percentage of BLM managed lands within the three watersheds (Table 3). Patch sizes of LSOG forests have also decreased, resulting in numerous small patches of forest that are often fragmented and disconnected from other similar forest patches. Structural elements of LSOG forests that provide key components of wildlife habitat, such as large overstory trees, large snags, down logs, and multiple canopy layers have also declined across this landscape.

Table 3. Forest Habitat Conditions on BLM-managed Lands within affected Watersheds.

Forest Stand Type	Five Rivers		Upper Alsea		Lower Alsea	
Non-Forest	157	0.9%	304	0.7%	130	0.9%
Early-Seral <40 yo	3,220	19.2%	5,717	12.9%	3,413	23.5%
Mid-Seral 40-90 yo	6,528	39.0%	22,942	51.9%	3,229	22.2%
Late-Seral 100-200 yo	4,455	26.6%	11,887	26.9%	6,660	45.9%
Old-Growth 200+ yo	1,331	8.0%	2,320	5.3%	492	3.4%
Hardwood Stands	1,044	6.3%	1,007	2.3%	594	4.1%
Total Acres	16,735	100.0%	44,177	100.0%	14,518	100.0%

1). Acres of BLM-managed lands are shown for Five Rivers, Upper Alsea, and Lower Alsea 5th Field Watersheds (in the Alsea River Basin). Habitat conditions in Deadwood Creek Watershed (in the Siuslaw River Basin) are not shown because Salem BLM manages only a small portion of the watershed (about 200 acres) with only a small portion of the project area (13 acres) within this watershed.

Stand Level Conditions

The presence of legacy trees in mid-seral managed forest stands appears to add significant habitat value for several wildlife species (Mazurek, M. and W. Zielinski. 2004), especially where such stands have also received some degree of variable density thinning (Carey 2003). All of the proposed treatment units are characterized by an unthinned, densely-stocked, mid-seral conifer cohort ranging from 40 to 90 years old with a scattered overstory of large wolf trees and/or old-growth legacy trees. These stands also have a small and variable proportion of hardwood trees and minor conifer species. While most of the old-growth trees have tall live crowns that extend well above the level of the mid-seral canopy, about 20 percent of these legacies have broken or dead tops with their live crown at or below the mid-seral canopy level. Almost all of the large wolf trees and legacies have crowns that are dying back, and some stands have legacy trees that have died in the last decade due to being over-topped and shaded out by the ascending mid-seral canopy.

Special Habitats and Special Habitat Components

Special habitat types are recognized by the Salem District RMP and the associated watershed analyses include caves, cliffs, exposed rock, talus, wetland types, and meadows. These habitat types often host unique floral and faunal species that contribute valuable biodiversity to the local landscape. Only one proposed unit (1508-06B) has a small natural hilltop meadow that has shrunk from 7 acres to less than 1 acre in the past 30 years due to encroachment by young conifers.

Within forested ecosystems, dead wood (snags and down logs), often referred to as coarse woody debris (CWD), is a special habitat component that has been shown to strongly influence the diversity and abundance of wildlife species. Rose et al. (2001) identify 93 vertebrate wildlife species in Oregon and Washington that use snags (for nesting, foraging, roosting, courtship, drumming, and hibernating), and 86 species that use down logs (for nesting, foraging, denning, hibernation, hiding cover, thermal cover, travel corridors, and lookouts). Most of the 93 species associated with snags use trees that are 15+ inches in diameter, while about one third of these species prefer snags 30+ inches in diameter. The larger diameter hard snags and hard down logs (Decay Class 1 and 2) would, over time, provide better habitat conditions for more wildlife species than smaller and softer snags and down logs.

Mid-seral forests in this region exhibit a wide range in the density of snags and down logs that are present (*LSRA*, Mellen-McLean et al. 2009, Rose et al. 2001). The legacy of past harvests and fire history in these watersheds has resulted in low to moderate accumulations of large down logs in advanced stages of decay within most of the proposed treatment units. The majority of the down log and snag component in the proposed treatment units is composed of small diameter trees (less than 15 inches dbh) that have died due to density dependent suppression mortality. Larger size snags and down logs (greater than 24 inches dbh) that benefit a greater number of wildlife species are present in very low quantities in most of the proposed treatment units with a few units having moderate quantities.

Special Status Species

Special Status Species that may occur within this project vicinity and which may be affected by the proposed action include the northern spotted owl, marbled murrelet and red tree vole. A review of the BLM corporate wildlife database (GeoBOB) and the Oregon Natural Heritage Database found no records of any other Special Status Species or Survey and Manage Species locations within or adjacent to the planned treatment units.

Federally Threatened Species

Northern Spotted Owl

The BLM and cooperators have conducted extensive spotted owl surveys in these watersheds since the mid 1980s. Only one unit (1508-25A) has an active spotted owl site adjacent to it (0.35 miles away). Most of the planned treatment units provide only dispersal habitat for spotted owls, a few units likely provide suitable foraging habitat for this species. All units are set within critical habitat unit OR-48 (USDI-FWS 1992), and 11 of 21 units (300 acres) are within revised critical habitat unit OMOCA-36 (USDI-FWS 2008a and USDI-FWS 2008b). Dispersal habitat is considered a constituent element of spotted owl critical habitat (USDI-FWS 2008b).

Marbled Murrelet

Most of the proposed treatment units that have widely scattered and declining legacy trees likely do not provide suitable habitat for marbled murrelets. A few units that have legacy trees with more robust live crowns and that occur in small clusters may provide suitable nesting structure for marbled murrelets (McShane et al. 2004). None of the proposed units are within a known occupied marbled murrelet site. All proposed units are within critical habitat unit OR-04-j (USDI-FWS 1996). Legacy trees with large side branches and platforms are considered a primary constituent element of critical habitat. Most of the treatment units have a mid-seral stand component that is also a primary constituent element of critical habitat since it has attained a canopy height (about 120 feet tall) that is one half of a site-potential tree height.

Other Special Status Species

Red Tree Vole

The red tree vole is a Bureau Sensitive Species (BSS) and currently a Survey and Manage Species. The BSS status only applies to the red tree vole populations in the northern Oregon coast range, north of Highway 20 (Corvallis to Newport). Populations south of Highway 20 including those within the Alsea River watersheds are believed to be more abundant and well distributed (USDA-FS and USDI-BLM 2007). As a result of a December 2009 court ruling, the red tree vole has been returned to a Survey and Manage species in the project area. However, surveys for this species are not required for this type of restoration project since it would not cause a significant negative effect to the species or the persistence of the species within the proposed units (USDA-FS and USDI-BLM 2001). Voles prefer to nest in the older forest habitats in this landscape, but are occasionally found occupying mid-seral forest stands similar to the proposed treatment units.

Bird Species of Conservation Concern

All of western Oregon, including this proposed project area, is set within the Northern Pacific Forests Bird Conservation Region (USDI-FWS 2008c). Within this region there are several migratory land birds which are considered Bird of Conservation Concern (BCC) because they appear to be exhibiting downward population trends for several years (Altman 2008; Rich et al. 2004, USDI-FWS 2008c). Thirty-three of the 88 landbird species that regularly occur in the Marys Peak Resource Area are considered BCC species (see Table 4). Fifteen BCC species have a high likelihood of occurring within the proposed units. Incidental observations obtained during wildlife related field work have confirmed the presence of 8 of these species during the breeding season.

Table 4. Bird Species Groups Likelihood of Occurrence within the Project Areas.

Bird Species Grouping	Within MPRA	Likelihood of occurrence in Project Areas [1]			
		High	Moderate	Low	Not Present
Bird of Conservation Concern	33	15	8	6	4
Other Regularly Occurring Landbirds	55	21	8	18	8
Total bird species	88	45	16	24	12

1). The likelihood that bird species occur in one or more of the project areas based on recent literature review (see Appendix B).

Environmental Effects

3.1.2.1 Alternative 1 (No Action)

This alternative would not conduct any legacy tree release or coarse woody debris creation within the planned units. There would be no immediate change to the mid-seral conifer forests habitat conditions on BLM managed lands in these watersheds. Stand development processes would continue unaltered within the mid-seral forest stands of the project units.

Over the next decade, barring any prominent stand disturbance events, suppression mortality would continue to contribute snags and down logs almost entirely in the smaller size classes (less than 15 inches dbh), with a few very large snags resulting from the expected die off of some legacy trees (approximately 20 percent) due to being over-topped and shaded out by the ascending mid-seral canopy.

The current pattern of habitat use by wildlife species within these project areas would be expected to continue unchanged in the short-term, but may begin to change as wildlife species associated with the live legacy tree structure decline as legacy trees die off. Dispersal and foraging habitat conditions for spotted owls would remain unchanged. Potential nesting structure for marbled murrelets would be lost as legacy trees die off, and it would be several decades before natural stand development processes begin to create complex canopy structure suitable for marbled murrelet nesting habitat.

3.1.2.2 Alternative 2 (Proposed Action)

Landscape Level

The proposed legacy tree release units would treat about 8.7 percent of the mid-seral forest stands on BLM managed lands within the Five Rivers watershed. All proposed treatments would result in no discernable loss of function or connectivity of the mid-seral forest stands at the landscape scale.

Stand Level Conditions

The proposed treatment of 580 acres would result in a minor change in existing forest stand structure and would alter the development of future forest stand conditions in the proposed project units. Wildlife species are most likely to be effected by the following direct and indirect changes to forest habitat conditions:

Short-term (less than 10 years)

- Minor reduction of canopy closure (resulting canopy greater than 60 percent maintained) over entire treatment area due to creation of patches and topping or girdling of scattered trees;
- Minor increase in horizontal spatial variability within treated stands due to patch creation and small clusters of topped or girdled trees;

- live crown recovery and enhanced viability of legacy trees along with increasing crown development of dominant and co-dominant trees within patch cuts;
- Slightly reduced recruitment rate of small sized CWD from suppression mortality, which would be largely offset by immediate creation of larger CWD of desirable size and augmentation of decadence processes;
- retention of hardwood tree and shrub diversity.

Long-term (greater than 10 years)

- a significant recovery of overstory canopy closure within treated stands;
- the gradual transition in structural characteristics of the treated stands to more closely resemble late-seral forest (larger diameter trees and limbs, sub-canopy development, greater tree species diversity, greater volume and size of hard CWD, canopy gaps);
- extended persistence of legacy trees, hardwood trees, and shrub cover.

While most released legacy trees are expected to have restored vitality and increased longevity, a few legacy trees may not respond to the treatment and may continue to decline and subsequently die off. Overall, the treated units would continue to function as mid-seral conifer-dominated habitats for all of the wildlife species which currently use these stands, and many wildlife species, especially those associated with late-seral forest structure and coarse woody debris would benefit from this proposed action.

Special Habitats and Special Habitat Components

A small meadow within unit 1508-06B would benefit from patch creation which would set back some of the encroachment by dense young conifers. No other special habitats would be affected by this project.

The special habitat component of CWD would increase in quality and quantity as a result of proposed action. The current rate of density dependent mortality would be unaffected in the portion of the treatment units that are outside of patch cuts (about 67 percent of treatment area). As described above (Stand Level Conditions), the slight reduction of small snag recruitment would only occur in patch cut areas (less than 33 percent of treatment area), and this reduction would largely be offset by the immediate creation of larger (greater than 15 inches) snags and down logs that have greater wildlife value.

Special Status and Special Attention Wildlife Species

Northern Spotted Owl

Effects to spotted owls are summarized in Table 5. Since most treatments would occur outside the breeding season and all units lie beyond 0.25 miles from any active owl site, no disturbance effects to this species is expected. The proposed treatment would maintain the current habitat value for spotted owls because:

- the decline of legacy trees would be halted or reversed;
- CWD conditions would receive an instant increase in quantity and quality; and
- canopy closure would be maintained at or above 65 percent.

The proposed treatment is expected to accelerate the development of nesting structure and improve the structural diversity of this habitat over the long term, which would benefit the conservation value of designated critical habitat. The proposed action is considered a “may affect, but not likely adverse affect” to spotted owl critical habitat.

Table 5. Summary of Effects to Federally Listed Wildlife Species and Critical Habitat.

Affected Component	Determination [1]	Notes
Northern Spotted Owl		
Noise Disturbance	No Effect	Any proposed unit within 0.25 miles of active owl site would follow a seasonal restriction from March-1 to July-7.
Habitat Modification	NLAA	Units that currently function as dispersal or foraging habitat would maintain their function post treatment.
Critical Habitat	NLAA	The current conservation value of all treatment units would be maintained in the short-term and is expected to improve in the long-term.
Future Habitat Conditions	Beneficial	Treatments are likely to accelerate the development of late-seral forest structure over the long-term (>10 years), which would promote better nesting habitat structure and improve habitat for primary prey species.
Marbled Murrelet		
Noise Disturbance	No Effect	Activities at most proposed units would occur outside of breeding season. Activities at any unit with adjacent suitable habitat within 0.25 miles would occur outside the breeding season (April-1 to September-15).
Habitat Modification	NLAA	No suitable nesting structure would be lost. Scattered legacy trees subject to release would retain potential nesting structure.
Critical Habitat	NLAA	The current conservation value of all treatment units would be maintained in the short-term and is expected to improve in the long-term.
Future Habitat Conditions	Beneficial	Treatments are likely to accelerate the development of late-seral forest structure over the long-term (>10 years), which would promote development of potential nesting structure sooner than if left untreated.

1). Affect determinations for purposes of Endangered Species Act consultation include: NLAA= not likely adverse affect, and No Effect.

Marbled Murrelet

Effects to marbled murrelets are summarized in Table 5. Since most treatments would occur outside the breeding season and all units lie beyond 0.25 miles from any occupied murrelet site, no disturbance effects to this species is expected. The proposed action would reverse the decline in habitat value as released legacy trees would re-grow crown cover and likely increase their longevity. Treatments around legacy trees would retain any potential nesting structure and likely increase flight accessibility which is probably a necessary component of suitable habitat for this species (Burger 2002). Since the proposed action is expected to retain and restore potential nesting structure, and improve structural diversity over the long term, it is expected to benefit the conservation value of critical habitat designated for this species. The proposed action is considered a “may affect, but not likely adverse affect” to marbled murrelet critical habitat.

Red Tree Vole

While a few red tree voles may be present in the proposed units, any tree with an obvious stick nest would not be selected for treatment. If voles are present in any unit they are more likely to select legacy trees which have more platforms and cavities to use for nesting than the average tree from the mid-seral cohort. Since all legacy trees would be retained and are expected to recover green foliage after treatment, the released legacy trees are expected to provide more food and cover for voles even in the short term (less than 10 years) than if left untreated. The proposed action is not anticipated to have any appreciable negative effect in the short term on the population of red tree voles in this watershed since voles are well distributed throughout the watershed and since

this action would not remove any older forest structure which provides the best habitat for supporting vole population persistence (USDA-FS and USDI-BLM 2001).

Bird of Conservation Concern

In the central Oregon Coast Range the majority of birds complete their breeding cycle within the April 15 to July 15 time period, while some birds (eagles, owls, hawks, woodpeckers) begin breeding as early as February or March and others (flycatchers, finches) may not finish breeding until August. Since most of the planned treatments are expected to occur outside of the primary breeding season, it is unlikely that this action would destroy any active nests or disrupt normal breeding behavior of any BCC species that may breed in the treatment units.

At the stand scale, the habitat conditions that currently attract the bird species which may nest in the proposed units would be largely unchanged and enhanced over time since:

- stand-level canopy closure would remain relatively high (at least 65 percent);
- all minor conifers and all hardwoods would be retained;
- the existing shrub layer would be retained and likely expand spatially; and
- there would be an immediate increase in higher quality snags (hard snags greater than 15 inches DBHOB) for primary cavity nesters.

At the watershed scale, this proposed action is expected to have a beneficial effect on BCC populations that may not be discernable since the proposed units would retain or enhance their habitat value. However, these units are small, widely scattered, and represents only 8.7 percent of the mid-seral conifer forest in the Five Rivers watershed.

3.1.3 Soils

Affected Environment

Typical soils in the project areas are clay loam soils moderately well-drained and moderately deep to very deep. They have high infiltration values and hence are not highly prone to surface erosion. Where slopes approach 60 percent or steeper, erosion potential is moderate to high. Soil rutting hazard is highest on bare soils or where the duff layer has been displaced (NRCS, 2005). Care must be taken to retain as much of the surface duff layer as possible.

Most of the project areas are situated along ridgeline and adjacent slopes. Hillsides in the project area alternate between flats (20 to 30 percent grade, deep silt-loam soils) on top of large, stable slump benches to steeper side-slopes (40 to 80 percent grade, gravel-loam soil textures) mostly with a south west or east aspect. On the relatively flat surfaces with deep, fine-textured soils, areas subject to high water tables and/or perched water are encountered. These areas are sensitive to rutting and displacement. Surface compaction is a higher risk in these soil types. The steeper areas have more shallow soils with greater rock content. In these locations channels have incised into the hill-slopes and runoff is quicker. These slopes are more sensitive to land sliding and surface erosion.

Environmental Effects

3.1.3.1 Alternative 1 (No Action)

Under this alternative the existing soil conditions at the project sites would continue in their current trends.

3.1.3.2 Alternative 2 (Proposed Action)

The felling, girdling, removal, or topping of trees as scattered individuals or in gaps up to one acre in size would have no visible or detectable effect on soil physical properties such as bulk density. Over time the material left on site would breakdown and add to the organic matter content of the soil and this could slightly alter some soil chemical properties (i.e., increased supplies of soil carbon and organic acids). Small disturbances to the soil surface (compaction/displacement) from foot traffic and repositioning of some material would occur during project operations. These effects would be dispersed across the treatment area and would not result in a loss of soil productivity or function.

Site access trails used by OHV

Some of the project area has been impacted by past tractor yarding and old skid roads can be found in some of the units. After several seasons, the accumulated liter fall on the forest floor would further reduce surface erosion potential. Where trails are being actively used for recreational purposes, especially OHV riders, additional measures to block the trails (felling large wood and organic material) would promote recovery of the soil's physical and chemical properties and reduce surface erosion at these sites.

CWD Creation:

CWD generated by felling, windthrow, and/or bark beetle infestation left on site following the project would help cover the soil surface and limit surface erosion. Girdling or overtopping trees for snag creation would not be likely to measurably impact soil resources. Felling trees for CWD would cause minor soil displacement and compaction where the tree falls on the ground and the impacts would be of no greater extent than a natural tree fall.

Pile Burning

On the sites where piles are burned, surface organic material would be removed, increasing localized potential for soil detachment. However, sediment delivery to streams is highly unlikely, since burn-pile areas are outside riparian reserves, widely dispersed, and typically smaller than 20 feet in diameter. Pile burning and rain impact on burned spots can decrease infiltration capacity until natural re-vegetation occurs. Displaced soil would be filtered and retained by the intact vegetation immediately surrounding the burn pile spot. Since burning would occur during wet soil conditions, heat damage to the upper soil layer would be moderated and only occur in scattered localized sites.

3.1.4 Water

Affected Environment

Project Area Precipitation and Basin Hydrology

The project areas are located in the Oregon Coast Range at elevations ranging from 400 to 2,400 feet[1]. The majority of project areas lie below the transient snow zone (TSZ), an elevation zone subject to rain-on-snow events (ROS) that have the potential to increase peak flows during winter or spring storms. This zone varies with temperature during winter storms but, in the Oregon Coast Range it is assumed to lie between 2,000 to 3,000 feet in elevation. The general project area receives approximately 64 to 70 inches of rain annually

The proposed action include treatment in four 5th field Watersheds; Upper Alsea River, Lower Alsea River, Deepwood Creek and Five Rivers. The main project areas are located in 3 watersheds (Little Lobster, East Fork Lobster, and South Fork Lobster Creeks).

There is only one project unit (27A) spanning three watersheds, which is located on the ridge top. No other units affects lands within the Upper and Lower Alsea River watersheds. The proposed action includes treatment on up to 7 acres within the Upper Alsea River Watershed and 3 acres within the Lower Alsea River Watershed. The project proposal would affect less than 0.01 percent and 0.002 of the respective watersheds. No treatments are proposed within Riparian Reserve LUA within the Upper Alsea River Watershed and less than 1/8th of an acre of Riparian Reserves may be affected within the Lower Alsea River Watershed. The 1/8 acre of treatment is due to a 1 site potential tree width buffer derived from a stream channel in the Five Rivers Watershed projecting over into the Lower Alsea River Watershed.

7th Code HUC's	6th Code HUC's	5th Code Huc's
East Fork Lobster South Fork Lobster Little Lobster	Upper Lobster Creek - 20,272 acres Lower Lobster Creek - 17,072 acres	Five Rivers - 76,438 acres

Project area stream flow

Project streams are similar to other Western Oregon streams where highest discharge takes place during winter storm events. Summer base-flow normally begins in perennial channels sometime in July and continues from August-October. Many small headwater channels (intermittent or ephemeral) dry up completely during this period.

Potential for peak flow augmentation due to legacy tree release: Current Condition

The type of actions proposed for this project (felling of individual trees, the creation of gaps less than one acre in size, and minimal access requirements), do not allow for a good calculation of potential impacts to peak flows because the total impact is much less than 30 percent crown removal in any of the treatment areas. Because of this fact a rigorous analysis was not completed.

In Joanne Greenberg's research for Boise Cascade Corporation (Hydrologic Process Identification for Western Oregon, page 7) she assumed an elevation of 2,300 as the break between precipitation dominant and ROS. Because over 99 percent of the proposed units fall below this elevation, there is currently a low risk for peak-flow enhancement in the four project watersheds.

[1] Unless otherwise indicated, geographic information is an estimate derived from the BLM's GIS database.

This project does not propose any change in the road network and no ground-based equipment useage would occur in the completion of this proposal.

Project area stream channels

Stream channels in the main project areas are primarily small 1st and 2nd order headwater streams; these are "source" reaches, following the classification of Montgomery and Buffington (1993). On the steeper slopes (20 to 70 percent), these have developed into constrained, step-pool channels. Only the 1st and 2nd order channels have ample supplies of large wood from nearby riparian forest and are well shaded.

Lobster Creek and East Fork Lobster Creek are adjacent to these project units. These channels generally are meandering low gradient (less than 2 percent) in moderately constrained valleys with well developed floodplains and periodic sand/pebble base to moderately incised 2 to 4 percent gradient channels with gravel/cobble substrate. Primary concerns for these channels is channel stability, sediment supply and sediment transport.

The remaining channels in the project area are small with intermittent or ephemeral flow. These small tributary channels formed in the silt loam soils in the project area and flow intermittently on the surface before disappearing underground, only to pop out again down-slope. Many are associated with high water tables in earth-flow terrain which forms in some of the softer slump deposits or on the surfaces of benches and flats. It's likely that ground water and intricate patterns of subsurface flow, as opposed to surface run-off, is the primary system of water delivery to these small channels.

Project area wetlands

No wetland\pond complexes are identified within the project areas. These sites mostly coincide with high water tables. All wetland / pond sites are excluded from treatment in the proposal.

Project area water quality

The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by the limited extent and minor impact on tree canopies included in this proposal and were not reviewed in depth for this analysis.

Oregon Department of Environmental Quality (ODEQ)

The Oregon Department of Environmental Quality's (DEQ) 2008 303d List of Water Quality Limited Streams (http://waterquality.deq.state.or/wq/303dpage.htm) is a compilation of streams which do not meet the state's water quality standards. East Fork Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 4, Little Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 6.6, South Fork Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 4.3, and The main stem of Lobster Creek is 303d-listed for exceeding summer temperature standards from river mile 6.6 to 17.7. All of the treatment areas are within one mile of a listed segment.

The DEQ also published an assessment, the 319 Report, which identifies streams with potential non-point source water pollution problems and a schedule for developing a TMDL (total maximum daily load) for the basin to improve water quality. The Lobster Creek Basin has a completed TMDL for temperature (2002). The proposed treatment would not keep the basin for reaching the stated goals in the TMDL.

Beneficial Uses

There are numerous domestic water users in the project area along the mainstem of Lobster Creek. The closest diversion point is approximately one half mile from the closest treatment unit. Additional recognized beneficial uses of the stream-flow in the project area include anadromous fish, resident fish, recreation, and esthetic value.

Environmental Effects

3.1.4.1 Alternative 1 (No Action)

Under this alternative the existing water quality conditions, stream flows, and channel conditions at the project sites would continue their current trends.

3.1.4.2 Alternative 2 (Proposed Action)

Stream channels and wetlands:

Treatment in the Upper and Lower Alsea Watersheds are located on ridgetops more than 380 feet from any stream channels. There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. Stream banks, wetlands and channel beds are protected from direct physical alteration or disturbance by equipment. In addition, the proposed action is unlikely to affect stream flow in a measurable manner because of the low amount of crown reduction and therefore any indirect effects to stream channels as a result of increases in peak flows is unlikely. Thus, the proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology.

Watershed Hydrology:

Mean Annual Water Yield

Since the project areas are below the elevation zone normally subject to transient snow accumulations in the winter, the small reduction in stand density is unlikely to result in any increase in snow accumulation and melting during ROS events. In the coast range of Oregon, below TSZ elevations, reductions in stand density are unlikely to result in an augmentation of peak flow (Moore *et al*., 2005). The project acres shown below reflect that 1.5 percent of the combined Lobster Creek watershed would be treated. In reality only a small portion of each unit would have activities (see the silviculture write-up for the best description of treatments to the stand). Because the crown removal would be so much lower than the 30 percent level reviewed in water yield studies, it is highly unlikely that any measurable impact of water yields would be able to be measured. Therefore, this proposal is unlikely to result in any detectable changes in peak flows.

Upper Lobster Creek - 20,272 acres	**Lower Lobster Creek - 17,072 acres**
East Fork Lobster - 111 acres	*Little Lobster - 97 acres*
South Fork Lobster - 55 acres	*Lobster Creek - 133 acres*
Lobster Creek - 184 acres	
Totals	
Upper Lobster Watershed – 350 acres	**Lower Lobster Watershed – 230 acres**

Peak Flow effects from Roads

This proposal would not alter existing roads in a way that would likely reduce or increase effects to peak flows attributable to the current road network and thus it would maintain the current condition and trends relative to hydrology and stream flow.

Water Quality

The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by this

proposal. For that reason there are no expected direct, indirect or cumulative effects to water quality from the completion of this proposal.

3.1.5 Fisheries/ Aquatic Habitat

Affected Environment

Five Rivers

Fish Passage and Access
The primary drainage affected by the project is Lobster Creek, Little Lobster Creek, Meadow Creek, East Fork Lobster Creek, J-Line Creek, and South Fork Lobster Creek. General habitat conditions and fish distribution for these streams are described in the Lobster Five Rivers Watershed Analysis (USFS AND BLM 1997). No barriers to fish passage are known to exist in Lobster Creek system.

Aquatic Habitat
Oregon Department of Fish and Wildlife protocol surveys have been completed within Lobster Creek and many of it tributaries in the project area (ODFW 1993, 1996, 1997, 1999a, 1999b, 2000). Habitat conditions are mixed in the surveyed streams. Key wood appears to be limited or lacking in all the surveyed reaches. Shade and gravel were generally desirable in Lobster Creek, J-Line Creek, and East Fork Lobster. The lower four reaches of Little Lobster had adequate shade and gravel but excessive amount of fish sediment. The upper reaches of Little Lobster were noted to have limited shade and high amounts of fine sediment.

Fish Distribution
Chinook salmon, coho salmon, steelhead trout, cutthroat trout, western brook lamprey, Pacific lamprey, and sculpin are present in Lobster Creek (Streamnet 2007). In general, lamprey distribution is likely contiguous with steelhead distribution. Sculpin distribution is likely continuous with cutthroat trout distribution. Pike minnow, largescale sucker, and speckled dace would typically be present in the large tributaries and rivers in the watershed downstream from all project areas.

Deadwood Creek

Fish Passage and Access
General habitat conditions and fish distribution for Deadwood Creek are described in the Indian / Deadwood Watershed Analysis (USFS 1996). No barriers to migration were noted in proximity to the project area.

Aquatic Habitat
No habitat surveys are known to exist on Deadwood Creek downstream of the proposed treatment units. In general, habitat conditions in Deadwood Creek are likely comparable to conditions to most similarly sized tributaries in the Five RiversWatershed.

Fish Distribution
Coho salmon and steelhead trout are present in Deadwood Creek approximately 6,000 feet downstream of the project unit (Streamnet 2007). Chinook are present in the mainstem of Deadwood Creek, 2.3 miles downstream of the project area. Cutthroat trout, western brook lamprey, Pacific lamprey and sculpin species would also be considered present within these streams. Based on GIS estimates cutthroat trout are likely 1,500 feet downstream from the project units.

Threatened and Endangered and Special Status Species or Habitat:
The Oregon Coast (OC) coho salmon Evolutionary Significant Unit is listed as threatened under the Endangered Species Act (ESA). Oregon Coast coho salmon are present in most drainages within streams near project units

in the Upper and Lower Alsea River Watersheds and most of the streams in proximity to treatment units in the Five Rivers watershed (Streamnet 2007).

Environmental Effects

3.1.5.1 Alternative 1 (No Action)

Current stand and coarse woody debris conditions would be maintained. Expected benefits to the LWD recruitment as a result of legacy tree release and snag/CWD creation would not be realized. Impacts to aquatic habitat would be unlikely with the implementation of the no-action alternative.

3.1.5.2 Alternative 2 (Proposed Action)

Based on substantial distance of proposed treatments to stream channels, site level impacts would not translate into effects to aquatic habitat in either the Upper or Lower Alsea River Watersheds. No effects to aquatic habitat or fish resources would be anticipated within either the Upper or Lower Alsea River Watersheds and no further analysis is warranted for these watersheds.

Yarding/Falling

Flow effects - The proposed project would address forested stands covering between 0.4 and 11.2 percent in any of the affected 7th field drainages and between 0.7 and 2.1 percent of any effected 6th field sub-watershed. Approximately 1/3 of each unit area would have felling activities that may alter the forest canopy. The hydrology analysis determined that no impacts to stream flows were anticipated as proposed canopy closure levels would be greater than threshold levels where potential impacts could be discernable (Wegner 2010). As no discernable changes in peak and base flows within the treatment area are anticipated no alterations to fish habitat would be anticipated.

Temperature effects –Site level project designs for treatment units included a standard design feature SPZ of at least 55 feet or more. Protection of stream shade is the critical component in protecting stream temperature regimes (Beschta et al 1989, Belt et al 1992, Moore et al 2005). The proposed SPZ of 55 feet is anticipated to retain critical shade at more than 80 percent in the primary shade zone, primarily based on the limited nature of proposed actions. The proposed vegetation treatment would not result in canopy reduction of more than 50 percent in the secondary shade zone. The hydrology analysis indicated that stream temperatures were not anticipated to be impacted by the project proposal (Wegner 2010). Based on the anticipated protection of stream shade, the hydrology report water quality analysis, and the project design features, the proposed actions are unlikely to impact fish habitat both at the treatment site and downstream.

LWD effects - In the short-term the smaller diameter woody debris would continue to fall from within the SPZs. Wood recruitment studies conducted in the Pacific Northwest have shown the majority of woody debris recruitment occurs within 59 to 65 feet of the stream edge (McDade et al 1990, Van Sickle and Gregory 1990, Meleason et al 2002). The proposed SPZ width, which accounts for 85 percent of this woody debris recruitment zone, is anticipated to maintain wood recruitment rates. All trees felled in or near the SPZ would be retained on site. Therefore, the proposed actions are not expected to cause any short term negative effects to aquatic habitat at the site or downstream. Proposed felling of trees of sufficient size which could reach stream channels, or creation of snags by topping or girdling, may provide modest beneficial effects to woody debris recruitment over immediate and intermediate timeframes in the small stream channels near project area units. The dispersed nature of the proposed actions, 20 units spread amongst six drainages, indicates that short term or long term impacts to LWD recruitment would likely be undetectable at the site scale.

Sediment effects - The proposed SPZ and the nature of the proposed action (felling and leaving most trees on site) indicates any measurable changes in sediment delivery to the surrounding stream network is unlikely. Vegetated buffer widths ranging from 40 to 100 feet are sufficient to prevent sediment from reaching streams

(Burroughs and King 1989, Corbett and Lynch 1985, Swift 1985). Project design features include at least 55 feet buffers adjacent to treatment units. The proposed 55 foot buffers would be expected to capture sediment prior to reaching stream channels. These buffers combined with slash remaining following treatment should obstruct flow paths and keep sediment movement to a minimum. Slash, limbs and non-merchantable material left following felling activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burough and King 1989, Swift 1985). As the proposed actions are not likely to measurably alter water quality characteristics at the treatment sites, they would be unlikely to alter aquatic habitat downstream from the project area.

Rare, Threatened, and Endangered Species

The proposed legacy tree release actions associated with the activities are within 100 feet of listed fish or listed critical habitat in the Five Rivers watershed and are within 6,000 feet of listed fish or listed critical habitat in the Deadwood Creek watershed. A determination has been made that these proposed project items would be a 'May Affect' on OC coho salmon. The 'May Affect' determination is based on the proximity of the treatments to listed fish habitat. Due to the "May Affect" determination portions of the project would need to have consultation completed with the NMFS prior to implementation.

Compliance of the Aquatic Restoration Biological Opinion (ARBO) *Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act-Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-2012* would provide ESA consultation coverage for proposed project activities.

Protection of EFH as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NMFS is required for all projects which may adversely affect EFH of Chinook and coho salmon. The treatment project areas vary between 100 feet and over one mile from nearest habitat utilized by coho salmon (Streamnet 2007). The proposed project is not expected to adversely affect EFH. The determination is based on distance of treatment activities from occupied habitat in the Five River and Deadwood Creek Watersheds. Consultation with NMFS on EFH is not required for this project.

3.1.6 Fuels\Air Quality

Affected Environment

Fuels:
The stands are primarily 40 to 90 year old Douglas fir timber with lesser amounts of western hemlock, western red cedar, red alder and big leaf maple.

Undergrowth in the timber is a light to moderate. There are variable amounts of small and medium diameter dead woody material and leaf litter on the ground. Larger (greater than 20 inch) diameter downed logs are scarce as are large snags. Small snags (less than 10 inch DBHOB) are common.

The estimated total dead fuel loading for these stands ranges from 10 up to 22 tons per acre. Much of the existing down material is rotten or only partially sound

Air Quality:
Air quality in the vicinity of the proposed project areas is generally very high due to the mid to high elevation Oregon Coast Range location of the project areas. Transport winds affecting the area generally come in off the ocean and keep the air shed scoured out preventing a build up of particulate matter. Occasional stagnant air conditions do develop and may result in accumulation of particulate matter but generally these are short lived lasting less than one week.

Environmental Effects

3.1.6.1 Alternative 1 (No Action)

This alternative would result in no immediate change to the affected environment. Short-term impacts to fuels and air quality would be avoided.

However, immediate enhancements to forest structure would not be achieved. These untreated or un thinned stands would gradually move towards a Condition Class III which is a high departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. Risk of loss, including loss of key ecosystem components becomes high. This could result in poor air quality due to large amounts of un planned smoke in the atmosphere.

3.1.6.2 Alternative 2 (Proposed Action)

Fuels:
Fuel loading, risk of a fire start and the resistance to control a fire, would all increase at the sites as a result of the proposed action. Slash created from falling isolated single trees for CWD would add only a small amount of fine fuel per acre due to the dispersed nature of the treatment. Effects from this type of treatment would be negligible. There would be a substantial increase in fire risk and control resistance where multiple trees are cut to form a patch cut area around a legacy tree. The fuel loading would increase 10 to 25 tons per acre of dead fuel in the 0 to 9 inch size class not counting the felled boles that are left for CWD recruitment.

Risk of a fire start in the untreated slash would be greatest during the first season following cutting, the period when needles dry out but remain attached. The highly flammable needles generally fall off within one year and risk of a fire start greatly diminishes. Fire risk would continue to diminish as the area greens up with under story vegetation, and as the fine twigs and branches in the slash begin to break off and collect on the soil surface. Past experience, in the geographic area of this proposed action, has shown that, in approximately 15 years, untreated slash would generally decompose to the point where it no longer contributes substantially to increased fire risk. The resistance to control would decrease over time but more slowly depending on the amount and size of large, down wood left on site, since the larger material would remain on site, available to burn, much longer.

The decision to create and leave the isolated CWD untreated under this proposed action is based on our estimate that the risk is manageable based on a long history of observations of fuels in the geographic area.

Air Quality:
The total amount of slash debris expected to be piled for burning is estimated to be approximately 40 to 100 tons from the patch cut areas along the roads. Burning approximately 40 to100 tons of dry, cured, piled fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality in the air shed. Locally within ¼ to ½ mile of the piles there may be some very short-term smoke impacts after ignition resulting from drift smoke.

Generally, once covered, dry piles have been ignited, the fire intensity builds rapidly to a point where the fuels burn cleanly and very little smoke is produced. After a few hours, as the piles burn down and the intensity subsides, additional smoke may be produced due to lower temperatures and less efficient combustion. Depending on size, arrangement, type and moisture content of the remaining fuel, the smoke would diminish over several hours or days as the piles cool and burn out (sooner if rain develops). Generally this smoke only affects the immediate area (¼ to ½ mile or less) around the pile.

If a temperature inversion develops over the area during the night time hours, smoke may be trapped under the inversion and accumulate, resulting in a short-term impact to the local air quality. The accumulated smoke

generally clears out by mid-morning as the inversion lifts. Due to the low tonnages involved and the dispersed locations of this project, it is unlikely that inversions would present a problem. Burning of slash would always be coordinated with the Oregon Department of Forestry and conducted in accordance with the Oregon State Smoke Management Plan. This serves to coordinate all forest burning activities on a regional scale to prevent negative impacts to local and regional air sheds.

4.0 CUMULATIVE EFFECTS

4.1 Vegetation

Age Class:
Due to ecological succession and forest management (mostly private land harvests), the amount of acreage in each age class within this watershed is in constant transition. Ecological succession would advance early seral forest plantations toward mid seral conditions, just as current and expected future harvests of mid seral stands would return these patches to early seral conditions.

Fire history and intensive forest management on both private and public lands over the past several decades has greatly reduced the amount of late seral forests and the quality and quantity of coarse woody debris in western Oregon forests (Moeur, et al. 2005, Hagar 2007). The prevailing management regime on private lands would likely involve alternating between mid seral and early seral habitat conditions over time without retaining any late seral forest patches for the foreseeable future. The proposed action would affect mid-seral stands aged 40 to 90 years but would not change the age class composition on BLM-managed lands in the watershed.

Native vegetation:
The perennial vascular plant species would persist on site post-treatment and their coverage would increase after treatment. As stand canopy again increases over time, conditions would become more similar to current or pre-treatment conditions.

Cumulative effects of the proposed action would be to increase longevity of legacy trees over the landscape beyond the no action alternative. Combined with similar past projects (150 acres in 2008), future such projects, and a general policy of releasing legacy trees where they occur in density management projects on BLM lands, legacy trees would persist longer and in greater numbers than they would if subjected to competitive pressure from maturing mid-seral stand layers.

Bureau Special Status Botanical and Fungal Species:
Any federal T&E or Bureau special status species found within the project areas would be managed as indicated in the design features.

Invasive/Non-native Plant Species (including Noxious Weeds):
Any adverse effects from the cutting of smaller diameter conifers from around older, larger diameter conifers would be localized due to the small size of the projects. As mentioned above, the risk rating for any adverse affects from noxious weeds with the implementation of this project is low.

4.2 Soils

Because the effects of the proposed action on soils are expected to be short-term (maximum one decade) and localized, cumulative effects are not anticipated. The combined effect of the proposed action would not increase the overall amount of compaction and erosion in the project area. The greatest cumulative effect on the site would likely be a slight reduction (less than 1 percent over the entire project area) in overall site productivity from CWD material covering the ground surface.

4.3 Water

The current condition of the watersheds in the project areas indicate low risk for an existing augmentation of peak flows from canopy reductions due to the proposal. The proposed legacy tree release would not result in any increase in forest openings in ROS and therefore would be unlikely to result in a detectable augmentation of peak flows. Proposed road use is unlikely to alter surface or subsurface hydrology in a manner that would result in a detectable change in stream flow from current conditions in the watershed. Since the proposal is not likely to result in a detectable direct or indirect effect to peak flow, the proposal would be unlikely to contribute cumulatively to any existing augmentation of peak flow in these watersheds.

In more recent analysis of effects to peak flows from forest management (Grant et al. 2008), analysis of past study data has shown that watersheds dominated by areas located in the transient snow zone (like those in this proposal) generally begin to show some evidence of peak flow increase when between 15 to 20 percent of the area has been harvested. The paper also includes information from basins with no roads that experienced harvest or loss of vegetation due to fire. The increases from these watersheds can be used as a hypothetical "reference" response that could be expected from more natural landscape response to vegetation removal.

The existing percent of the watersheds that are unvegetated ranges from 5.1 to 5.5 percent. At these levels, using the Grant analysis the expected increase in peakflows in the project watersheds would fall below zero in an unmeasurable state. The largest expected "natural" response in peak flow increase from these levels of vegetation removal is 8 percent.

The proposed action, in combination with all existing harvest is estimated to not increase peak flows for a two-year event (under normal storm conditions). For normal storm events, no increases in peak flow relative to a theoretical full forested condition are expected under the proposal in conjunction with the other activities in the cumulative effects analysis.

The Grant paper also discusses that there is no exact response of stream channels to increases in peak flows. In fact, Grant discusses that for the stream channel types found in the analysis area (step-pool and cascade) there is little potential for changes in stream channel attributes from increases in stream flows below the ten-year flow event which is generally in the area of a 35 to 40 percent increase in the normal two-year peak flow level.

The risk of increase to peak flows based on the proposed management activity falls well below the measurable level indicating no potential risk of stream channel changes. Therefore, based on this update, and previous analyses, the risk of peak flow enhancement based on the proposed management activity is determined to be unmeasurable and cumulative impacts expressed as changes to stream channel attributes are not expected to be measurable either in the project watershed or downstream of the project watershed.

4.4 Fisheries/Aquatic Habitat

The cumulative effects of the proposed actions associated with the Legacy Tree Release Project to the hydrology and soil resources were assessed under the Soils and Hydrology Report (Wegner 2010). Combined with the direct and indirect affects analysis presented in the Fisheries Report these additional cumulative effects analyses form the basis of the fisheries resource cumulative effects analysis.

Cumulative impacts to fishery resources could occur if proposed actions result in alterations in runoff contributing to changes in flows where fish reside. Based on the Hydrology reports analysis of alterations to peak flows in the project area (Wegner 2010) changes in flows were considered unlikely at the site level, subsequently no cumulative effects are anticipated on aquatic resources.

The Hydrology report indicated that the proposed treatments were not anticipated to affect stream temperatures and not expected to result in any cumulative effects to temperature (Wegner 2010). No cumulative effects are anticipated for peak flows, streambanks, and instream structure which could also affect temperature. As no

cumulative effects were anticipated for these project activities on temperature, streambank conditions, and peak flows these treatments would not result in cumulative effects for fisheries resources.

The proposed stand treatments are not expected to measurably alter large woody debris (LWD) recruitment, stream bank stability, and sediment supply to channels at the 5th field watershed scale in the short-term or long-term. As short-term LWD recruitment is protected or enhanced only unmeasurably positive cumulative effects are anticipated for instream structure from the proposed actions.

Approximately 81 percent of the land base within the Five Rivers Watershed is federally administered, by the BLM and Forest Service. The trend in LWD recruitment on federal lands is increasing as the stands mature within the Northwest Forest Plan designated Riparian Reserves (Reeves et al 2006). Analysis conducted under the FEIS Revision of the Resource Management Plans of Western Oregon indicated trends of LWD recruitment on all Western Oregon and Washington BLM administered Riparian Management Areas. Overall, LWD recruitment was considered likely to continue to improve over the next 100 years under the preferred alternative (BLM 2008). Private lands account for roughly 19 percent of the land base in the Five Rivers Watershed. An assessment of Oregon Forest Practices indicated on non-federally administered forest lands roughly 94 percent of the riparian network would be considered inadequately stocked for future recruitment of LWD (IMST 1999). However, based on the various policies currently being applied to coastal Oregon forest lands, the amount of riparian area with large and very large conifer trees, which would contribute towards large wood recruitment, is projected to increase significantly (Spies et al 2007).

The BLM, industrial forest companies, and small land owners have conducted a variety of site level LWD enhancement projects in the Five Rivers Watershed in proximity to the project area in Lobster Creek, East Fork Lobster Creek, South Fork Lobster Creek, J-Line Creek, Preacher Creek, and Little Lobster Creek. Future LWD enhancement work is being planned in the Five Rivers Watershed by the Alsea Watershed Council, Mid-Coast Watershed Council, Forest Service, and BLM. Site level LWD restoration projects, both private and public, have locally increased LWD abundance. However, these projects are unlikely to detectably alter fish productivity at 5th field scale due to the small scale of project work and lack of connectivity between treatment areas.

Extensive road work has occurred on BLM administered lands, FS administered lands, and adjacent industrial forest over the last decade in the Five Rivers Watershed. Substantial restoration work has occurred to improve road stability, reduce road generated sedimentation, reduce road mileage and remove barriers to aquatic habitat movement at stream crossings in the Upper Lobster Creek Key Watershed. Site level road work, both private and public, have had negative and positive impacts on aquatic habitat. However, these projects are unlikely to detectably alter fish productivity at 5th field scale due to the small scale of project work and lack of connectivity between treatment areas.

Impacts of hauling activities, from Forest Service and private forests, may contribute to cumulative impacts to fish habitat at the 5th field scale. However, the magnitude and extent of sediment impacts from hauling are impractical to assess, or predict, due to high degree of variability of hauling which may occur within a watershed from one year to the next.

4.5 Wildlife

The BLM has not conducted any thinning or legacy restoration within the 6,528 acres of mid-seral stands in the Five Rivers watershed since implementation of the Northwest Forest Plan began in 1995. This proposed action would not contribute to any cumulative negative effects to mid-seral forests on this landscape, nor would it contribute to any cumulative loss of dispersal habitat for spotted owls since the functional capacity as dispersal habitat would be maintained. Also, there would be no cumulative negative effects to marbled murrelets since suitable nesting structure would be retained and enhanced over time, and there would be no cumulative effects to red tree voles since no older forest habitats (which best support population persistence) would be affected.

4.6 Fuels/Air Quality

Although there would be an increase in fuel loading and resultant fire hazard in the short term, there would be positive benefits to stand health, structure and wildlife in the long term due to the proposed treatment. When looked at from a watershed scale, the treatment to release dispersed legacy trees and create CWD on approximately 580 acres (over a 2 year period) of LSR and RR forest habitat would result in only a minor increase in overall fire risk and resistance to control. Where fuels are treated on site, fire risk would be reduced by a substantial margin.

There would be few cumulative effects to the resources, as the effects from the project would be local and / or short lived, and there would be no other uses affecting this resource. Burning of slash would be guided by the OSMP which serves to coordinate all forest burning activities on a regional scale to protect local and regional air sheds. Based on past experience with pile burning in this and other similar areas there are no expected cumulative effects on regional air quality from the planned fuels treatment under this proposal.

5.0 COMPLIANCE WITH THE AQUATIC CONSERVATION STRATEGY

Review of Aquatic Conservation Strategy Compliance:

The project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II [complies with the ACS on the project (site) scale]. The following is an update of how the project would comply with the four components of the Aquatic Conservation Strategy. The project would comply with:

Component 1 – Riparian Reserves: by maintaining canopy cover along all streams and wetlands would protect stream bank stability and water temperature. Riparian Reserve boundaries would be established consistent with direction from the *Salem District Resource Management Plan*;

Component 2 – Key Watershed: by establishing that the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project is located within the Upper Lobster Creek Key Watershed;

Component 3 –Watershed Analysis: The Lobster Creek-Five Rivers Watershed Analysis (1997), South Fork Alsea Watershed Analysis (1995) and Lower Alsea River Watershed Analysis (1999) describes the events that contributed to the current condition such as early hunting/gathering by aboriginal inhabitants, road building, agriculture, wildfire, and timber harvest.

Component 4 – Watershed Restoration:
The project has been reviewed against the ACS objectives at the project or site scale with the following results; the no action alternative does not retard or prevent the attainment of any of the nine ACS objectives because this alternative would maintain current conditions. The proposed actions do not retard or prevent the attainment of any of the nine ACS objectives for the following reasons:

Table 7: Project' Consistency with the Nine Aquatic Conservation Strategy Objectives

Aquatic Conservation Strategy Objectives (ACSOs)	Legacy Tree Enhancement
1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted..	Does not prevent the attainment of ***ACSO 1***. **No Action Alternative:** The No Action alternative would maintain the development of the existing vegetation and associated stand structure at its present rate. The current distribution, diversity and complexity of watershed and landscape-scale features would be maintained. Faster restoration of distribution, diversity, and complexity of watershed and landscape features would not occur. **Action Alternative:** The addition of CWD and snags would help to restore the diversity and complexity of watershed features to which native aquatic and riparian species are uniquely adapted.
2. Maintain and restore spatial and temporal connectivity within and between watersheds.	Does not prevent the attainment of ***ACSO 2***. **No Action Alternative:** The No Action alternative would have little effect on connectivity except in the long term within the affected watershed. **Action Alternative:** Long term connectivity of terrestrial watershed features would be improved by enhancing conditions for stand structure development. In time, the Riparian Reserve LUA would improve in functioning as refugia for late successional, aquatic and riparian associated and dependent species. Both terrestrial and aquatic connectivity would be maintained, and over the long-term, as the Riparian Reserve LUA develops late successional characteristics, lateral, longitudinal and drainage connectivity would be restored..
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	Does not prevent the attainment of ***ACSO 3***. **No Action Alternative:** It is assumed that the current condition of physical integrity would be maintained. **Action Alternative:** There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. Stream banks, wetlands and channel beds are protected from direct physical alteration or disturbance by equipment (EA .pp 28 and 29).
4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.	Does not prevent the attainment of ***ACSO 4***. **No Action Alternative:** It is assumed that the current condition of the water quality would be maintained. **Action Alternative:** The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by this proposal (EA pg. 29).
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.	Does not prevent the attainment of ***ACSO 5***. **No Action Alternative:** It is assumed that the current levels of sediment into streams would be maintained. **Action Alternative:** No activities on BLM-managed land would take place directly in or adjacent to stream channels..

Aquatic Conservation Strategy Objectives (ACSOs)	Legacy Tree Enhancement
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.	Does not prevent the attainment of ***ACSO 6***. **No Action Alternative:** No change in in-streams flows would be anticipated. **Action Alternative:** Because the crown removal would be so much lower than the 30 percent level reviewed in water yield studies, it is highly unlikely that any measurable impact of water yields would be able to be measured. Therefore, this proposal is unlikely to result in any detectable changes in peak flows (EA pg. 30).
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	Does not prevent the attainment of ***ACSO 7***. **No Action Alternative:** No change in in-streams flows would be anticipated. **Action Alternative:** The proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology (EA pg. 29).
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	Does not prevent the attainment of ***ACSO 8***. **No Action Alternative:** The current species composition and structural diversity of plant communities would continue along the current trajectory. Diversification would occur over a longer period of time. **Action Alternative:** No impacts to riparian areas are proposed with this project.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	Does not prevent the attainment of ***ACSO 9***. **No Action Alternative:** Habitats would be maintained over the short-term and continue to develop over the long-term with no known impacts on species currently present. **Action Alternative** The purpose of the project is to improve and restore legacy –aged tree components which would help to support riparian-dependant species..

Over the long-term, this project should aid in meeting ACS Objectives by speeding the development of older forest characteristics in RR, including increased large wood recruitment for stream channels. In addition, more open stands would allow for the growth of important riparian species in the understory. This project would also promote stand diversity, provide more light to accelerate growth of selected conifers and promote species diversity. The creation of snags and CWD would restore watershed conditions by providing a gradual transition in structural characteristics of the treated stands that would more closely resemble late seral forest.

6.0 LIST OF PREPARERS

Table 8: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Heather Ulrich		
Hydrology/Water Quality/Soils	Steve Wegner		
Silviculture/Riparian Ecology	Hugh Snook	HWS	6/30/10
Botany TES and Bureau Sensitive Plant Species	Ron Exeter		
Wildlife TES and Special Status Animal Species	Scott Hopkins	SH	6/30/10
Fuels/Air Quality	Terri Brown	TWB	6/30/10
Fisheries	Scott Snedaker		
NEPA	Gary Humbard	GLH	6/30/10

7.0 CONTACTS AND CONSULTATION

7.1 Agencies, Organizations, and Persons Consulted (ESA Section 7 Consultation)

U. S. Fish and Wildlife Service (USFWS)

Due to potential affects to habitat for both spotted owls and marbled murrelets as outlined in Table 3, Section 7(a) of the Endangered Species Act requires that this proposed action receive consultation with the U.S. Fish and Wildlife Service. Consultation has been addressed by inclusion of the proposed action a batched Biological Assessment (BA) that analyzed projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards included in the BA. A Letter of Concurrence (LOC, #13420-2008-I-0125) has been received from the Service which concludes that the proposed action is not likely to adversely affect these listed species or their designated critical habitat. The LOC did not require any changes or additions to be incorporated into the proposed project design standards.

National Marine Fisheries Service

On February 11, 2008, the NMFS listed the Oregon Coast Coho salmon Evolutionarily Significant Unit as threatened under the Endangered Species Act (ESA). The project is not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b)(9)].

Consultation with NMFS is required for all actions which may affect listed fish species and critical habitat under the ESA [40 CFR 1508.27 (b)(9)].

Proposed actions which may affect would comply with existing programmatic consultation and relevant design criteria, and no additional consultation would be necessary. The proposed action is covered under NMFS *Endangered Species Act Section 7 Programmatic Consultation Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012.*

Protection of Essential Fish Habitat (EFH), as described by the Magnuson/Stevens Fisheries Conservation and Management Act, and consultation with NMFS is required for all projects which may adversely affect EFH of

Chinook or coho salmon in the action area. The proposed action, with the incorporation of project design features, is not expected to adversely affect EFH. Thus, no consultation with NMFS on EFH is required for this project. Actions and effects beyond the scope of the analysis provided will require additional review and potentially result in the need to consult with NMFS.

7.2 Cultural Resources - Section 106 Consultations and Consultation with State Historical Preservation Office

The project area occurs in the Oregon Coast Range Mountains. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope defined in the Protocol appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery.

7.3 Public Scoping and Notification-Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices

- A scoping letter, dated February 2, 2010, was sent to 24 potentially affected and/or interested individuals, groups, and agencies. – Two responses were received during the scoping period.

- A description of the project was included in the March and June 2010 project updates to solicit comments on the proposed project.

7.3.1 30-day public comment period

- The EA and FONSI will be made available for public review June 30, 2010 to July 14, 2010. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 14, 2010 will be considered in making the final decisions for this project.

8.0 MAJOR SOURCES AND COMMON ACRONYMS

8.1 Major Sources

8.1.1 Interdisciplinary Team Reports

Exeter, R. 2010. Botanical Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Hopkins, S. 2010. Biological Evaluation (Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project) . Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snedaker, S. 2010. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project Environmental Assessement Fisheries. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snook, H. 2010 Specialist Report Abstract, Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project, Forest Vegetation and Silviculture. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Brown, Terri. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project Proposal Fuels Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Wegner, S. 2010. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Environmental Assessment Soils/Hydro Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

8.1.2 Additional References

USDA. Forest Service, USDI. Bureau of Land Management. 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR.

USDA. Forest Service, USDI. Bureau of Land Management. 1994. Final Supplemental Environmental Impact Statement Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR.

USDI. Bureau of Land Management. 1995. Salem District Record of Decision and Resource Management Plan. Salem, OR.

USDI. Bureau of Land Management. 1994. Salem District Proposed Resource Management Plan/Final Environmental Impact Statement. Salem, OR.

USDA Forest Service and USDI Bureau of Land Management. 2010. Biological Assessment, Fiscal year 2009/2010 habitat modification activities in the North Coast Province which might affect bald eagles, northern spotted owls or marbled murrelets.

Biological Assessment of Habitat Modification Projects Proposed During Fiscal Years 2009 and 2010 in the North Coast Planning Province, Oregon, That Are Not Likely to Adversely Affect (NLAA) Northern Spotted Owls or Marbled Murrelets and Their Critical Habitats

Letter of Concurrence on the Effects of Habitat Modification Activities on the Northern Spotted Owl (*Strix occidentalis caurina*), Marbled Murrelet (*Brachyramphus marmoratus*), and Critical Habitat in the North Coast Planning Province, FY 2009 – 2010, proposed by the Eugene District, Bureau of Land Management; Salem District, Bureau of Land Management; and the Siuslaw National Forest (FWS Reference Number 13420-2008-I-0125)

Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Environmental Assessment and Finding of No Significant Impact

Environmental Assessment Number DOI-BLM-OR-S050-2010-0006-EA

June 30, 2010

United States Department of the Interior
Bureau of Land Management
Oregon State Office
Salem District
Marys Peak Resource Area

Responsible Agency: USDI - Bureau of Land Management

Responsible Official: Patricia Wilson, Field Manager
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1717 Fabry Road SE
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BLM
Salem District

Abstract: This environmental assessment (EA) discloses the predicted environmental effects of one project on BLM managed land located in multiple sections within the Lower Alsea River, Upper Alsea River, Five Rivers and Deadwood Creek Watersheds located in Benton and Lane Counties, Willamette Meridian. The project is a proposal for older forest legacy tree release within approximately 578 acres of LSR (Late Successional Reserve) and RR (Riparian Reserves) LUAs (land use allocations).

As the Nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering economic use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/PT-10/048+1792

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis (Environmental Assessment Number DOI-BLM-OR-S050-2010-0006-EA) for a proposal to implement one project as follows: conduct legacy tree release within approximately 578 acres of 40 to 90 year-old stands in Late-Successional Reserve (LSR), and Riparian Reserve (RR) Land Use Allocations (LUAs) to increase structural diversity.

The project is on BLM-managed lands within the Five Rivers, Deadwood Creek, Lower Alsea River and Upper Alsea River Watersheds located in Benton and Lane Counties, Willamette Meridian.

Implementation of the proposed action will conform to management actions and direction contained in the attached *Marys Peak Resource Area Fiscal Years 2010 to 2011 Legacy Tree Release Environmental Assessment* (Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA). The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA is attached to and incorporated by reference in this Finding of No Significant Impact (FONSI) determination. The analysis in this EA is site-specific and supplements analyses found in the Salem District Proposed Resource Management Plan/Final Environmental Impact Statement, September 1994 (RMP/FEIS) (EA p. 3).

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project has been designed to conform to the Salem District Record of Decision and Resource Management Plan, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM-managed lands within Marys Peak Resource Area (EA pp. 4-5). Consultation with U.S. Fish and Wildlife Service and National Marine Fisheries Service is described in Section 7.0 of the EA.

The EA and FONSI will be made available for public review June 30, 2010 to July 14, 2010. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 14, 2010 will be considered in making the decision for this project.

Finding of No Significant Impact

Based upon review of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA and supporting documents, I have determined that the proposed action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No site-specific environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, supplemental or additional information to the analysis done in the RMP/FEIS through a new environmental impact statement is not needed. This finding is based on the following information:

Context: Potential effects resulting from the implementation of the proposed action have been analyzed within the context of the Five Rivers, Deadwood Creek, Lower Alsea River and Upper Alsea River 5th-field Watersheds and the project area boundaries. The proposed action would occur on approximately acres of BLM LSR and RR LUA land, encompassing less than 0.7 percent of the BLM managed forest cover within the Upper Alsea River, Lower Alsea River, Deadwood Creek and Five Rivers Watersheds [40 CFR 1508.27(a)].

Intensity:

1. *The Project* is unlikely to a have any significant adverse impacts on the affected elements of the environment (EA sections 3.1 - vegetation, wildlife, soils, water, fisheries/aquatic habitat, and fuels/air quality resources).

The effects of legacy tree release is unlikely to have significant adverse impacts on these resources [40 CFR 1508.27(b) (1)] for the following reasons:

- Vegetation and Forest Stand Characteristics *(EA section 3.1.1):* Any known special status species sites located would be protected as described in the design features. The removal of some of the competing conifer trees around legacy trees may provide additional habitat for species requiring older forest conditions. This would be accomplished by allowing for an increase in sunlight into the lower forest and lower canopy of the legacy trees.

  Noxious Weeds - The implementation of this project would disrupt very little mineral soil and possibly only a small area of less than one foot square where the butt of the severed conifer hits the ground. It is unlikely this small amount of disturbed mineral soil would lead to any sustainable infestation of noxious weeds. The risk rating for the long-term establishment of noxious weeds and consequences of adverse effects on this project area is low because;

  - the amount of disturbance is localized and minimal,
  - the project areas are generally located in the middle of a coniferous stand away from local noxious weed sites,
  - the implementation of the Marys Peak integrated non-native plant management plan allows for early detection of non-native plant species which allows for rapid control,
  - the known noxious weeds species which occur in the project area are regionally abundant throughout the Oregon Coast Range Physiographic Province, and control measures generally consist of biological control,
  - generally these species often persist for several years after becoming established in mineral soil and soon decline as native vegetation increases within the project areas,

- Soils, Hydrology, and Fisheries *(EA sections 3.1.3 to 3.1.5)*:

  The felling, girdling, removal, or topping of trees as scattered individuals or in gaps up to one acre in size would have no visible or detectable effect on soil physical properties such as bulk density. Over time the material left on site would breakdown and add to the organic matter content of the soil and this could slightly alter some soil chemical properties (i.e., increased supplies of soil carbon and organic acids). Small disturbances to the soil surface (compaction/displacement) from foot traffic and repositioning of some material would occur during project operations. These effects would be dispersed across the treatment area and would not result in a loss of soil productivity or function.

  There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. The proposed action is unlikely to affect stream flow in a measurable manner because of the low amount of crown reduction and therefore any indirect effects to stream channels as a result of increases in peak flows is unlikely. Thus, the proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology. As no discernable changes in peak and base flows within the treatment area are anticipated no alternations to fish habitat would be anticipated.

  The proposed SPZ of 55 feet is anticipated to retain critical shade at more than 80 percent in the primary shade zone, primarily based on the limited nature of proposed actions.

  Based on the anticipated protection of stream shade, the hydrology report water quality analysis, and the project design features, the proposed actions are unlikely to impact fish habitat both at the treatment site and downstream.

Based on the dispersed nature of the proposed actions, 20 units spread amongst six drainages and the SPZ protection of most LWD, short term or long term impacts to LWD recruitment would likely be undetectable at the site scale.

- Wildlife (*EA section 3.1.2*): 1/ Existing snags and coarse woody debris (CWD) would be retained. The proposed legacy tree release units would treat about 8.7 percent of the mid-seral forest stands on BLM managed lands within the Five Rivers watershed. All proposed treatments would result in no discernable loss of function or connectivity of the mid-seral forest stands at the landscape scale. The slight reduction of small snag recruitment would only occur in patch cut areas (less than 33 percent of treatment area), and this reduction would largely be offset by the immediate creation of larger (greater than 15 inches) snags and down logs that have greater wildlife value. The special habitat component of CWD would increase in quality and quantity as a result of proposed action. The current rate of density dependent mortality would be unaffected in the portion of the treatment units that are outside of patch cuts (about 67 percent of treatment area).

- Air Quality and Fire Hazard/Risk (*EA section 3.1.6*): The fuel loading would increase 10 to 25 tons per acre of dead fuel in the 0 to 9 inch size class not counting the felled boles that are left for CWD recruitment.

  Risk of a fire start in the untreated slash would be greatest during the first season following cutting, the period when needles dry out but remain attached. The highly flammable needles generally fall off within one year and risk of a fire start greatly diminishes.

  Burning approximately 100 to 250 tons of dry, cured, piled fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality in the air shed.

  With the implementation of the project design features described in EA section 2.2.2, potential effects to the affected elements of the environment are anticipated to be site-specific and/or not measurable (i.e. undetectable over the watershed, downstream, and/or outside of the project areas). The project is designed to meet RMP standard and guidelines, modified by subsequent direction (EA section 1.4); and the effects of this project would not exceed those effects described in the RMP/FEIS [40 CFR 1508.27(b) (1), EA sections 3.0].

2. *The Project would not affect*:
   - ü Public health or safety [40 CFR 1508.27(b)(2)];
   - ü Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA section 3.0);
   - ü Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the proposed action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA section 3.0).

3. The *Project* is not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b)(4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b)(5)].

4. The *Project* does not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration [40 CFR 1508.27(b)(6)]. The BLM has experience implementing similar actions in similar areas without setting a precedent for future actions.

5. The interdisciplinary team evaluated the *Project* in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b)(7)]. Potential cumulative effects are described in the attached EA. These effects are not likely to be significant because of the project's scope (effects are likely to be too small

to be measurable), scale (project area of 578 acres, encompassing less than 0.02 percent of the forest cover within the Upper Alsea River, Lower Alsea River, Deadwood Creek and Five Rivers Watersheds and duration [direct effects would occur over a maximum period of four to six years (EA section 3.1)].

6. The *Project* is not expected to adversely affect endangered or threatened species or habitat under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b)(9)].

U. S. Fish and Wildlife Service (USFWS)

Due to potential affects to habitat for both spotted owls and marbled murrelets as outlined in Table 3, Section 7(a) of the Endangered Species Act requires that this proposed action receive consultation with the U.S. Fish and Wildlife Service. Consultation has been addressed by inclusion of the proposed action a batched Biological Assessment (BA) that analyzed projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards included in the BA. A Letter of Concurrence (LOC, #13420-2008-I-0125) has been received from the Service which concludes that the proposed action is not likely to adversely affect these listed species or their designated critical habitat. The LOC did not require any changes or additions to be incorporated into the proposed project design standards.

National Marine Fisheries Service

On February 11, 2008, the NMFS listed the Oregon Coast Coho salmon Evolutionarily Significant Unit as threatened under the Endangered Species Act (ESA). The project is not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b) (9)].

Consultation with NMFS is required for all actions which may affect listed fish species and critical habitat under the ESA [40 CFR 1508.27 (b)(9)].

Proposed actions which may affect will comply with existing programmatic consultation and relevant design criteria, and no additional consultation will be necessary. The proposed action is covered under NMFS *Endangered Species Act Section 7 Programmatic Consultation Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012*.

Protection of Essential Fish Habitat (EFH), as described by the Magnuson/Stevens Fisheries Conservation and Management Act, and consultation with NMFS is required for all projects which may adversely affect EFH of Chinook or coho salmon in the action area. The proposed action, with the incorporation of project design features, is not expected to adversely affect EFH. Thus, no consultation with NMFS on EFH is required for this project. Actions and effects beyond the scope of the analysis provided will require additional review and potentially result in the need to consult with NMFS

7. *The Project* does not violate any known federal, state, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b)(10)].

Approved by: _____ _____

John Huston, Acting Field Manager Date

Marys Peak Resource Area

Glossary: Abbreviations, Acronyms, and Terms

Airshed	A geographic area that shares the same air mass due to topography, meteorology, and climate.
Alternative	Proposed project (plan, option, choice)
Anadromous Fish	Species that migrate to oceans and return to freshwater to reproduce.
BLM	Bureau of Land Management. Federal agency within the Department of Interior responsible for the management of 275 million acres.
BMP	Best Management Practice(s). Design features and mitigation measures to minimize environmental effects.
BO	Biological Opinion. The document resulting from formal consultation that states the opinion of the Fish and Wildlife Service or National Marine Fisheries Service as to whether or not a federal action is likely to jeopardize the continued existence of listed species or results in destruction or adverse modification of critical habitat.
Critical Habitat Units	Lands designated for the conservation and protection of threatened and/or endangered species
Crown	The portion of a tree with live limbs.
Cumulative Effects	Past, present, and reasonably foreseeable effects added together (regardless of who or what has caused, is causing, and might cause those effects)
CWD	Coarse Woody Debris refers to a tree (or portion of a tree) that has fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter as described in Northwest Forest Plan.
DBHOB	Diameter at breast height outside bark
EA	Environmental Assessment. A systematic analysis of site-specific activities used to determine whether such activities have a significant effect on the quality of the human environment.
EFH	Essential Fish Habitat. Anywhere Chinook or coho salmon could naturally occur.
Ephemeral Streams	Streams that contain running water only sporadically, such as during and following storm events.
ESA	Endangered Species Act. Federal legislation that ensures federal actions would not jeopardize or elevate the status of living plants and animals.
FEIS	Final Environmental Impact Statement
FSEIS	Final Supplemental Environmental Impact Statement
FWS	U. S. Fish and Wildlife Service. A division within the U.S. Department of the Interior
Fish-Bearing Stream	Any stream containing any species of fish for any period of time.
FONSI	Finding of No Significant Impact
Fuel Loading	The amount of combustible material present per unit of area, usually expressed in tons per acre (dry weight of burnable fuel)
Girdle	Removal of the inner bark from the entire circumference of a tree. This typically results in the death of the tree within 3 to 5 years.
Interdisciplinary Team	IDT. A group of individuals assembled to solve a problem or perform a task.

Intermittent Stream	Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. Includes ephemeral streams if they meet these two criteria.
Invasive Plant	Any plant species that is aggressive and difficult to manage.
Late-Successional	Forest conditions consisting of larger trees and multiple canopy layers that support numerous plant and animal species.
Legacy	A component of a previous forest stand (tree, snag, shrub patch, etc) that persists into a new forest stand that follows a disturbance event (e.g., fire or harvest)
LSR	Late-Successional Reserve (a NWFP designated land use allocation) Lands to be managed or maintained for older forest characteristics.
LUA	Land Use Allocation. NWFP designated lands to be managed for specific objectives
LWD	Large Woody Debris. Woody material found within the bankfull width of the stream channel and is specifically of a size 23.6 inches diameter by 33 feet length (per ODFW - Key Pieces)
Native Plant	Species that historically occurred or currently occur in a particular ecosystem and were not introduced
NEPA	National Environmental Policy Act (1969)
NMFS	National Marine Fisheries Service. Federal agency within which is responsible for the regulation of anadromous fisheries in the U. S.
Non-Native Plant	Any plant species that historically does not occur in a particular ecosystem
Noxious Weed	A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or diseases; or non-native, new, or not common to the United States.
NWFP/FSEIS	Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl, February 1994
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife. Oregon State Agency responsible for the management and protection of fish and wildlife.
Oregon Smoke Management Plan	The State of Oregon's plan for implementing the National Clean Air Act in regards to burning of forest fuels.
Perennial Stream	A stream that typically has running water on a year-round basis.
RMP	Salem District Record of Decision and Resource Management Plan (1995)
RMP/FEIS	Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994).
ROD	Record of Decision. Document that approves decisions to the analyses presented in the FEIS.
RR	Riparian Reserves (NWFP land use allocation). Lands on either side of streams or other water feature designated to maintain or restore aquatic habitat.
Seral	One stage of a series of plant communities that succeed one another.
Silviculture	The manipulation of forest stands to achieve desired structure.
Snag	A dead, partially dead, or defective tree at least 10 inches DBHOB and 6 feet tall.

SPZ	Stream Protection Zone is a buffer along streams and identified wet areas where no material would be removed and heavy machinery would not be allowed. The SPZ is measured to the slope break, change in vegetation, or 55 feet from the channel edge which ever is greater.
Standards and Guidelines	The primary instructions for land manager. Standards address mandatory actions, while guidelines are recommended actions necessary to a land management decision.
Succession	The stages a forest stand makes over time as vegetation competes and natural disturbances occur. The different stages in succession are often referred to as seral stages.
Topped	Completely severing the upper portion of a standing live tree. The typical purpose for this action is to enhance wildlife habitat by creating snags from standing live trees.
Turbidity	Multiple environmental sources that causes water to change conditions.
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
VRM	Visual Resource Management, all lands are classified from 1 to 4 based on visual quality ratings and the amount of modification allowed in the landscape.
Watershed	The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.
Noxious Weed	A plant considered undesirable and that interferes with management objectives for a given area at a given point in time.
Windthrow	Trees uprooted or blown over by natural events.

MARYS PEAK RESOURCE AREA FISCAL YEARS 2010 to 2011 LEGACY TREE RELEASE ENVIRONMENTAL ASSESSMENT

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1.0 INTRODUCTION

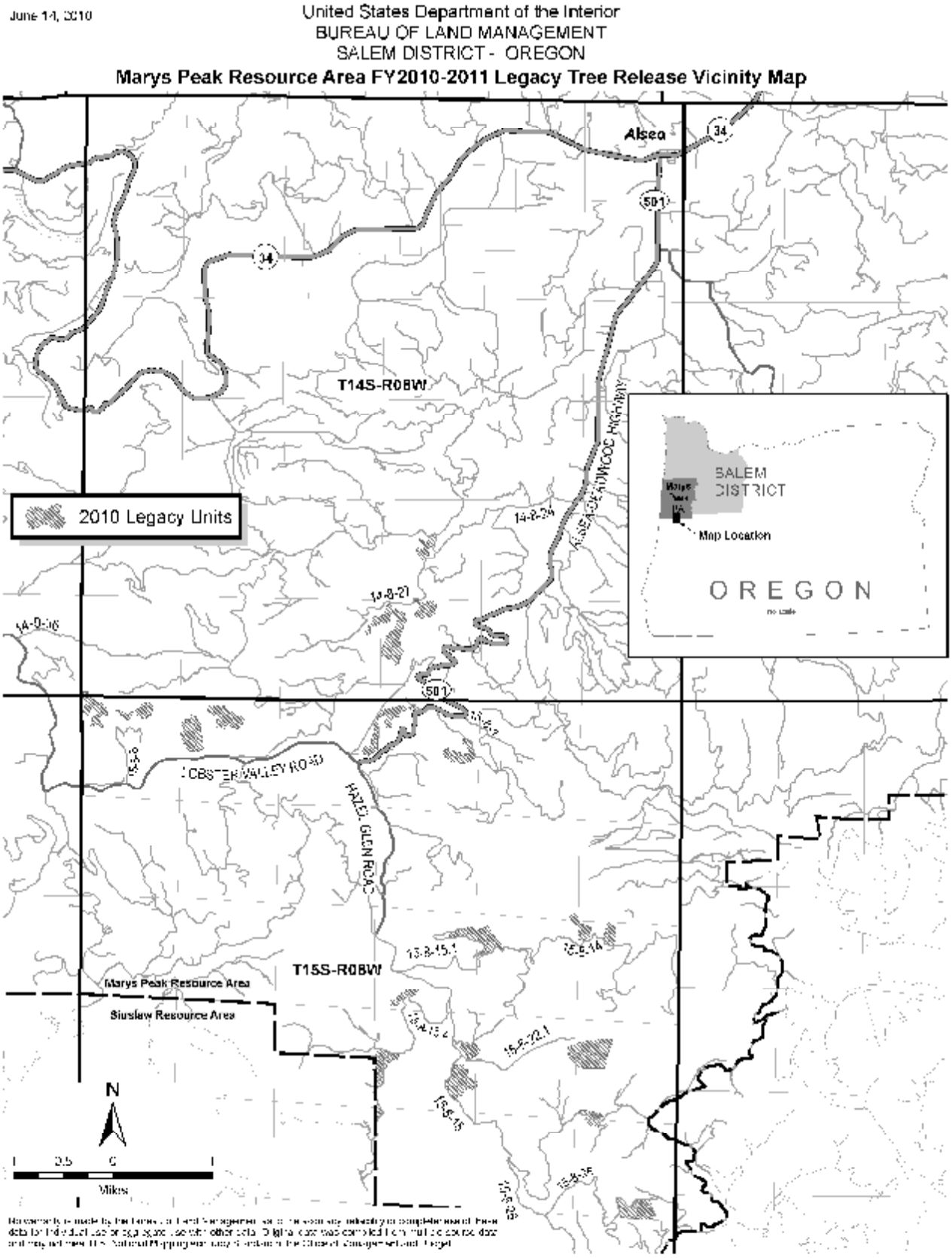
1.1 Project Covered in this EA

One project will be analyzed in this EA (Environmental Assessment): Legacy tree release is a proposal to release older forest legacy trees through the felling, girdling and topping of individual trees or creation of gaps (¼ acre to one acre in size). The felled, girdled or topped trees would function as snags and CWD adjacent to older forest legacy trees (mature open-grown trees or old-growth remnant trees). None of the felled trees would be harvested for commercial timber purposes. A small portion of the felled trees may be removed and placed into streams to improve fish habitat. Approximately 289 acres in forest stands aged 40 to 90 years old per year would be treated during a two year time period (total of 578 acres in 2010 to 2011).

1.2 Project Area Locations

The project units are located in Benton and Lane Counties on forested land managed by the Marys Peak Resource Area, Salem District of the Bureau of Land Management (Map 1).

Map 1. Project Vicinity



1.3 Purpose of and Need for Action

The purpose for the proposed action is to release declining older forest legacy trees (see Figure 1) that are undergoing encroachment from densely-stocked younger conifer stands and to enhance terrestrial wildlife habitats by creation of snags and CWD within such forest stands where this structural component is lacking.

A mounting body of research has demonstrated the importance of maintaining and enhancing forest legacy features, CWD, and in-stream wood structures. The Northwest Forest Plan, *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP), Late Successional Reserve Assessment Oregon Coast Province-Southern Portion and local watershed analyses have all identified these types of treatments as a key component of restoration efforts within the LSR and RR LUAs.

Late Successional Reserve LUA (RMP p. 35-36): Manage forest stands and wildlife habitat in the LSR LUA to:

- Maintain habitat suitable for the northern spotted owl and the marbled murrelet.
- Promote development of habitat suitable for nesting, roosting, and foraging for the northern spotted owl in stands that do not currently meet suitable habitat criteria.
- Promote development of nesting habitat for the marbled murrelet in stands that do not currently meet nesting habitat criteria.

Manage mid-seral stands in RR LUA (RMP pp. 9-15) to:

- Maintain and restore access to stream channels for all life stages of fish species;
- Provide for conservation of special status (SS) fish and other SS aquatic species;
  - Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and streambank stability;
  - Enhance or restore habitat [(e.g. coarse woody debris (CWD), snag habitat, instream large wood)] for populations of native riparian-dependent plants, invertebrates, and vertebrate species;
  - Improve structural and spatial stand diversity on a site-specific and landscape level in the long-term.

<u>Need for Action</u>

The proposed action would address the immediate need for treatment of declining older forest legacy trees in forest stands where the ascending canopy of densely-stocked younger conifers threatens to shade out and kill these older forest legacy trees (see Figure 1). There is a need to cut, girdle or top individual trees or trees in clumps (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees. Patch treatments also help enhance the structural and spatial diversity within selected units, which would promote understory development, shrub layer diversity, and release minor conifers and hardwood species. Saving declining old forest legacy trees, creating high quality CWD, and creating patches with spatial and structural diversity is expected to benefit numerous wildlife species that are associated with late-successional forest structure. In particular, the federally threatened marbled murrelet is known to nest on large mossy limbs of live old-growth trees. This project would benefit the marbled murrelet by helping maintain and recover habitat quality within CHUs (Critical Habitat Units) that have been designated for this species.

1.4 Conformance with Land Use Plans, Policies, and Programs

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project has been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District:

- *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP): The RMP has been reviewed and it has been determined that the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project conform to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1);
- *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, April 1994 (the Northwest Forest Plan, or NWFP);
- *Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M ROD, January 2001).

The analysis in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The RMP/FEIS includes the analysis from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, February 1994 (NWFP/FSEIS). In addition, the EA is tiered to the *Final Supplemental Environmental Impact Statement For Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M FSEIS, November 2000).

The proposed action is located within the coastal zone as defined by the Oregon Coastal Management Program. This proposal is consistent with the objectives of the program, and the State planning goals which form the foundation for compliance with the requirements of the Coastal Zone Act. Management actions/directions found in the RMP were determined to be consistent with the Oregon Coastal Management Program.

The following documents provided additional direction in the development of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project:

- *Late Successional Reserve Assessment, Oregon Coast Province - Southern Portion* (June 1997);
- *Lower Alsea Watershed Analysis* dated October 1995
- *Five Rivers-Lobster Creek Watershed Analysis*, dated January 1997;
- *South Fork Alsea Watershed Analysis* dated October 1995

All of the above documents, along with the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release interdisciplinary team (IDT) reports (EA section 8.1.1), are hereby incorporated by reference in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA and available for review in the Salem District Office. Additional information about the proposed project is available in the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release EA Analysis File (NEPA file), also available at the Salem District Office.

1.4.1 Survey and Manage Review

The Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project is consistent with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, as incorporated into the Salem District Resource Management Plan.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Rey, et al.*, No. 08-1067 (W.D. Wash.) (Coughenour, J.), granting Plaintiffs' motion for partial summary judgment and finding a variety of NEPA violations in the BLM and USFS 2007 Record of Decision eliminating the Survey and Manage mitigation measure.

Judge Coughenour deferred issuing a remedy in his December 17, 2009 order until further proceedings, and did not enjoin the BLM from proceeding with projects (including timber sales).

This project may proceed even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage Record of Decision. This is because the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project meets the provisions of the last valid Record of Decision, specifically the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (not including subsequent Annual Species Reviews). Details of the project surveys are described below:

There are no known sites of any Survey and Manage species within the project area. On-site plant and animal habitat evaluations (including some Survey and Manage botany protocol surveys) would occur prior to project implementation to ensure that any Survey and Manage species sites are buffered or excluded from treatment units.

1.4.2 Northern Spotted Owl (NSO) Status Review

"The following information was considered in the analysis of the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release proposed activities: a/ *Scientific Evaluation of the Status of the Northern Spotted Owl* (Sustainable Ecosystems Institute, Courtney et al. 2004); b/*Status and Trends in Demography of Northern Spotted Owls,* 1985-2003 (Anthony et al. 2004); c/ *Northern Spotted Owl Five Year Review: Summary and Evaluation* (USFWS, November 2004); and *Northwest Forest Plan – The First Ten Years* (1994-2003): d/ *Status and trend of northern spotted owl populations and habitat, PNW Station Edit Draft* (Lint, Technical Coordinator, 2005).

The Salem District analyzed reports regarding the status of the northern spotted owl and although the agencies anticipated a decline of NSO populations under land and resource management plans during the past decade, the reports identified greater than expected NSO population declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California."

The reports did not find a direct correlation between habitat conditions and changes in NSO populations, and they were inconclusive as to the cause of the declines. Lag effects from prior harvest of suitable habitat, competition with barred owls, and habitat loss due to wildfire were identified as current threats. West Nile Virus and Sudden Oak Death were identified as potential new threats. Complex interactions are likely among the various factors. This information has not been found to be in conflict with the NWFP or the RMP (Evaluation of the Salem District Resource Management Plan Relative to Four Northern Spotted Owl Reports, September 6, 2005).

1.4.3 Compliance with the Aquatic Conservation Strategy

On March 30, 2007, the District Court, Western District of Washington, ruled adverse to the US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA-Fisheries) and USFS and BLM (Agencies) in *Pacific Coast Fed. of Fishermen's Assn. et al v. Natl. Marine Fisheries Service, et al and American Forest Resource Council,* Civ. No. 04-1299RSM (W.D. Wash)((PCFFA IV). Based on violations of the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA), the Court set aside:

- the USFWS Biological Opinion (March 18, 2004),
- the NOAA-Fisheries Biological Opinion for the ACS Amendment (March 19, 2004),
- the ACS Amendment Final Supplemental Environmental Impact Statement (FSEIS) (October 2003), and the
- ACS Amendment adopted by the Record of Decision dated March 22, 2004.

Previously, in *Pacific Coast Fed. Of Fishermen's Assn. v. Natl. Marine Fisheries Service*, 265 F.3d 1028 (9th Cir. 2001)*(PCFFA II)*, the United States Court of Appeals for the Ninth Circuit ruled that because the evaluation of a project's consistency with the long-term, watershed level ACS objectives could overlook short-term, site-scale effects that could have serious consequences to a listed species, these short-term, site-scale effects must be considered.

Environmental Assessment Section 5.0 shows how the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project meets the Aquatic Conservation Strategy in the context of the PCFFA cases. In addition, project design features (p. 11) would provide protection measures to meet ACS objectives.

1.5 Decision Criteria/Project Objectives for the Project

The MPRA Field Manager will use the following criteria/objectives in selecting the alternative to be implemented. The field manager would select the alternative that would best meet these criteria. The selected action would:

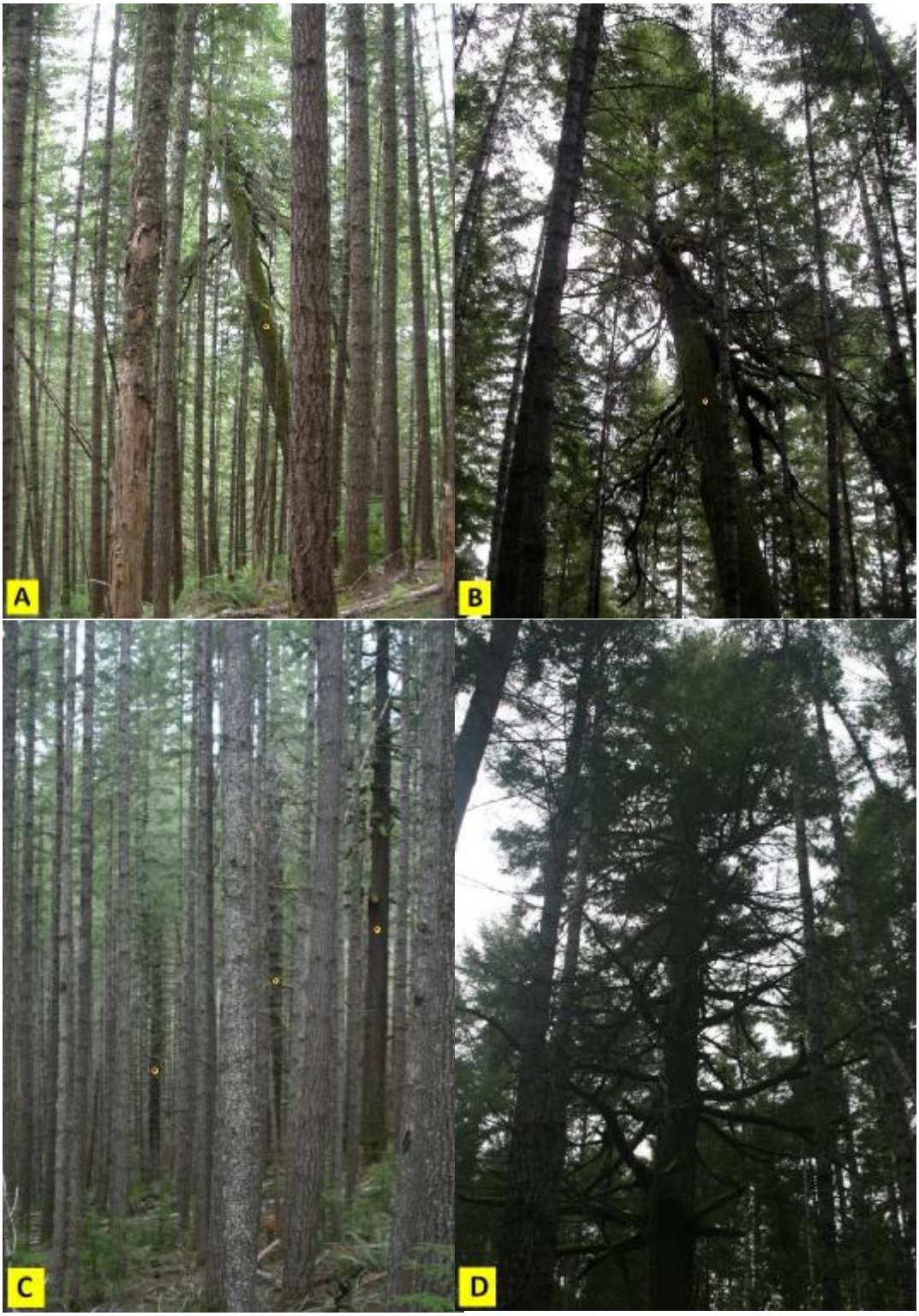
- Meet the purpose and need of the project (EA section 1.3).
- Comply with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA section 1.4).
- Would not have significant impact on the affected elements of the environment beyond those already anticipated and addressed in the RMP EIS.

1.6 Results of Scoping

A scoping letter, dated February 2, 2010, was sent to 24 potentially affected or interested individuals, groups, and agencies (pg. 45). Two responses were received during the scoping period. Comments received were evaluated and considered during the development of this EA and its alternatives.

A description of the project was included in the March and June 2010 project updates to solicit comments on the proposed project.

Figure 1. Examples of declining older forest legacy trees that would benefit from release from encroaching younger conifer forest stand. (A) Declining old forest legacy tree. (B) Older forest legacy tree showing dead lower limbs and deformed top. (C) Three older forest legacy trees within dense young conifer stand. (D). Older forest legacy tree showing dead lower limbs and canopy encroachment.



The project would be implemented through a service contract or staff and volunteer work which would be completed within a two year time period that would commence in October 2010.

2.0 ALTERNATIVE DEVELOPMENT

Pursuant to Section 102 (2) (E) of the National Environmental Policy Act (NEPA) of 1969, as amended, federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." No unresolved conflicts were identified. Therefore, this EA will analyze the effects of the proposed action and no action alternatives.

2.1 Alternative 1 (No Action)

This alternative serves to set the environmental baseline for comparing effects to the proposed action. Consideration of this alternative also answers the question: "What would it mean for the objectives to not be achieved?" The "No Action Alternative" means that no legacy tree release/CWD enhancement actions would occur. If this alternative were to be selected, the following items would not be done in the project area at this time:

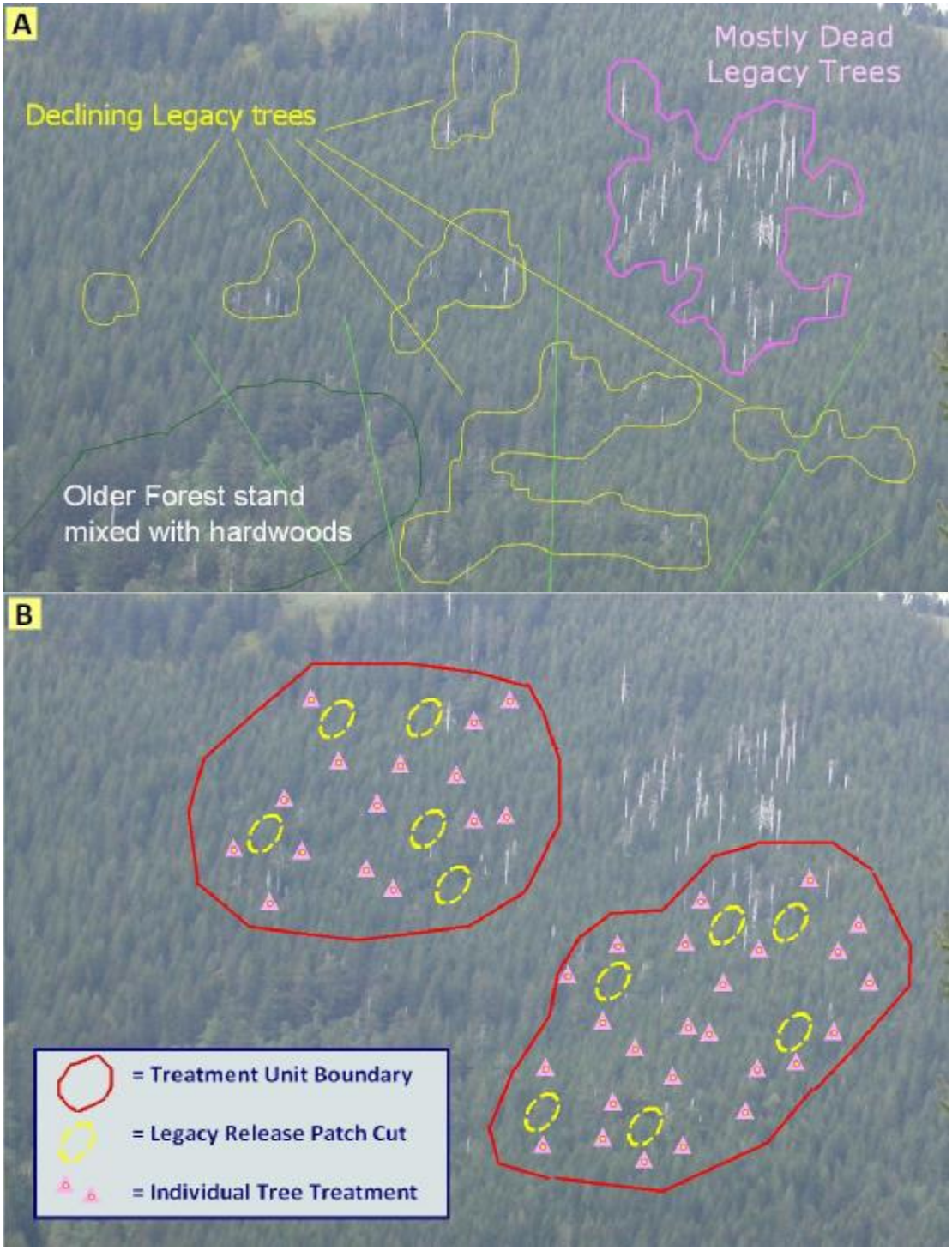
- Cut, girdle or top-cut individual trees or clumps of trees (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees.
- Creating high quality down logs and snags (collectively CWD).

Only normal administrative activities and other uses (e.g. road use, programmed road maintenance, harvest of special forest products on public land) would continue on BLM managed lands within the project area. On private lands adjacent to the proposed units, forest management and related activities would continue to occur. Selection of the No Action Alternative would not constitute a decision to change the land use allocations of these lands nor would not set a precedent for consideration of future action proposals.

2.2 Alternative 2 (Proposed Action)

Older forest legacy trees (mature open-grown trees or old-growth remnant trees) that occur in densely-stocked conifer stands (40 to 90 years old) would be released through the felling, girdling and topping of individual trees or creation of gaps (¼ acre to one acre in size). Treatments in selected forest stands would release the older forest legacy trees so that this complex crown structure would be released from adjacent tree competition for light and water. The majority of trees targeted to be felled, topped or girdled would be 7 to 20 inches DBHOB (diameter breast height outside bark) Douglas-fir trees and none would be greater than 30 inches DBHOB. The felled, girdled or topped trees would function as snags and CWD adjacent to older forest legacy trees. Some trees may be felled within the SPZ (stream protection zone) which consists of a buffer along streams and identified wet areas (minimum distance of 55 feet from streams). Figure 2 illustrates a potential treatment unit design, and Figure 3 provides an example of a patch cut treatment to release legacy trees. See Map 2 for approximate size and location of proposed treatment units.

Figure 2. Forest Landscape with declining legacy trees and potential treatment units. (A) Declining legacy trees within forest landscape. (B) Example of potential treatment unit to release declining legacy trees and enhance coarse woody debris structure.



Project Design Features by RMP Objectives

To protect and enhance stand diversity and wildlife habitat components:

- Treatment areas within defined boundaries have been identified that include one or more older forest legacy trees or dominant canopy trees selected for release (see EA Maps).
- Some trees selected for CWD treatment would be scattered singles or in small clusters (5 or less per clump). These trees may be felled, basal girdled, top-cut at 60 feet (creating dead snag), or crown girdled above 5 or more live branch whorls (creating dead top in live tree).
- Most trees selected for CWD treatment would be felled or basal girdled within patches (¼ acre to one acre in size) that surround or lie adjacent to older forest legacy trees. No more than one acre of patches would occur per three acres of treatment area (less than 33 percent in patches), and canopy closure greater than 60 percent would be maintained over the entire treatment unit.
- Up to 5 large trees per acre (greater than16 inches DBHOB) and up to 20 small trees per acre (less than 16 inches DBHOB) would be selected for CWD treatment within the patches.
- Patch cuts may also release minor hardwood species or re-open natural canopy gaps that are closing in with young conifers.
- No older forest legacy trees or large conifer trees exhibiting complex upper canopy structure would be cut.

To Protect Bureau Special Status Species:

- No suitable northern spotted owl or marbled murrelet nest trees would be cut or damaged to unsuitable conditions;
- No trees greater than 30 inches DBHOB would be felled, and no trees having existing stick nests would be selected for cutting;
- The resource area biologist or botanist would be notified if any T&E or SS animal or plant species are found occupying habitats proposed for treatment during project activities. If the species is a federal listed ESA species then all habitats necessary for the conservation of the species would be withdrawn from the activity and a new analysis of impacts would be completed. If the species is other than a federal listed ESA species, then appropriate mitigation action would be taken after additional analysis.
- Management of Survey and Manage Species found as a result of inventories would be accomplished in accordance with the *Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (S&M ROD, January 2001).
- Project implementation would be conducted in conformance with the applicable biological opinion or letter of concurrence concerning federally listed wildlife species. Pertinent terms and conditions from these consultation documents would include:
    - ü No noise generating activities (use of chainsaws) would occur within 300 feet of unsurveyed suitable marbled murrelet habitat during the critical breeding period (April-1 to August-5);
    - ü Noise generating activities occurring within 300 feet of unsurveyed suitable marbled murrelet habitat during the period of August-6 to September-15 must not begin until 2 hours after sunrise, and must end 2 hours before sunset.
    - ü Proposed treatments would be restricted from occurring within 0.25 miles of an active spotted owl site from March-1 to July-7. This restriction can be lifted if resident owls are found to be non-nesting during this time.

To meet the objectives of the Aquatic Conservation Strategy (ACS) Component #1 (Riparian Reserves):

- Stream protection zones (SPZs) would be established along all streams and identified wet areas within the proposed treatment units. These zones would be a minimum of approximately 55 feet from the high water mark.
- Scattered individual trees or small clusters of trees (less than 5) may be cut for CWD within the SPZ, but no patch cuts would be located in the SPZ.
- Treated trees within the SPZ or within one tree height of SPZs would be felled toward streams.
- Up to 20 percent of felled trees in any unit may be removed and placed in streams to enhance aquatic habitat for fish.

To reduce fire hazard risk and protect air quality:

- Light accumulations of debris and along roads that would remain in drivable condition following the completion of the project would be scattered along the length of rights-of-way.
- Large accumulations of debris within 30 feet of the edge of existing roads would be machine or hand piled.
- Slash created by felled trees that is more than 30 feet from roads would generally be left in place, on site, untreated. If determined to pose an un-acceptable risk by the contract administrator, slash beyond 30 feet from roads may be treated in the patch cut areas where heavy concentrations exist. For example, if multiple trees are felled in close proximity, slash accumulations may be lopped and scattered, chipped and/or piled and burned to reduce the concentration of fuel.
- All piles would be located at least ten feet away from reserve trees and snags. Larger piles would be preferable over small piles. Windrows would be avoided unless approved by the contract administrator.
- The areas would be monitored for the need of closing or restricting access during periods of high fire danger. During the closed fire season the first year following harvest activities, while fuels are in the "red needle" stage, the areas may be posted and closed to all off road motor vehicle use.
- During the late summer before the onset of fall rains, all machine and hand piles to be burned would be covered at least 80 percent with 4 mil black polyethylene plastic.
- All burning would occur under favorable smoke dispersal conditions in the fall, in compliance with the Oregon State Smoke Management Plan (RMP pp. 22, 65).

To Protect Cultural Resources:

The project area occurs in the Coast Range. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope defined in the Protocol appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery.

2.3 Comparison of Alternatives With Regard To Purpose And Need

Table 1: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA Section 1.2)	Alternative 1 (No Action)	Alternative 2 (Proposed Action)
Release declining older forest legacy trees that are undergoing encroachment from densely-stocked younger conifer stands and to enhance terrestrial wildlife habitats by creation of snags and CWD within such forest stands where this structural component is lacking (LSR Assessment p 42.).	No legacy trees would be released from encroachment of understory stand. Continued encroachment of young conifers expected to reduce live crown volume of most legacy trees and result in death of some legacy trees within the next decade. Conversion of some live legacy trees to high quality dead snags, and loss of minor hardwood species that get shaded out.	Release from encroachment of understory stand expected to increase live crown volume of legacy trees and enhance survival of legacy trees for 2 or more decades. Creation of larger sized snags and down logs, creation of larger sized crown-girdled trees, enhanced understory development, and retention of minor hardwood species
Maintain habitat suitable for the northern spotted owl and the marbled murrelet. (RMP pp.35 & 36). Promote development of habitat suitable for nesting, roosting, and foraging for the northern spotted owl in stands that do not currently meet suitable habitat criteria. (RMP pp.35 & 36). Promote development of nesting habitat for the marbled murrelet in stands that do not currently meet nesting habitat criteria. (RMP pp.35 & 36).	Expected decline and loss of legacy trees would result in habitat conditions for spotted owls and marbled murrelets slowly declining within proposed units for two or more decades before slowly recovering. Would not promote development of suitable habitat conditions within stands that are currently unsuitable.	Would help maintain nesting and roosting structure for spotted owls. Would promote development of foraging habitat conditions for spotted owls and promote development of nesting structure for marbled murrelets

Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and streambank stability; (RMP pp 5& 6). Enhance or restore habitat [(e.g. coarse woody debris (CWD), snag habitat, instream large wood) for populations of native riparian-dependent plants, invertebrates, and vertebrate species; (RMP p.7). Improve structural and spatial stand diversity on a site-specific and landscape level in the long-term. (LSR Assessment p 42).	Streamside shade, sediment filtering, leaf litter, and streambank stability would not be altered. Little or no large wood is likely to be contributed during the two decades, but would slowly improve after two or more decades. Un-impeded stand development processes would result in new coarse woody debris mostly in smaller size classes (suppression mortality), with a few very large snags resulting from death of some legacy trees. Structural and spatial diversity would remain unchanged, but slowly improve after two or more decades.	Sediment filtering, leaf litter, and streambank stability would not be altered. Streamside shade may incur minor disturbance from individual trees that are girdled, topped, or felled with the SPZ. Immediate input of a small amount of large wood is likely in SPZs with a few trees reaching the stream channel. Provides an immediate input of small to large trees as snags and down logs. An average of 10 trees per acre would be treated in proposed units, providing between 400 and 800 cubic feet per acre of new CWD. Suppression mortality is expected to continue as most of the treatment unit area that lies outside of patches. Release of legacy and dominant canopy trees within patches would immediately improve the spatial and structural diversity of treated stands.
There is a need to cut, girdle or top individual trees or trees in clumps (¼ acre to one acre in size) which are encroaching on and adversely affecting the survivability of older forest legacy trees(LSR Assessment p 42).Saving the declining old forest legacy trees and creating high quality CWD is expected to benefit numerous wildlife species that are associated with late-successional forest structure. LSR Assessment p 42.).	Legacy trees would not be relieved from encroachment by young dense conifer stand. Some legacy trees would suffer further decline, with a few legacy trees dying within a decade. Any legacy trees that die due to encroachment would function at high quality snags for numerous wildlife species. Snags and down logs resulting from suppression mortality are smaller in size and provide for the needs of relatively few wildlife species.	All declining legacy trees would be relieved from encroachment. Legacy trees would stabilize or reverse their decline by building back more live green grown. No legacy trees are expected to be lost in next decade. The threat of canopy encroachment would be set back for two or more decades. Legacy trees usually provide for a greater variety of wildlife species than large dead snags. Newly created snags and down logs would supplement suppression mortality to provide for relatively more wildlife species than would benefit from suppression mortality alone.

Figure 3. Wide-angle photo set of Legacy Tree Release Patch Cut from 2008. This 0.25 acre (60 foot radius) patch cut shows two large legacy trees that were released by felling 20 small diameter Douglas-fir (down logs) and basal-girdling 10 Douglas-fir (snags are still green). About 20 live trees within 60 feet of the central legacy tree were left untreated.

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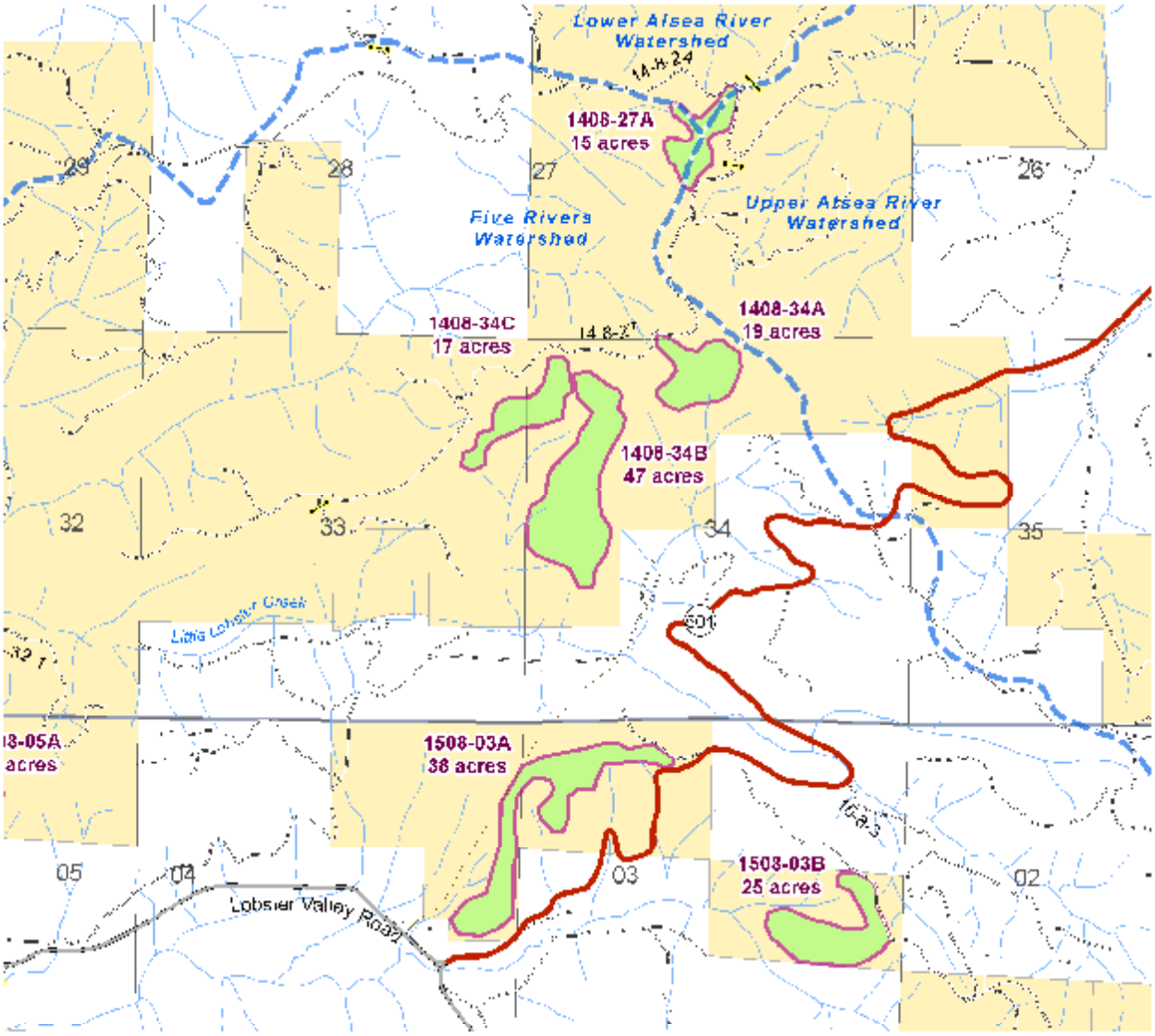
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T14S-R08W and T15S-R08W



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June 2010

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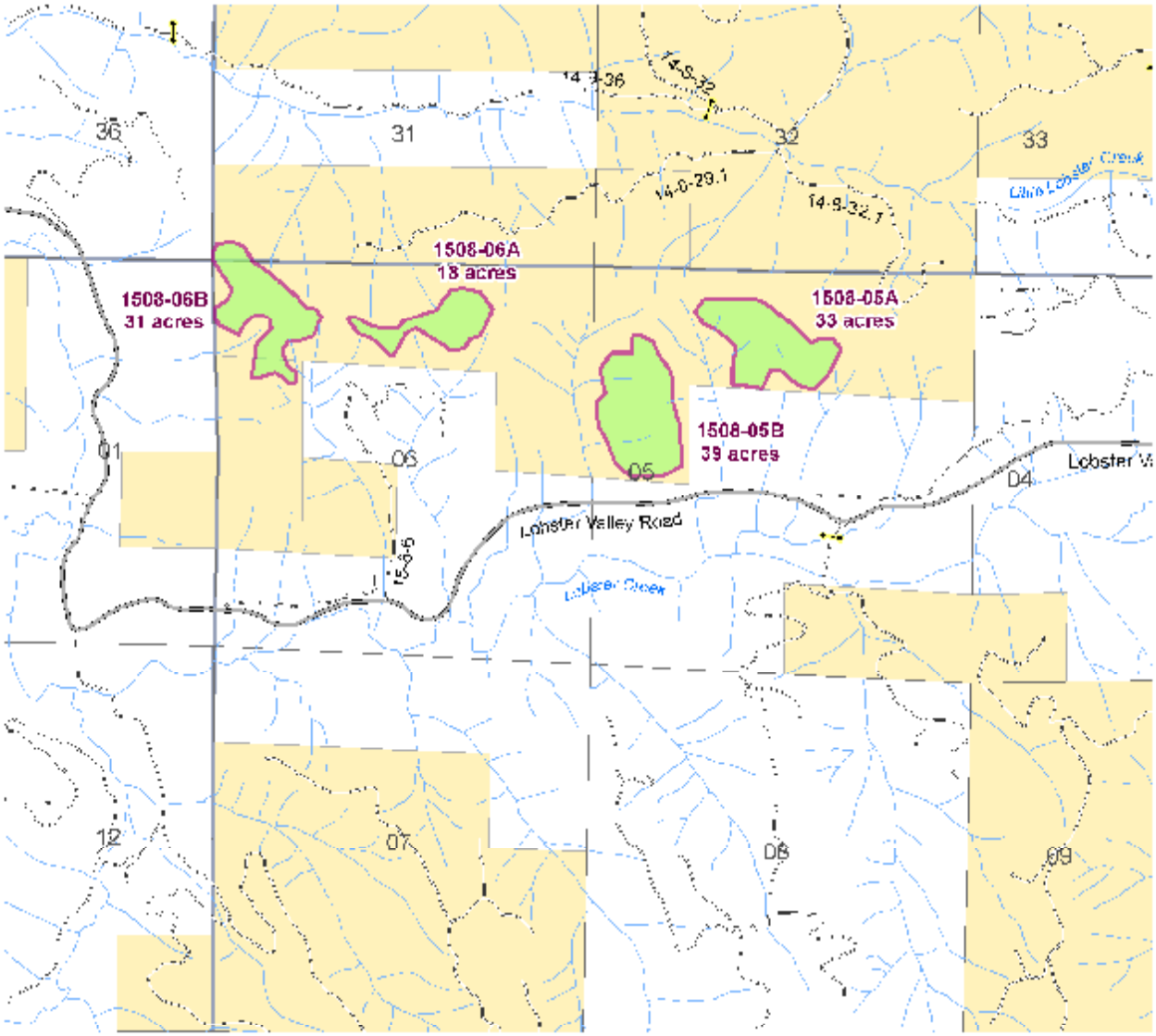
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W



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June 2010

- Legacy Project Unit
- BLM Land
- Section
- Township
- Closed Gate
- Highway
- Major Access Road
- Other Road
- Utility Line
- Stream
- 5th Field Watershed Boundary

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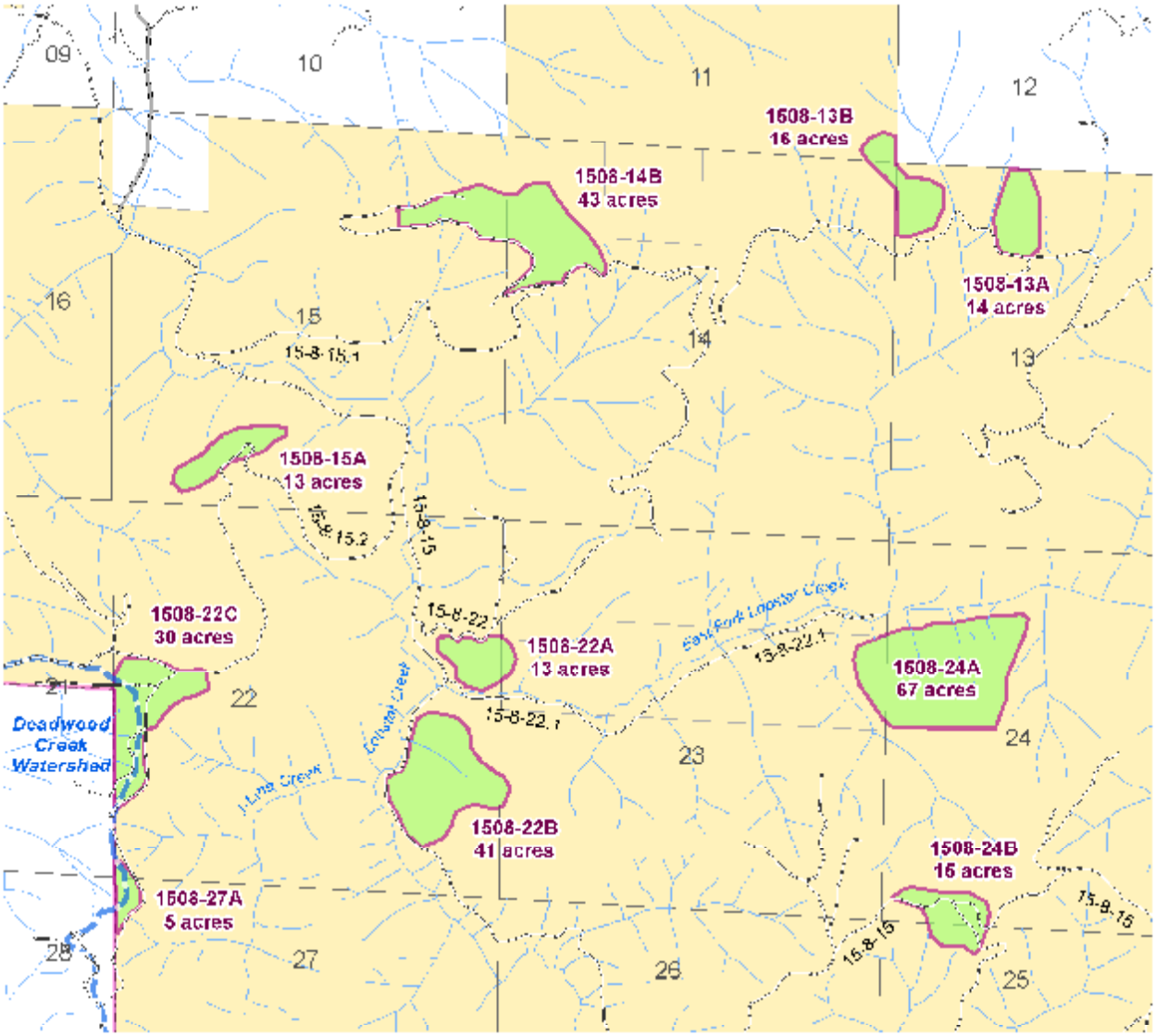
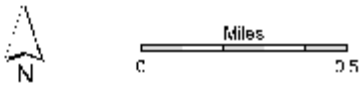
Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W





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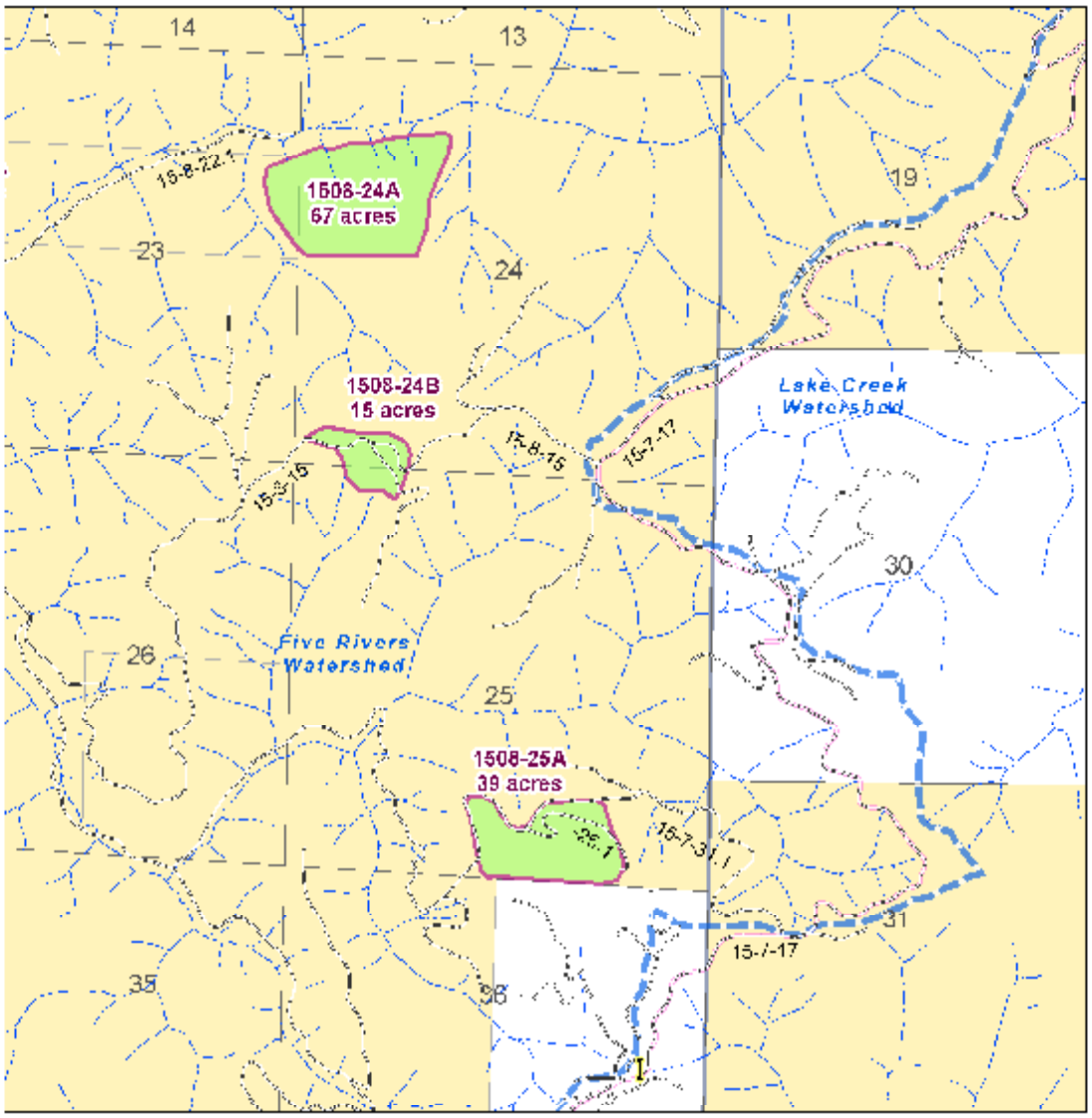
SALEM DISTRICT - OREGON

Marys Peak Resource Area FY2010-2011
Legacy Tree Release Project EA Map
Proposed Units in T15S-R08W



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June 2010

- Legacy Project Unit
- BLM Land
- Section
- Township
- Closed Gate
- Highway
- Major Access Road
- Other Road
- Utility Line
- Stream
- 5th Field Watershed Boundary

3.0 REVIEW OF ELEMENTS OF THE ENVIRONMENT BASED ON AUTHORITIES AND MANAGEMENT DIRECTION

Table 2: Elements of the Environment Review based on Authorities and Management Direction

Element of the Environment /Authority	Remarks/Effects
Aquatic Conservation Strategy	In compliance with PCFFA IV (Civ. No. 04-1299RSM), this project complies with the Aquatic Conservation Strategy described in the Northwest Forest Plan and RMP. This project also complies with the PCFFA II (265 F.3d 1028 (9th Cir. 2001)) by analyzing the site scale effects on the Aquatic Conservation Strategy. EA section 5.0 shows how the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project meets the Aquatic Conservation Strategy in the context of the PCFFA cases.
Air Quality (Clean Air Act as amended (42 USC 7401 et seq.)	This project is in compliance with this direction because air quality impacts would be of short duration (one burn period during implementation of pile burning). Addressed in Text (EA Section 3.1.6).
Cultural Resources (National Historic Preservation Act, as amended (16 USC 470) [40 CFR 1508.27(b)(3)], [40 CFR 1508.27(b)(8)]	This project is in compliance with this direction and the project would have no effect on this element because Cultural resource sites in the Oregon Coast Range, both historic and prehistoric, occur rarely. The probability of site occurrence is low because the majority of BLM managed Oregon Coast Range land is located on steep upland mountainous terrain that lack concentrated resources humans would use. Post-disturbance inventory would be conducted according to Appendix D of the *Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Oregon.* Inventoried areas would be based on percent slope and topographic features
Ecologically critical areas [40 CFR 1508.27(b)(3)]	This project would have no effect on this element because there is no ecologically critical areas present within the project area.
Energy Policy (Executive Order 13212)	This project is in compliance with this direction because this project would not interfere with the Energy Policy (Executive Order 13212).
Environmental Justice (E.O. 12898, "Environmental Justice" February 11, 1994)	This project is in compliance with this direction because the project would have no effect on low income populations.
Fish Habitat, Essential (Magnuson-Stevens Act Provision: Essential Fish Habitat (EFH): Final Rule (50 CFR Part 600; 67 FR 2376, January 17, 2002)	This project is in compliance with this direction. NMFSs Biological Opinion (2008) addresses habitat restoration actions potential adverse effects to EFH. Effects to this element is addressed in text (EA Section 3.1.5).
Farm Lands, Prime [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because no prime farm lands are present on BLM land within the Marys Peak RA.
Floodplains (E.O. 11988, as amended, Floodplain Management, 5/24/77)	This project is in compliance with this direction because the proposed treatments would not change or affect floodplain functions.
Hazardous or Solid Wastes (Resource Conservation and Recovery Act of 1976 (43 USC 6901 et seq.) Comprehensive Environmental Repose Compensation, and Liability Act of 1980, as amended (43 USC 9615)	This project would have no effect on this element because no Hazardous or Solid Waste would be stored or disposed of on BLM lands as a result of this project.

Element of the Environment /Authority	Remarks/Effects
Healthy Forests Restoration Act (Healthy Forests Restoration Act of 2003 (P.L. 108-148)	This project is in compliance with this direction because treatments would help restore forests to healthy functioning condition (EA Section 3.1.1).
Migratory Birds (Migratory Bird Act of 1918, as amended (16 USC 703 et seq)	This project is in compliance with this direction because treatments would restore natural resources that could degrade habitat for migratory birds. Addressed in text (EA Section 3.1.2).
Native American Religious Concerns (American Indian Religious Freedom Act of 1978 (42 USC 1996)	This project is in compliance with this direction because no Native American religious concerns were identified during the scoping period.
Noxious weed or non-Invasive, Species (Federal Noxious Weed Control Act and Executive Order 13112)	This project is in compliance with this direction because Project Design Features would prevent establishment of new populations of invasive plant species and because vegetation development would result in decline in both number and vigor of invasive plant populations in the project area. Addressed in text (EA Section 3.1.1).
Park lands [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because there are no parks within or adjacent to the project area.
Public Health and Safety [40 CFR 1508.27(b)(2)]	The project would have no effect on this element because the public would be restricted from the project area during operations and the project would not create hazards lasting beyond project operations.
Threatened or Endangered Species (Endangered Species Act of 1983, as amended (16 USC 1531)	This project is in compliance with this direction because there would be no adverse effects on Threatened or Endangered Species (EA Sections 3.1.1, 3.1.2 and 3.1.5).
Water Quality –Drinking, Ground (Safe Drinking Water Act, as amended (43 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.)	This project is in compliance with this direction because Oregon State water quality standards would be adhered to and the area hydrology would not be changed measurably. Addressed in text (EA Section 3.1.4)
Wetlands (E.O. 11990 Protection of Wetlands 5/24/77) [40 CFR 1508.27(b)(3)]	This project is in compliance with this direction because wetlands within the project area would be protected by buffers. (EA Section 3.1.4)
Wild and Scenic Rivers (Wild and Scenic Rivers Act, as amended (16 USC 1271) [40 CFR 1508.27(b)(3)]	This project is in compliance with this direction because there are no Wild and Scenic Rivers within or adjacent to the project areas.
Wilderness (Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.); Wilderness Act of 1964 (16 USC 1131 et seq.)	This project is in compliance with this direction because there are no Wilderness Areas or areas being considered for Wilderness Area status in or adjacent to the project areas.

3.1 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, wildlife, soils, water, fisheries/aquatic habitat, and fuels/air quality*. Those elements of the human environment that were determined not to be affected are recreation, visual resources and rural interface. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

3.1.1 Vegetation

Affected Environment

Present Stand Condition and History

The proposed treatment areas consists of approximately 150 acres of conifer forest stands of moderate to high density. The stands are dominated by Douglas fir with smaller components of western hemlock, western red cedar, and red alder. The stands originated with natural regeneration or planting, following fire or harvest, and are aged 40 to 90 years.

A scattering of Douglas-fir and western hemlock trees originated before the majority, as they are relatively large (about 36 inches to 60 inches dbh), full-crowned, and open-grown. These trees form a layer somewhat taller than the majority of the conifer in the stands aged 40 to 90 years, and are generally 100 to over 200 years old. They are a small component of these early to mid-seral stands, but are a very important structural and functional component of them because of their size, crown structure, deep and fissured bark, large limbs, and (in some cases) defect, dead or broken tops, and cavities. These trees either survived past fire or harvest, or established after fire or harvest a decade or more before the majority of the stand. Because they experienced little inter-tree competition for a majority of their growth period, they grew rapidly, achieved large diameters, and developed very large crowns and long, thick limbs. A subset of these older forest legacy trees are targeted for release under the proposed action. The proposed action would cut, girdle or top only the younger stand component of trees aged 40 to 90 years old.

Understory vegetation is limited by overstory density and is generally sparse, but is more abundant in the canopy openings.

Coarse Woody Debris

Coarse wood is an important component of the late-successional structure desired for the treatment area. It includes downed wood, snags, and live trees with dead or broken tops or decay. Typically, mid-seral stands in the Marys Peak Resource area such as those in the project area have relatively low levels of coarse wood (less than1200 cubic feet per acre), especially in the more recent (sound) decay classes. This is due to past disturbance that removed or burned much of the previous stand, and what coarse wood that remains from the previous stand has decayed for many decades.

Forest Health

There are no known current threats to forest health beyond the following endemic processes in the proposed project area, including laminated root rot, caused by the fungus *Phellinus weirii*, and Douglas-fir bark beetles. These sites are within 25 miles of the coast and are mildly to moderately affected by Swiss needle cast, *Phaeocryptopus gaeumannii*, a fungal needle blight. Climatic or other conditions can increase the severity of the disease. Thinning can create more acute symptoms from Swiss needle cast because trees are more exposed to drying conditions.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Because surveys have not been completed on this project area, it is not known if any special status or special attention species occur in the project area. If any known sites are found they would be protected as indicated in the project design features.

Non-native (Noxious Weeds, Invasive Non-native Species):
Because the project areas have not been surveyed it is not clear which, if any noxious weeds occur in the project areas. However, due to project locations it is estimated the following noxious weeds are known from within or adjacent the project area; Armenian blackberry (*Rubus armeniaca*), Canadian thistles and bull thistles (*Cirsium arvense* and *C. vulgare*), False brome (*Brachypodium sylvaticum*)Scot's broom (*Cytisus scoparius*) St. John's wort (*Hypericum perforatum*), and Tansy ragwort (*Senecio jacobaea*).

Environmental Effects

3.1.1.1 Alternative 1 (No Action Alternative)

Stand Development

Without treatment, only natural disturbance agents such as disease, insects, and wind would create stand structural diversity and contribute to late-successional structural development. These events would generally be small in scale and random locations, and unlikely to contribute to release of declining legacy trees.

Stand development would remain on the current trajectory of increasing density and decreasing individual tree growth rates. Declining older forest legacy trees would continue to slow in growth and to lose crown depth and width due to competition from surrounding trees. The effectiveness of release treatments decrease as decline of the legacy trees continues because the condition of legacy trees becomes irreversible – large diameter lower limbs once lost cannot be re-grown, and as total crown area is reduced, the capacity to rebound after release is greatly reduced.

The main input of coarse woody debris would come from density mortality, would result in gradual recruitment of coarse wood. Typically, high density mid-seral stands would produce annual mortality of 0.5 to 2 snags per acre due to density mortality (based on Organon modeling, Hann, 2003). However, they would be of the smallest diameter classes, generally less than 16 inches dbh. Mortality from disturbance and stochastic events could produce coarse wood as well. One study of stands aged 14 to 38 years, over 22 years showed total annual stem mortality of 1 to 5 percent. Since the stands in the project area are older than the researched stands and have fewer trees per acre, annual mortality would likely be somewhat less. In the study, wind damage accounted for 18 percent of the stem mortality, but represented 50 percent of the bole biomass lost because mortality resulting from wind is relatively larger than density mortality (Lutz and Halpern, 2006).

There would be no short-term elevated risk of bark beetle infestation resulting from tree cutting, girdling or topping.

This alternative does not meet the objectives to release declining older forest legacy trees that are undergoing encroachment from densely-stocked younger conifer stands or to enhance terrestrial wildlife habitats by creation of snags and downed wood.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Any positive or detrimental effects would not occur to these species if any occur in the project areas.

Non-native plants (Noxious Weeds, Invasive Non-native Species):
Without any new human caused disturbances in the proposed project area any established noxious weed populations would remain at the same level.

3.1.1.2 Alternative 2 (Proposed Action)

Stand Development

The proposed action to cut, girdle or top up to 5 large trees and up to 20 smaller trees, within a patch ¼ to one acre in size surrounding older forest legacy trees would have a very small impact at the stand level, but would effectively meet the purpose and need to release declining older forest legacy trees and increase levels of snags and downed wood. Removing competition affecting older forest legacy trees would increase their growth rates, halt the loss of lower crown limbs due to shading, and maintain or increase crown depth and width. Maintaining or increasing vigor of the legacy trees may result in greater longevity.

Cut, girdled or topped trees that remain on site would directly increase the quantity of coarse wood in the project areas. The coarse wood would be of high wildlife habitat value because it would be in early decay classes and of larger size than coarse wood through density mortality.

There would be a short term (one to three years) elevated risk of a bark beetle infestation from the increased fresh down wood, resulting from the creation of snags and down wood. Fresh downed wood allows bark beetles to lay their eggs and produce brood unimpeded by the natural 'pitching out' response of a living tree. This can lead to a buildup of bark beetle populations that are then more likely to attack and overwhelm nearby live trees. A study of beetle response to coarse wood creation of larger magnitude than the proposed action resulted in less than one tree per acre of live tree mortality from bark beetles (Ross and Hostetler, 2006).

At the stand level, cutting, girdling or topping a small proportion of the stand would be similar in scale to small natural disturbances such as root disease or bark beetle mortality, or small-scale wind disturbance. The proposed action would increase diversity and increase late-successional stand attributes by creating small gaps, snags, and down logs that are important components of older forest structure, and help restore species diversity by retaining hardwood trees, and allowing development of understory vegetation.

Federal Threatened/Endangered, Bureau Sensitive Botanical and Fungal Species:
Any known sites located would be protected as described in the design features. The removal of some of the competing conifer trees around legacy trees may provide additional habitat for species requiring older forest conditions. This would be accomplished by allowing for an increase in sunlight into the lower forest and lower canopy of the legacy trees.

This project could affect any species that are not practical to survey for and known sites were not located during subsequent surveys. These species would mainly include special status hypogeous fungi species. However, the majority of these species have no known sites within the Marys Peak Resource Area or the Northern Oregon Coast Range Mountains.

Non-native plants (Noxious Weeds, Invasive Non-native Species):
The implementation of this project would disrupt very little mineral soil and possibly only a small area of less than one foot square where the butt of the severed conifer hits the ground. It is unlikely this small amount of disturbed mineral soil would lead to any sustainable infestation of noxious weeds. The risk rating for the long-term establishment of noxious weeds and consequences of adverse effects on this project area is low because;

- the amount of disturbance is localized and minimal,
- the project areas are generally located in the middle of a coniferous stand away from local noxious weed sites,

- the implementation of the Marys Peak integrated non-native plant management plan allows for early detection of non-native plant species which allows for rapid control,
- the known noxious weeds species which occur in the project area are regionally abundant throughout the Oregon Coast Range Physiographic Province, and control measures generally consist of biological control,
- generally these species often persist for several years after becoming established in mineral soil and soon decline as native vegetation increases within the project areas,
- there are no other Oregon listed noxious weed species that are anticipated to become established with the implementation of this project.

3.1.2 Wildlife

Affected Environment

The stands proposed for treatment occur on BLM managed lands in four 5th Field Watersheds (Five Rivers, Lower Alsea River, Upper Alsea River and Deadwood Creek) in the north central Oregon Coast Range. Most of the proposed project area lies within Five Rivers Watershed (about 558 acres). The portion of proposed project area that lies in the Upper Alsea, Lower Alsea, and Deadwood Creek Watersheds (7, 2, and 13 acres, respectively) is considered negligible, and therefore only the landscape level conditions in the Five Rivers Watershed will be considered.

A broad-scale analysis of federal lands within this part of the Oregon Coast Range was presented within the *Late Successional Reserve Assessment, Oregon Coast Province - Southern Portion (RO267, RO268),* [USDA-FS and USDI-BLM 1997, referred to as *LSRA*]. The LSRA describes how, over the past 150 years since settlement, extensive timber harvest and several forest fires have resulted in the loss and fragmentation of late-successional and old-growth forest conditions (LSOG) within these watersheds. Old-growth forests (stands over 200 years old) have been essentially eliminated from private forest lands and represent only a small percentage of BLM managed lands within the three watersheds (Table 3). Patch sizes of LSOG forests have also decreased, resulting in numerous small patches of forest that are often fragmented and disconnected from other similar forest patches. Structural elements of LSOG forests that provide key components of wildlife habitat, such as large overstory trees, large snags, down logs, and multiple canopy layers have also declined across this landscape.

Table 3. Forest Habitat Conditions on BLM-managed Lands within affected Watersheds.

Forest Stand Type	Five Rivers		Upper Alsea		Lower Alsea	
Non-Forest	157	0.9%	304	0.7%	130	0.9%
Early-Seral <40 yo	3,220	19.2%	5,717	12.9%	3,413	23.5%
Mid-Seral 40-90 yo	6,528	39.0%	22,942	51.9%	3,229	22.2%
Late-Seral 100-200 yo	4,455	26.6%	11,887	26.9%	6,660	45.9%
Old-Growth 200+ yo	1,331	8.0%	2,320	5.3%	492	3.4%
Hardwood Stands	1,044	6.3%	1,007	2.3%	594	4.1%
Total Acres	16,735	100.0%	44,177	100.0%	14,518	100.0%

1). Acres of BLM-managed lands are shown for Five Rivers, Upper Alsea, and Lower Alsea 5th Field Watersheds (in the Alsea River Basin). Habitat conditions in Deadwood Creek Watershed (in the Siuslaw River Basin) are not shown because Salem BLM manages only a small portion of the watershed (about 200 acres) with only a small portion of the project area (13 acres) within this watershed.

Stand Level Conditions

The presence of legacy trees in mid-seral managed forest stands appears to add significant habitat value for several wildlife species (Mazurek, M. and W. Zielinski. 2004), especially where such stands have also received some degree of variable density thinning (Carey 2003). All of the proposed treatment units are characterized by an unthinned, densely-stocked, mid-seral conifer cohort ranging from 40 to 90 years old with a scattered overstory of large wolf trees and/or old-growth legacy trees. These stands also have a small and variable proportion of hardwood trees and minor conifer species. While most of the old-growth trees have tall live crowns that extend well above the level of the mid-seral canopy, about 20 percent of these legacies have broken or dead tops with their live crown at or below the mid-seral canopy level. Almost all of the large wolf trees and legacies have crowns that are dying back, and some stands have legacy trees that have died in the last decade due to being over-topped and shaded out by the ascending mid-seral canopy.

Special Habitats and Special Habitat Components

Special habitat types are recognized by the Salem District RMP and the associated watershed analyses include caves, cliffs, exposed rock, talus, wetland types, and meadows. These habitat types often host unique floral and faunal species that contribute valuable biodiversity to the local landscape. Only one proposed unit (1508-06B) has a small natural hilltop meadow that has shrunk from 7 acres to less than 1 acre in the past 30 years due to encroachment by young conifers.

Within forested ecosystems, dead wood (snags and down logs), often referred to as coarse woody debris (CWD), is a special habitat component that has been shown to strongly influence the diversity and abundance of wildlife species. Rose et al. (2001) identify 93 vertebrate wildlife species in Oregon and Washington that use snags (for nesting, foraging, roosting, courtship, drumming, and hibernating), and 86 species that use down logs (for nesting, foraging, denning, hibernation, hiding cover, thermal cover, travel corridors, and lookouts). Most of the 93 species associated with snags use trees that are 15+ inches in diameter, while about one third of these species prefer snags 30+ inches in diameter. The larger diameter hard snags and hard down logs (Decay Class 1 and 2) would, over time, provide better habitat conditions for more wildlife species than smaller and softer snags and down logs.

Mid-seral forests in this region exhibit a wide range in the density of snags and down logs that are present (*LSRA*, Mellen-McLean et al. 2009, Rose et al. 2001). The legacy of past harvests and fire history in these watersheds has resulted in low to moderate accumulations of large down logs in advanced stages of decay within most of the proposed treatment units. The majority of the down log and snag component in the proposed treatment units is composed of small diameter trees (less than 15 inches dbh) that have died due to density dependent suppression mortality. Larger size snags and down logs (greater than 24 inches dbh) that benefit a greater number of wildlife species are present in very low quantities in most of the proposed treatment units with a few units having moderate quantities.

Special Status Species

Special Status Species that may occur within this project vicinity and which may be affected by the proposed action include the northern spotted owl, marbled murrelet and red tree vole. A review of the BLM corporate wildlife database (GeoBOB) and the Oregon Natural Heritage Database found no records of any other Special Status Species or Survey and Manage Species locations within or adjacent to the planned treatment units.

Federally Threatened Species

Northern Spotted Owl

The BLM and cooperators have conducted extensive spotted owl surveys in these watersheds since the mid 1980s. Only one unit (1508-25A) has an active spotted owl site adjacent to it (0.35 miles away). Most of the planned treatment units provide only dispersal habitat for spotted owls, a few units likely provide suitable foraging habitat for this species. All units are set within critical habitat unit OR-48 (USDI-FWS 1992), and 11 of 21 units (300 acres) are within revised critical habitat unit OMOCA-36 (USDI-FWS 2008a and USDI-FWS 2008b). Dispersal habitat is considered a constituent element of spotted owl critical habitat (USDI-FWS 2008b).

Marbled Murrelet

Most of the proposed treatment units that have widely scattered and declining legacy trees likely do not provide suitable habitat for marbled murrelets. A few units that have legacy trees with more robust live crowns and that occur in small clusters may provide suitable nesting structure for marbled murrelets (McShane et al. 2004). None of the proposed units are within a known occupied marbled murrelet site. All proposed units are within critical habitat unit OR-04-j (USDI-FWS 1996). Legacy trees with large side branches and platforms are considered a primary constituent element of critical habitat. Most of the treatment units have a mid-seral stand component that is also a primary constituent element of critical habitat since it has attained a canopy height (about 120 feet tall) that is one half of a site-potential tree height.

Other Special Status Species

Red Tree Vole

The red tree vole is a Bureau Sensitive Species (BSS) and currently a Survey and Manage Species. The BSS status only applies to the red tree vole populations in the northern Oregon coast range, north of Highway 20 (Corvallis to Newport). Populations south of Highway 20 including those within the Alsea River watersheds are believed to be more abundant and well distributed (USDA-FS and USDI-BLM 2007). As a result of a December 2009 court ruling, the red tree vole has been returned to a Survey and Manage species in the project area. However, surveys for this species are not required for this type of restoration project since it would not cause a significant negative effect to the species or the persistence of the species within the proposed units (USDA-FS and USDI-BLM 2001). Voles prefer to nest in the older forest habitats in this landscape, but are occasionally found occupying mid-seral forest stands similar to the proposed treatment units.

Bird Species of Conservation Concern

All of western Oregon, including this proposed project area, is set within the Northern Pacific Forests Bird Conservation Region (USDI-FWS 2008c). Within this region there are several migratory land birds which are considered Bird of Conservation Concern (BCC) because they appear to be exhibiting downward population trends for several years (Altman 2008; Rich et al. 2004, USDI-FWS 2008c). Thirty-three of the 88 landbird species that regularly occur in the Marys Peak Resource Area are considered BCC species (see Table 4). Fifteen BCC species have a high likelihood of occurring within the proposed units. Incidental observations obtained during wildlife related field work have confirmed the presence of 8 of these species during the breeding season.

Table 4. Bird Species Groups Likelihood of Occurrence within the Project Areas.

Bird Species Grouping	Within MPRA	Likelihood of occurrence in Project Areas [1]			
		High	Moderate	Low	Not Present
Bird of Conservation Concern	33	15	8	6	4
Other Regularly Occurring Landbirds	55	21	8	18	8
Total bird species	88	45	16	24	12

1). The likelihood that bird species occur in one or more of the project areas based on recent literature review (see Appendix B).

Environmental Effects

3.1.2.1 Alternative 1 (No Action)

This alternative would not conduct any legacy tree release or coarse woody debris creation within the planned units. There would be no immediate change to the mid-seral conifer forests habitat conditions on BLM managed lands in these watersheds. Stand development processes would continue unaltered within the mid-seral forest stands of the project units.

Over the next decade, barring any prominent stand disturbance events, suppression mortality would continue to contribute snags and down logs almost entirely in the smaller size classes (less than 15 inches dbh), with a few very large snags resulting from the expected die off of some legacy trees (approximately 20 percent) due to being over-topped and shaded out by the ascending mid-seral canopy.

The current pattern of habitat use by wildlife species within these project areas would be expected to continue unchanged in the short-term, but may begin to change as wildlife species associated with the live legacy tree structure decline as legacy trees die off. Dispersal and foraging habitat conditions for spotted owls would remain unchanged. Potential nesting structure for marbled murrelets would be lost as legacy trees die off, and it would be several decades before natural stand development processes begin to create complex canopy structure suitable for marbled murrelet nesting habitat.

3.1.2.2 Alternative 2 (Proposed Action)

Landscape Level

The proposed legacy tree release units would treat about 8.7 percent of the mid-seral forest stands on BLM managed lands within the Five Rivers watershed. All proposed treatments would result in no discernable loss of function or connectivity of the mid-seral forest stands at the landscape scale.

Stand Level Conditions

The proposed treatment of 580 acres would result in a minor change in existing forest stand structure and would alter the development of future forest stand conditions in the proposed project units. Wildlife species are most likely to be effected by the following direct and indirect changes to forest habitat conditions:

Short-term (less than 10 years)

- Minor reduction of canopy closure (resulting canopy greater than 60 percent maintained) over entire treatment area due to creation of patches and topping or girdling of scattered trees;
- Minor increase in horizontal spatial variability within treated stands due to patch creation and small clusters of topped or girdled trees;

- live crown recovery and enhanced viability of legacy trees along with increasing crown development of dominant and co-dominant trees within patch cuts;
- Slightly reduced recruitment rate of small sized CWD from suppression mortality, which would be largely offset by immediate creation of larger CWD of desirable size and augmentation of decadence processes;
- retention of hardwood tree and shrub diversity.

Long-term (greater than 10 years)

- a significant recovery of overstory canopy closure within treated stands;
- the gradual transition in structural characteristics of the treated stands to more closely resemble late-seral forest (larger diameter trees and limbs, sub-canopy development, greater tree species diversity, greater volume and size of hard CWD, canopy gaps);
- extended persistence of legacy trees, hardwood trees, and shrub cover.

While most released legacy trees are expected to have restored vitality and increased longevity, a few legacy trees may not respond to the treatment and may continue to decline and subsequently die off. Overall, the treated units would continue to function as mid-seral conifer-dominated habitats for all of the wildlife species which currently use these stands, and many wildlife species, especially those associated with late-seral forest structure and coarse woody debris would benefit from this proposed action.

Special Habitats and Special Habitat Components

A small meadow within unit 1508-06B would benefit from patch creation which would set back some of the encroachment by dense young conifers. No other special habitats would be affected by this project.

The special habitat component of CWD would increase in quality and quantity as a result of proposed action. The current rate of density dependent mortality would be unaffected in the portion of the treatment units that are outside of patch cuts (about 67 percent of treatment area). As described above (Stand Level Conditions), the slight reduction of small snag recruitment would only occur in patch cut areas (less than 33 percent of treatment area), and this reduction would largely be offset by the immediate creation of larger (greater than 15 inches) snags and down logs that have greater wildlife value.

Special Status and Special Attention Wildlife Species

Northern Spotted Owl

Effects to spotted owls are summarized in Table 5. Since most treatments would occur outside the breeding season and all units lie beyond 0.25 miles from any active owl site, no disturbance effects to this species is expected. The proposed treatment would maintain the current habitat value for spotted owls because:

- the decline of legacy trees would be halted or reversed;
- CWD conditions would receive an instant increase in quantity and quality; and
- canopy closure would be maintained at or above 65 percent.

The proposed treatment is expected to accelerate the development of nesting structure and improve the structural diversity of this habitat over the long term, which would benefit the conservation value of designated critical habitat. The proposed action is considered a “may affect, but not likely adverse affect” to spotted owl critical habitat.

Table 5. Summary of Effects to Federally Listed Wildlife Species and Critical Habitat.

Affected Component	Determination [1]	Notes
Northern Spotted Owl		
Noise Disturbance	No Effect	Any proposed unit within 0.25 miles of active owl site would follow a seasonal restriction from March-1 to July-7.
Habitat Modification	NLAA	Units that currently function as dispersal or foraging habitat would maintain their function post treatment.
Critical Habitat	NLAA	The current conservation value of all treatment units would be maintained in the short-term and is expected to improve in the long-term.
Future Habitat Conditions	Beneficial	Treatments are likely to accelerate the development of late-seral forest structure over the long-term (>10 years), which would promote better nesting habitat structure and improve habitat for primary prey species.
Marbled Murrelet		
Noise Disturbance	No Effect	Activities at most proposed units would occur outside of breeding season. Activities at any unit with adjacent suitable habitat within 0.25 miles would occur outside the breeding season (April-1 to September-15).
Habitat Modification	NLAA	No suitable nesting structure would be lost. Scattered legacy trees subject to release would retain potential nesting structure.
Critical Habitat	NLAA	The current conservation value of all treatment units would be maintained in the short-term and is expected to improve in the long-term.
Future Habitat Conditions	Beneficial	Treatments are likely to accelerate the development of late-seral forest structure over the long-term (>10 years), which would promote development of potential nesting structure sooner than if left untreated.

1). Affect determinations for purposes of Endangered Species Act consultation include: NLAA= not likely adverse affect, and No Effect.

Marbled Murrelet

Effects to marbled murrelets are summarized in Table 5. Since most treatments would occur outside the breeding season and all units lie beyond 0.25 miles from any occupied murrelet site, no disturbance effects to this species is expected. The proposed action would reverse the decline in habitat value as released legacy trees would re-grow crown cover and likely increase their longevity. Treatments around legacy trees would retain any potential nesting structure and likely increase flight accessibility which is probably a necessary component of suitable habitat for this species (Burger 2002). Since the proposed action is expected to retain and restore potential nesting structure, and improve structural diversity over the long term, it is expected to benefit the conservation value of critical habitat designated for this species. The proposed action is considered a “may affect, but not likely adverse affect” to marbled murrelet critical habitat.

Red Tree Vole

While a few red tree voles may be present in the proposed units, any tree with an obvious stick nest would not be selected for treatment. If voles are present in any unit they are more likely to select legacy trees which have more platforms and cavities to use for nesting than the average tree from the mid-seral cohort. Since all legacy trees would be retained and are expected to recover green foliage after treatment, the released legacy trees are expected to provide more food and cover for voles even in the short term (less than 10 years) than if left untreated. The proposed action is not anticipated to have any appreciable negative effect in the short term on the population of red tree voles in this watershed since voles are well distributed throughout the watershed and since

this action would not remove any older forest structure which provides the best habitat for supporting vole population persistence (USDA-FS and USDI-BLM 2001).

Bird of Conservation Concern

In the central Oregon Coast Range the majority of birds complete their breeding cycle within the April 15 to July 15 time period, while some birds (eagles, owls, hawks, woodpeckers) begin breeding as early as February or March and others (flycatchers, finches) may not finish breeding until August. Since most of the planned treatments are expected to occur outside of the primary breeding season, it is unlikely that this action would destroy any active nests or disrupt normal breeding behavior of any BCC species that may breed in the treatment units.

At the stand scale, the habitat conditions that currently attract the bird species which may nest in the proposed units would be largely unchanged and enhanced over time since:

- stand-level canopy closure would remain relatively high (at least 65 percent);
- all minor conifers and all hardwoods would be retained;
- the existing shrub layer would be retained and likely expand spatially; and
- there would be an immediate increase in higher quality snags (hard snags greater than 15 inches DBHOB) for primary cavity nesters.

At the watershed scale, this proposed action is expected to have a beneficial effect on BCC populations that may not be discernable since the proposed units would retain or enhance their habitat value. However, these units are small, widely scattered, and represents only 8.7 percent of the mid-seral conifer forest in the Five Rivers watershed.

3.1.3 Soils

Affected Environment

Typical soils in the project areas are clay loam soils moderately well-drained and moderately deep to very deep. They have high infiltration values and hence are not highly prone to surface erosion. Where slopes approach 60 percent or steeper, erosion potential is moderate to high. Soil rutting hazard is highest on bare soils or where the duff layer has been displaced (NRCS, 2005). Care must be taken to retain as much of the surface duff layer as possible.

Most of the project areas are situated along ridgeline and adjacent slopes. Hillsides in the project area alternate between flats (20 to 30 percent grade, deep silt-loam soils) on top of large, stable slump benches to steeper side-slopes (40 to 80 percent grade, gravel-loam soil textures) mostly with a south west or east aspect. On the relatively flat surfaces with deep, fine-textured soils, areas subject to high water tables and/or perched water are encountered. These areas are sensitive to rutting and displacement. Surface compaction is a higher risk in these soil types. The steeper areas have more shallow soils with greater rock content. In these locations channels have incised into the hill-slopes and runoff is quicker. These slopes are more sensitive to land sliding and surface erosion.

Environmental Effects

3.1.3.1 Alternative 1 (No Action)

Under this alternative the existing soil conditions at the project sites would continue in their current trends.

3.1.3.2 Alternative 2 (Proposed Action)

The felling, girdling, removal, or topping of trees as scattered individuals or in gaps up to one acre in size would have no visible or detectable effect on soil physical properties such as bulk density. Over time the material left on site would breakdown and add to the organic matter content of the soil and this could slightly alter some soil chemical properties (i.e., increased supplies of soil carbon and organic acids). Small disturbances to the soil surface (compaction/displacement) from foot traffic and repositioning of some material would occur during project operations. These effects would be dispersed across the treatment area and would not result in a loss of soil productivity or function.

Site access trails used by OHV

Some of the project area has been impacted by past tractor yarding and old skid roads can be found in some of the units. After several seasons, the accumulated liter fall on the forest floor would further reduce surface erosion potential. Where trails are being actively used for recreational purposes, especially OHV riders, additional measures to block the trails (felling large wood and organic material) would promote recovery of the soil's physical and chemical properties and reduce surface erosion at these sites.

CWD Creation:

CWD generated by felling, windthrow, and/or bark beetle infestation left on site following the project would help cover the soil surface and limit surface erosion. Girdling or overtopping trees for snag creation would not be likely to measurably impact soil resources. Felling trees for CWD would cause minor soil displacement and compaction where the tree falls on the ground and the impacts would be of no greater extent than a natural tree fall.

Pile Burning

On the sites where piles are burned, surface organic material would be removed, increasing localized potential for soil detachment. However, sediment delivery to streams is highly unlikely, since burn-pile areas are outside riparian reserves, widely dispersed, and typically smaller than 20 feet in diameter. Pile burning and rain impact on burned spots can decrease infiltration capacity until natural re-vegetation occurs. Displaced soil would be filtered and retained by the intact vegetation immediately surrounding the burn pile spot. Since burning would occur during wet soil conditions, heat damage to the upper soil layer would be moderated and only occur in scattered localized sites.

3.1.4 Water

Affected Environment

Project Area Precipitation and Basin Hydrology

The project areas are located in the Oregon Coast Range at elevations ranging from 400 to 2,400 feet[1]. The majority of project areas lie below the transient snow zone (TSZ), an elevation zone subject to rain-on-snow events (ROS) that have the potential to increase peak flows during winter or spring storms. This zone varies with temperature during winter storms but, in the Oregon Coast Range it is assumed to lie between 2,000 to 3,000 feet in elevation. The general project area receives approximately 64 to 70 inches of rain annually

The proposed action include treatment in four 5th field Watersheds; Upper Alsea River, Lower Alsea River, Deepwood Creek and Five Rivers. The main project areas are located in 3 watersheds (Little Lobster, East Fork Lobster, and South Fork Lobster Creeks).

There is only one project unit (27A) spanning three watersheds, which is located on the ridge top. No other units affects lands within the Upper and Lower Alsea River watersheds. The proposed action includes treatment on up to 7 acres within the Upper Alsea River Watershed and 3 acres within the Lower Alsea River Watershed. The project proposal would affect less than 0.01 percent and 0.002 of the respective watersheds. No treatments are proposed within Riparian Reserve LUA within the Upper Alsea River Watershed and less than 1/8th of an acre of Riparian Reserves may be affected within the Lower Alsea River Watershed. The 1/8 acre of treatment is due to a 1 site potential tree width buffer derived from a stream channel in the Five Rivers Watershed projecting over into the Lower Alsea River Watershed.

7th Code HUC's	6th Code HUC's	5th Code Huc's
East Fork Lobster South Fork Lobster Little Lobster	Upper Lobster Creek - 20,272 acres Lower Lobster Creek - 17,072 acres	Five Rivers - 76,438 acres

Project area stream flow

Project streams are similar to other Western Oregon streams where highest discharge takes place during winter storm events. Summer base-flow normally begins in perennial channels sometime in July and continues from August-October. Many small headwater channels (intermittent or ephemeral) dry up completely during this period.

Potential for peak flow augmentation due to legacy tree release: Current Condition

The type of actions proposed for this project (felling of individual trees, the creation of gaps less than one acre in size, and minimal access requirements), do not allow for a good calculation of potential impacts to peak flows because the total impact is much less than 30 percent crown removal in any of the treatment areas. Because of this fact a rigorous analysis was not completed.

In Joanne Greenberg's research for Boise Cascade Corporation (Hydrologic Process Identification for Western Oregon, page 7) she assumed an elevation of 2,300 as the break between precipitation dominant and ROS. Because over 99 percent of the proposed units fall below this elevation, there is currently a low risk for peak-flow enhancement in the four project watersheds.

[1] Unless otherwise indicated, geographic information is an estimate derived from the BLM's GIS database.

This project does not propose any change in the road network and no ground-based equipment useage would occur in the completion of this proposal.

Project area stream channels

Stream channels in the main project areas are primarily small 1st and 2nd order headwater streams; these are "source" reaches, following the classification of Montgomery and Buffington (1993). On the steeper slopes (20 to 70 percent), these have developed into constrained, step-pool channels. Only the 1st and 2nd order channels have ample supplies of large wood from nearby riparian forest and are well shaded.

Lobster Creek and East Fork Lobster Creek are adjacent to these project units. These channels generally are meandering low gradient (less than 2 percent) in moderately constrained valleys with well developed floodplains and periodic sand/pebble base to moderately incised 2 to 4 percent gradient channels with gravel/cobble substrate. Primary concerns for these channels is channel stability, sediment supply and sediment transport.

The remaining channels in the project area are small with intermittent or ephemeral flow. These small tributary channels formed in the silt loam soils in the project area and flow intermittently on the surface before disappearing underground, only to pop out again down-slope. Many are associated with high water tables in earth-flow terrain which forms in some of the softer slump deposits or on the surfaces of benches and flats. It's likely that ground water and intricate patterns of subsurface flow, as opposed to surface run-off, is the primary system of water delivery to these small channels.

Project area wetlands

No wetland\pond complexes are identified within the project areas. These sites mostly coincide with high water tables. All wetland / pond sites are excluded from treatment in the proposal.

Project area water quality

The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by the limited extent and minor impact on tree canopies included in this proposal and were not reviewed in depth for this analysis.

Oregon Department of Environmental Quality (ODEQ)

The Oregon Department of Environmental Quality's (DEQ) 2008 303d List of Water Quality Limited Streams (http://waterquality.deq.state.or/wq/303dpage.htm) is a compilation of streams which do not meet the state's water quality standards. East Fork Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 4, Little Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 6.6, South Fork Lobster, Creek is 303d-listed for exceeding summer temperature standards from river mile 0 to 4.3, and The main stem of Lobster Creek is 303d-listed for exceeding summer temperature standards from river mile 6.6 to 17.7. All of the treatment areas are within one mile of a listed segment.

The DEQ also published an assessment, the 319 Report, which identifies streams with potential non-point source water pollution problems and a schedule for developing a TMDL (total maximum daily load) for the basin to improve water quality. The Lobster Creek Basin has a completed TMDL for temperature (2002). The proposed treatment would not keep the basin for reaching the stated goals in the TMDL.

Beneficial Uses

There are numerous domestic water users in the project area along the mainstem of Lobster Creek. The closest diversion point is approximately one half mile from the closest treatment unit. Additional recognized beneficial uses of the stream-flow in the project area include anadromous fish, resident fish, recreation, and esthetic value.

Environmental Effects

3.1.4.1 Alternative 1 (No Action)

Under this alternative the existing water quality conditions, stream flows, and channel conditions at the project sites would continue their current trends.

3.1.4.2 Alternative 2 (Proposed Action)

Stream channels and wetlands:

Treatment in the Upper and Lower Alsea Watersheds are located on ridgetops more than 380 feet from any stream channels. There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. Stream banks, wetlands and channel beds are protected from direct physical alteration or disturbance by equipment. In addition, the proposed action is unlikely to affect stream flow in a measurable manner because of the low amount of crown reduction and therefore any indirect effects to stream channels as a result of increases in peak flows is unlikely. Thus, the proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology.

Watershed Hydrology:

Mean Annual Water Yield

Since the project areas are below the elevation zone normally subject to transient snow accumulations in the winter, the small reduction in stand density is unlikely to result in any increase in snow accumulation and melting during ROS events. In the coast range of Oregon, below TSZ elevations, reductions in stand density are unlikely to result in an augmentation of peak flow (Moore *et al*., 2005). The project acres shown below reflect that 1.5 percent of the combined Lobster Creek watershed would be treated. In reality only a small portion of each unit would have activities (see the silviculture write-up for the best description of treatments to the stand). Because the crown removal would be so much lower than the 30 percent level reviewed in water yield studies, it is highly unlikely that any measurable impact of water yields would be able to be measured. Therefore, this proposal is unlikely to result in any detectable changes in peak flows.

Upper Lobster Creek - 20,272 acres	**Lower Lobster Creek - 17,072 acres**
East Fork Lobster - 111 acres	*Little Lobster - 97 acres*
South Fork Lobster - 55 acres	*Lobster Creek - 133 acres*
Lobster Creek - 184 acres	
Totals	
Upper Lobster Watershed – 350 acres	**Lower Lobster Watershed – 230 acres**

Peak Flow effects from Roads

This proposal would not alter existing roads in a way that would likely reduce or increase effects to peak flows attributable to the current road network and thus it would maintain the current condition and trends relative to hydrology and stream flow.

Water Quality

The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by this

proposal. For that reason there are no expected direct, indirect or cumulative effects to water quality from the completion of this proposal.

3.1.5 Fisheries/ Aquatic Habitat

Affected Environment

Five Rivers

Fish Passage and Access
The primary drainage affected by the project is Lobster Creek, Little Lobster Creek, Meadow Creek, East Fork Lobster Creek, J-Line Creek, and South Fork Lobster Creek. General habitat conditions and fish distribution for these streams are described in the Lobster Five Rivers Watershed Analysis (USFS AND BLM 1997). No barriers to fish passage are known to exist in Lobster Creek system.

Aquatic Habitat
Oregon Department of Fish and Wildlife protocol surveys have been completed within Lobster Creek and many of it tributaries in the project area (ODFW 1993, 1996, 1997, 1999a, 1999b, 2000). Habitat conditions are mixed in the surveyed streams. Key wood appears to be limited or lacking in all the surveyed reaches. Shade and gravel were generally desirable in Lobster Creek, J-Line Creek, and East Fork Lobster. The lower four reaches of Little Lobster had adequate shade and gravel but excessive amount of fish sediment. The upper reaches of Little Lobster were noted to have limited shade and high amounts of fine sediment.

Fish Distribution
Chinook salmon, coho salmon, steelhead trout, cutthroat trout, western brook lamprey, Pacific lamprey, and sculpin are present in Lobster Creek (Streamnet 2007). In general, lamprey distribution is likely contiguous with steelhead distribution. Sculpin distribution is likely continuous with cutthroat trout distribution. Pike minnow, largescale sucker, and speckled dace would typically be present in the large tributaries and rivers in the watershed downstream from all project areas.

Deadwood Creek

Fish Passage and Access
General habitat conditions and fish distribution for Deadwood Creek are described in the Indian / Deadwood Watershed Analysis (USFS 1996). No barriers to migration were noted in proximity to the project area.

Aquatic Habitat
No habitat surveys are known to exist on Deadwood Creek downstream of the proposed treatment units. In general, habitat conditions in Deadwood Creek are likely comparable to conditions to most similarly sized tributaries in the Five RiversWatershed.

Fish Distribution
Coho salmon and steelhead trout are present in Deadwood Creek approximately 6,000 feet downstream of the project unit (Streamnet 2007). Chinook are present in the mainstem of Deadwood Creek, 2.3 miles downstream of the project area. Cutthroat trout, western brook lamprey, Pacific lamprey and sculpin species would also be considered present within these streams. Based on GIS estimates cutthroat trout are likely 1,500 feet downstream from the project units.

Threatened and Endangered and Special Status Species or Habitat:
The Oregon Coast (OC) coho salmon Evolutionary Significant Unit is listed as threatened under the Endangered Species Act (ESA). Oregon Coast coho salmon are present in most drainages within streams near project units

in the Upper and Lower Alsea River Watersheds and most of the streams in proximity to treatment units in the Five Rivers watershed (Streamnet 2007).

Environmental Effects

3.1.5.1 Alternative 1 (No Action)

Current stand and coarse woody debris conditions would be maintained. Expected benefits to the LWD recruitment as a result of legacy tree release and snag/CWD creation would not be realized. Impacts to aquatic habitat would be unlikely with the implementation of the no-action alternative.

3.1.5.2 Alternative 2 (Proposed Action)

Based on substantial distance of proposed treatments to stream channels, site level impacts would not translate into effects to aquatic habitat in either the Upper or Lower Alsea River Watersheds. No effects to aquatic habitat or fish resources would be anticipated within either the Upper or Lower Alsea River Watersheds and no further analysis is warranted for these watersheds.

Yarding/Falling

Flow effects - The proposed project would address forested stands covering between 0.4 and 11.2 percent in any of the affected 7th field drainages and between 0.7 and 2.1 percent of any effected 6th field sub-watershed. Approximately 1/3 of each unit area would have felling activities that may alter the forest canopy. The hydrology analysis determined that no impacts to stream flows were anticipated as proposed canopy closure levels would be greater than threshold levels where potential impacts could be discernable (Wegner 2010). As no discernable changes in peak and base flows within the treatment area are anticipated no alterations to fish habitat would be anticipated.

Temperature effects –Site level project designs for treatment units included a standard design feature SPZ of at least 55 feet or more. Protection of stream shade is the critical component in protecting stream temperature regimes (Beschta et al 1989, Belt et al 1992, Moore et al 2005). The proposed SPZ of 55 feet is anticipated to retain critical shade at more than 80 percent in the primary shade zone, primarily based on the limited nature of proposed actions. The proposed vegetation treatment would not result in canopy reduction of more than 50 percent in the secondary shade zone. The hydrology analysis indicated that stream temperatures were not anticipated to be impacted by the project proposal (Wegner 2010). Based on the anticipated protection of stream shade, the hydrology report water quality analysis, and the project design features, the proposed actions are unlikely to impact fish habitat both at the treatment site and downstream.

LWD effects - In the short-term the smaller diameter woody debris would continue to fall from within the SPZs. Wood recruitment studies conducted in the Pacific Northwest have shown the majority of woody debris recruitment occurs within 59 to 65 feet of the stream edge (McDade et al 1990, Van Sickle and Gregory 1990, Meleason et al 2002). The proposed SPZ width, which accounts for 85 percent of this woody debris recruitment zone, is anticipated to maintain wood recruitment rates. All trees felled in or near the SPZ would be retained on site. Therefore, the proposed actions are not expected to cause any short term negative effects to aquatic habitat at the site or downstream. Proposed felling of trees of sufficient size which could reach stream channels, or creation of snags by topping or girdling, may provide modest beneficial effects to woody debris recruitment over immediate and intermediate timeframes in the small stream channels near project area units. The dispersed nature of the proposed actions, 20 units spread amongst six drainages, indicates that short term or long term impacts to LWD recruitment would likely be undetectable at the site scale.

Sediment effects - The proposed SPZ and the nature of the proposed action (felling and leaving most trees on site) indicates any measurable changes in sediment delivery to the surrounding stream network is unlikely. Vegetated buffer widths ranging from 40 to 100 feet are sufficient to prevent sediment from reaching streams

(Burroughs and King 1989, Corbett and Lynch 1985, Swift 1985). Project design features include at least 55 feet buffers adjacent to treatment units. The proposed 55 foot buffers would be expected to capture sediment prior to reaching stream channels. These buffers combined with slash remaining following treatment should obstruct flow paths and keep sediment movement to a minimum. Slash, limbs and non-merchantable material left following felling activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burough and King 1989, Swift 1985). As the proposed actions are not likely to measurably alter water quality characteristics at the treatment sites, they would be unlikely to alter aquatic habitat downstream from the project area.

Rare, Threatened, and Endangered Species

The proposed legacy tree release actions associated with the activities are within 100 feet of listed fish or listed critical habitat in the Five Rivers watershed and are within 6,000 feet of listed fish or listed critical habitat in the Deadwood Creek watershed. A determination has been made that these proposed project items would be a 'May Affect' on OC coho salmon. The 'May Affect' determination is based on the proximity of the treatments to listed fish habitat. Due to the "May Affect" determination portions of the project would need to have consultation completed with the NMFS prior to implementation.

Compliance of the Aquatic Restoration Biological Opinion (ARBO) *Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act-Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-2012* would provide ESA consultation coverage for proposed project activities.

Protection of EFH as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NMFS is required for all projects which may adversely affect EFH of Chinook and coho salmon. The treatment project areas vary between 100 feet and over one mile from nearest habitat utilized by coho salmon (Streamnet 2007). The proposed project is not expected to adversely affect EFH. The determination is based on distance of treatment activities from occupied habitat in the Five River and Deadwood Creek Watersheds. Consultation with NMFS on EFH is not required for this project.

3.1.6 Fuels\Air Quality

Affected Environment

Fuels:
The stands are primarily 40 to 90 year old Douglas fir timber with lesser amounts of western hemlock, western red cedar, red alder and big leaf maple.

Undergrowth in the timber is a light to moderate. There are variable amounts of small and medium diameter dead woody material and leaf litter on the ground. Larger (greater than 20 inch) diameter downed logs are scarce as are large snags. Small snags (less than 10 inch DBHOB) are common.

The estimated total dead fuel loading for these stands ranges from 10 up to 22 tons per acre. Much of the existing down material is rotten or only partially sound

Air Quality:
Air quality in the vicinity of the proposed project areas is generally very high due to the mid to high elevation Oregon Coast Range location of the project areas. Transport winds affecting the area generally come in off the ocean and keep the air shed scoured out preventing a build up of particulate matter. Occasional stagnant air conditions do develop and may result in accumulation of particulate matter but generally these are short lived lasting less than one week.

Environmental Effects

3.1.6.1 Alternative 1 (No Action)

This alternative would result in no immediate change to the affected environment. Short-term impacts to fuels and air quality would be avoided.

However, immediate enhancements to forest structure would not be achieved. These untreated or un thinned stands would gradually move towards a Condition Class III which is a high departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. Risk of loss, including loss of key ecosystem components becomes high. This could result in poor air quality due to large amounts of un planned smoke in the atmosphere.

3.1.6.2 Alternative 2 (Proposed Action)

Fuels:
Fuel loading, risk of a fire start and the resistance to control a fire, would all increase at the sites as a result of the proposed action. Slash created from falling isolated single trees for CWD would add only a small amount of fine fuel per acre due to the dispersed nature of the treatment. Effects from this type of treatment would be negligible. There would be a substantial increase in fire risk and control resistance where multiple trees are cut to form a patch cut area around a legacy tree. The fuel loading would increase 10 to 25 tons per acre of dead fuel in the 0 to 9 inch size class not counting the felled boles that are left for CWD recruitment.

Risk of a fire start in the untreated slash would be greatest during the first season following cutting, the period when needles dry out but remain attached. The highly flammable needles generally fall off within one year and risk of a fire start greatly diminishes. Fire risk would continue to diminish as the area greens up with under story vegetation, and as the fine twigs and branches in the slash begin to break off and collect on the soil surface. Past experience, in the geographic area of this proposed action, has shown that, in approximately 15 years, untreated slash would generally decompose to the point where it no longer contributes substantially to increased fire risk. The resistance to control would decrease over time but more slowly depending on the amount and size of large, down wood left on site, since the larger material would remain on site, available to burn, much longer.

The decision to create and leave the isolated CWD untreated under this proposed action is based on our estimate that the risk is manageable based on a long history of observations of fuels in the geographic area.

Air Quality:
The total amount of slash debris expected to be piled for burning is estimated to be approximately 40 to 100 tons from the patch cut areas along the roads. Burning approximately 40 to100 tons of dry, cured, piled fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality in the air shed. Locally within ¼ to ½ mile of the piles there may be some very short-term smoke impacts after ignition resulting from drift smoke.

Generally, once covered, dry piles have been ignited, the fire intensity builds rapidly to a point where the fuels burn cleanly and very little smoke is produced. After a few hours, as the piles burn down and the intensity subsides, additional smoke may be produced due to lower temperatures and less efficient combustion. Depending on size, arrangement, type and moisture content of the remaining fuel, the smoke would diminish over several hours or days as the piles cool and burn out (sooner if rain develops). Generally this smoke only affects the immediate area (¼ to ½ mile or less) around the pile.

If a temperature inversion develops over the area during the night time hours, smoke may be trapped under the inversion and accumulate, resulting in a short-term impact to the local air quality. The accumulated smoke

generally clears out by mid-morning as the inversion lifts. Due to the low tonnages involved and the dispersed locations of this project, it is unlikely that inversions would present a problem. Burning of slash would always be coordinated with the Oregon Department of Forestry and conducted in accordance with the Oregon State Smoke Management Plan. This serves to coordinate all forest burning activities on a regional scale to prevent negative impacts to local and regional air sheds.

4.0 CUMULATIVE EFFECTS

4.1 Vegetation

Age Class:
Due to ecological succession and forest management (mostly private land harvests), the amount of acreage in each age class within this watershed is in constant transition. Ecological succession would advance early seral forest plantations toward mid seral conditions, just as current and expected future harvests of mid seral stands would return these patches to early seral conditions.

Fire history and intensive forest management on both private and public lands over the past several decades has greatly reduced the amount of late seral forests and the quality and quantity of coarse woody debris in western Oregon forests (Moeur, et al. 2005, Hagar 2007). The prevailing management regime on private lands would likely involve alternating between mid seral and early seral habitat conditions over time without retaining any late seral forest patches for the foreseeable future. The proposed action would affect mid-seral stands aged 40 to 90 years but would not change the age class composition on BLM-managed lands in the watershed.

Native vegetation:
The perennial vascular plant species would persist on site post-treatment and their coverage would increase after treatment. As stand canopy again increases over time, conditions would become more similar to current or pre-treatment conditions.

Cumulative effects of the proposed action would be to increase longevity of legacy trees over the landscape beyond the no action alternative. Combined with similar past projects (150 acres in 2008), future such projects, and a general policy of releasing legacy trees where they occur in density management projects on BLM lands, legacy trees would persist longer and in greater numbers than they would if subjected to competitive pressure from maturing mid-seral stand layers.

Bureau Special Status Botanical and Fungal Species:
Any federal T&E or Bureau special status species found within the project areas would be managed as indicated in the design features.

Invasive/Non-native Plant Species (including Noxious Weeds):
Any adverse effects from the cutting of smaller diameter conifers from around older, larger diameter conifers would be localized due to the small size of the projects. As mentioned above, the risk rating for any adverse affects from noxious weeds with the implementation of this project is low.

4.2 Soils

Because the effects of the proposed action on soils are expected to be short-term (maximum one decade) and localized, cumulative effects are not anticipated. The combined effect of the proposed action would not increase the overall amount of compaction and erosion in the project area. The greatest cumulative effect on the site would likely be a slight reduction (less than 1 percent over the entire project area) in overall site productivity from CWD material covering the ground surface.

4.3 Water

The current condition of the watersheds in the project areas indicate low risk for an existing augmentation of peak flows from canopy reductions due to the proposal. The proposed legacy tree release would not result in any increase in forest openings in ROS and therefore would be unlikely to result in a detectable augmentation of peak flows. Proposed road use is unlikely to alter surface or subsurface hydrology in a manner that would result in a detectable change in stream flow from current conditions in the watershed. Since the proposal is not likely to result in a detectable direct or indirect effect to peak flow, the proposal would be unlikely to contribute cumulatively to any existing augmentation of peak flow in these watersheds.

In more recent analysis of effects to peak flows from forest management (Grant et al. 2008), analysis of past study data has shown that watersheds dominated by areas located in the transient snow zone (like those in this proposal) generally begin to show some evidence of peak flow increase when between 15 to 20 percent of the area has been harvested. The paper also includes information from basins with no roads that experienced harvest or loss of vegetation due to fire. The increases from these watersheds can be used as a hypothetical "reference" response that could be expected from more natural landscape response to vegetation removal.

The existing percent of the watersheds that are unvegetated ranges from 5.1 to 5.5 percent. At these levels, using the Grant analysis the expected increase in peakflows in the project watersheds would fall below zero in an unmeasurable state. The largest expected "natural" response in peak flow increase from these levels of vegetation removal is 8 percent.

The proposed action, in combination with all existing harvest is estimated to not increase peak flows for a two-year event (under normal storm conditions). For normal storm events, no increases in peak flow relative to a theoretical full forested condition are expected under the proposal in conjunction with the other activities in the cumulative effects analysis.

The Grant paper also discusses that there is no exact response of stream channels to increases in peak flows. In fact, Grant discusses that for the stream channel types found in the analysis area (step-pool and cascade) there is little potential for changes in stream channel attributes from increases in stream flows below the ten-year flow event which is generally in the area of a 35 to 40 percent increase in the normal two-year peak flow level.

The risk of increase to peak flows based on the proposed management activity falls well below the measurable level indicating no potential risk of stream channel changes. Therefore, based on this update, and previous analyses, the risk of peak flow enhancement based on the proposed management activity is determined to be unmeasurable and cumulative impacts expressed as changes to stream channel attributes are not expected to be measurable either in the project watershed or downstream of the project watershed.

4.4 Fisheries/Aquatic Habitat

The cumulative effects of the proposed actions associated with the Legacy Tree Release Project to the hydrology and soil resources were assessed under the Soils and Hydrology Report (Wegner 2010). Combined with the direct and indirect affects analysis presented in the Fisheries Report these additional cumulative effects analyses form the basis of the fisheries resource cumulative effects analysis.

Cumulative impacts to fishery resources could occur if proposed actions result in alterations in runoff contributing to changes in flows where fish reside. Based on the Hydrology reports analysis of alterations to peak flows in the project area (Wegner 2010) changes in flows were considered unlikely at the site level, subsequently no cumulative effects are anticipated on aquatic resources.

The Hydrology report indicated that the proposed treatments were not anticipated to affect stream temperatures and not expected to result in any cumulative effects to temperature (Wegner 2010). No cumulative effects are anticipated for peak flows, streambanks, and instream structure which could also affect temperature. As no

cumulative effects were anticipated for these project activities on temperature, streambank conditions, and peak flows these treatments would not result in cumulative effects for fisheries resources.

The proposed stand treatments are not expected to measurably alter large woody debris (LWD) recruitment, stream bank stability, and sediment supply to channels at the 5th field watershed scale in the short-term or long-term. As short-term LWD recruitment is protected or enhanced only unmeasurably positive cumulative effects are anticipated for instream structure from the proposed actions.

Approximately 81 percent of the land base within the Five Rivers Watershed is federally administered, by the BLM and Forest Service. The trend in LWD recruitment on federal lands is increasing as the stands mature within the Northwest Forest Plan designated Riparian Reserves (Reeves et al 2006). Analysis conducted under the FEIS Revision of the Resource Management Plans of Western Oregon indicated trends of LWD recruitment on all Western Oregon and Washington BLM administered Riparian Management Areas. Overall, LWD recruitment was considered likely to continue to improve over the next 100 years under the preferred alternative (BLM 2008). Private lands account for roughly 19 percent of the land base in the Five Rivers Watershed. An assessment of Oregon Forest Practices indicated on non-federally administered forest lands roughly 94 percent of the riparian network would be considered inadequately stocked for future recruitment of LWD (IMST 1999). However, based on the various policies currently being applied to coastal Oregon forest lands, the amount of riparian area with large and very large conifer trees, which would contribute towards large wood recruitment, is projected to increase significantly (Spies et al 2007).

The BLM, industrial forest companies, and small land owners have conducted a variety of site level LWD enhancement projects in the Five Rivers Watershed in proximity to the project area in Lobster Creek, East Fork Lobster Creek, South Fork Lobster Creek, J-Line Creek, Preacher Creek, and Little Lobster Creek. Future LWD enhancement work is being planned in the Five Rivers Watershed by the Alsea Watershed Council, Mid-Coast Watershed Council, Forest Service, and BLM. Site level LWD restoration projects, both private and public, have locally increased LWD abundance. However, these projects are unlikely to detectably alter fish productivity at 5th field scale due to the small scale of project work and lack of connectivity between treatment areas.

Extensive road work has occurred on BLM administered lands, FS administered lands, and adjacent industrial forest over the last decade in the Five Rivers Watershed. Substantial restoration work has occurred to improve road stability, reduce road generated sedimentation, reduce road mileage and remove barriers to aquatic habitat movement at stream crossings in the Upper Lobster Creek Key Watershed. Site level road work, both private and public, have had negative and positive impacts on aquatic habitat. However, these projects are unlikely to detectably alter fish productivity at 5th field scale due to the small scale of project work and lack of connectivity between treatment areas.

Impacts of hauling activities, from Forest Service and private forests, may contribute to cumulative impacts to fish habitat at the 5th field scale. However, the magnitude and extent of sediment impacts from hauling are impractical to assess, or predict, due to high degree of variability of hauling which may occur within a watershed from one year to the next.

4.5 Wildlife

The BLM has not conducted any thinning or legacy restoration within the 6,528 acres of mid-seral stands in the Five Rivers watershed since implementation of the Northwest Forest Plan began in 1995. This proposed action would not contribute to any cumulative negative effects to mid-seral forests on this landscape, nor would it contribute to any cumulative loss of dispersal habitat for spotted owls since the functional capacity as dispersal habitat would be maintained. Also, there would be no cumulative negative effects to marbled murrelets since suitable nesting structure would be retained and enhanced over time, and there would be no cumulative effects to red tree voles since no older forest habitats (which best support population persistence) would be affected.

4.6 Fuels/Air Quality

Although there would be an increase in fuel loading and resultant fire hazard in the short term, there would be positive benefits to stand health, structure and wildlife in the long term due to the proposed treatment. When looked at from a watershed scale, the treatment to release dispersed legacy trees and create CWD on approximately 580 acres (over a 2 year period) of LSR and RR forest habitat would result in only a minor increase in overall fire risk and resistance to control. Where fuels are treated on site, fire risk would be reduced by a substantial margin.

There would be few cumulative effects to the resources, as the effects from the project would be local and / or short lived, and there would be no other uses affecting this resource. Burning of slash would be guided by the OSMP which serves to coordinate all forest burning activities on a regional scale to protect local and regional air sheds. Based on past experience with pile burning in this and other similar areas there are no expected cumulative effects on regional air quality from the planned fuels treatment under this proposal.

5.0 COMPLIANCE WITH THE AQUATIC CONSERVATION STRATEGY

Review of Aquatic Conservation Strategy Compliance:

The project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II [complies with the ACS on the project (site) scale]. The following is an update of how the project would comply with the four components of the Aquatic Conservation Strategy. The project would comply with:

Component 1 – Riparian Reserves: by maintaining canopy cover along all streams and wetlands would protect stream bank stability and water temperature. Riparian Reserve boundaries would be established consistent with direction from the *Salem District Resource Management Plan*;

Component 2 – Key Watershed: by establishing that the Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project is located within the Upper Lobster Creek Key Watershed;

Component 3 –Watershed Analysis: The Lobster Creek-Five Rivers Watershed Analysis (1997), South Fork Alsea Watershed Analysis (1995) and Lower Alsea River Watershed Analysis (1999) describes the events that contributed to the current condition such as early hunting/gathering by aboriginal inhabitants, road building, agriculture, wildfire, and timber harvest.

Component 4 – Watershed Restoration:
The project has been reviewed against the ACS objectives at the project or site scale with the following results; the no action alternative does not retard or prevent the attainment of any of the nine ACS objectives because this alternative would maintain current conditions. The proposed actions do not retard or prevent the attainment of any of the nine ACS objectives for the following reasons:

Table 7: Project' Consistency with the Nine Aquatic Conservation Strategy Objectives

Aquatic Conservation Strategy Objectives (ACSOs)	Legacy Tree Enhancement
1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted..	Does not prevent the attainment of ***ACSO 1***. **No Action Alternative:** The No Action alternative would maintain the development of the existing vegetation and associated stand structure at its present rate. The current distribution, diversity and complexity of watershed and landscape-scale features would be maintained. Faster restoration of distribution, diversity, and complexity of watershed and landscape features would not occur. **Action Alternative:** The addition of CWD and snags would help to restore the diversity and complexity of watershed features to which native aquatic and riparian species are uniquely adapted.
2. Maintain and restore spatial and temporal connectivity within and between watersheds.	Does not prevent the attainment of ***ACSO 2***. **No Action Alternative:** The No Action alternative would have little effect on connectivity except in the long term within the affected watershed. **Action Alternative:** Long term connectivity of terrestrial watershed features would be improved by enhancing conditions for stand structure development. In time, the Riparian Reserve LUA would improve in functioning as refugia for late successional, aquatic and riparian associated and dependent species. Both terrestrial and aquatic connectivity would be maintained, and over the long-term, as the Riparian Reserve LUA develops late successional characteristics, lateral, longitudinal and drainage connectivity would be restored..
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	Does not prevent the attainment of ***ACSO 3***. **No Action Alternative:** It is assumed that the current condition of physical integrity would be maintained. **Action Alternative:** There would be no direct alteration of the physical features of the project area stream channels or wetlands under this proposal. There is no new road construction or maintenance proposed. Stream banks, wetlands and channel beds are protected from direct physical alteration or disturbance by equipment (EA .pp 28 and 29).
4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.	Does not prevent the attainment of ***ACSO 4***. **No Action Alternative:** It is assumed that the current condition of the water quality would be maintained. **Action Alternative:** The water quality parameters such as stream temperature, dissolved oxygen (DO) concentrations (both inter-gravel and in water), hydrogen ion concentration (pH), and turbidity are not expected to be impacted by this proposal (EA pg. 29).
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.	Does not prevent the attainment of ***ACSO 5***. **No Action Alternative:** It is assumed that the current levels of sediment into streams would be maintained. **Action Alternative:** No activities on BLM-managed land would take place directly in or adjacent to stream channels..

Aquatic Conservation Strategy Objectives (ACSOs)	Legacy Tree Enhancement
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.	Does not prevent the attainment of ***ACSO 6***. **No Action Alternative:** No change in in-streams flows would be anticipated. **Action Alternative:** Because the crown removal would be so much lower than the 30 percent level reviewed in water yield studies, it is highly unlikely that any measurable impact of water yields would be able to be measured. Therefore, this proposal is unlikely to result in any detectable changes in peak flows (EA pg. 30).
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	Does not prevent the attainment of ***ACSO 7***. **No Action Alternative:** No change in in-streams flows would be anticipated. **Action Alternative:** The proposed action would be unlikely to result in any measurable effects, such as increases in bank erosion, channel incision, loss of floodplain connectivity or alteration of local wetland hydrology that could result from augmented peak flows or altered watershed hydrology (EA pg. 29).
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	Does not prevent the attainment of ***ACSO 8***. **No Action Alternative:** The current species composition and structural diversity of plant communities would continue along the current trajectory. Diversification would occur over a longer period of time. **Action Alternative:** No impacts to riparian areas are proposed with this project.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	Does not prevent the attainment of ***ACSO 9***. **No Action Alternative:** Habitats would be maintained over the short-term and continue to develop over the long-term with no known impacts on species currently present. **Action Alternative** The purpose of the project is to improve and restore legacy –aged tree components which would help to support riparian-dependant species..

Over the long-term, this project should aid in meeting ACS Objectives by speeding the development of older forest characteristics in RR, including increased large wood recruitment for stream channels. In addition, more open stands would allow for the growth of important riparian species in the understory. This project would also promote stand diversity, provide more light to accelerate growth of selected conifers and promote species diversity. The creation of snags and CWD would restore watershed conditions by providing a gradual transition in structural characteristics of the treated stands that would more closely resemble late seral forest.

6.0 LIST OF PREPARERS

Table 8: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Heather Ulrich		
Hydrology/Water Quality/Soils	Steve Wegner		
Silviculture/Riparian Ecology	Hugh Snook		
Botany TES and Bureau Sensitive Plant Species	Ron Exeter		
Wildlife TES and Special Status Animal Species	Scott Hopkins		
Fuels/Air Quality	Terri Brown		
Fisheries	Scott Snedaker		
NEPA	Gary Humbard		

7.0 CONTACTS AND CONSULTATION

7.1 Agencies, Organizations, and Persons Consulted (ESA Section 7 Consultation)

U. S. Fish and Wildlife Service (USFWS)
Due to potential affects to habitat for both spotted owls and marbled murrelets as outlined in Table 3, Section 7(a) of the Endangered Species Act requires that this proposed action receive consultation with the U.S. Fish and Wildlife Service. Consultation has been addressed by inclusion of the proposed action a batched Biological Assessment (BA) that analyzed projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards included in the BA. A Letter of Concurrence (LOC, #13420-2008-I-0125) has been received from the Service which concludes that the proposed action is not likely to adversely affect these listed species or their designated critical habitat. The LOC did not require any changes or additions to be incorporated into the proposed project design standards.

National Marine Fisheries Service
On February 11, 2008, the NMFS listed the Oregon Coast Coho salmon Evolutionarily Significant Unit as threatened under the Endangered Species Act (ESA). The project is not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b)(9)].

Consultation with NMFS is required for all actions which may affect listed fish species and critical habitat under the ESA [40 CFR 1508.27 (b)(9)].

Proposed actions which may affect would comply with existing programmatic consultation and relevant design criteria, and no additional consultation would be necessary. The proposed action is covered under NMFS *Endangered Species Act Section 7 Programmatic Consultation Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012*.

Protection of Essential Fish Habitat (EFH), as described by the Magnuson/Stevens Fisheries Conservation and Management Act, and consultation with NMFS is required for all projects which may adversely affect EFH of

Chinook or coho salmon in the action area. The proposed action, with the incorporation of project design features, is not expected to adversely affect EFH. Thus, no consultation with NMFS on EFH is required for this project. Actions and effects beyond the scope of the analysis provided will require additional review and potentially result in the need to consult with NMFS.

7.2 Cultural Resources - Section 106 Consultations and Consultation with State Historical Preservation Office

The project area occurs in the Oregon Coast Range Mountains. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope defined in the Protocol appendix. Ground disturbing work would be suspended if cultural material is discovered during project work until an archaeologist can assess the significance of the discovery.

7.3 Public Scoping and Notification-Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices

- A scoping letter, dated February 2, 2010, was sent to 24 potentially affected and/or interested individuals, groups, and agencies. – Two responses were received during the scoping period.

- A description of the project was included in the March and June 2010 project updates to solicit comments on the proposed project.

7.3.1 30-day public comment period

- The EA and FONSI will be made available for public review June 30, 2010 to July 14, 2010. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 14, 2010 will be considered in making the final decisions for this project.

8.0 MAJOR SOURCES AND COMMON ACRONYMS

8.1 Major Sources

8.1.1 Interdisciplinary Team Reports

Exeter, R. 2010. Botanical Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Hopkins, S. 2010. Biological Evaluation (Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project) . Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snedaker, S. 2010. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project Environmental Assessement Fisheries. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snook, H. 2010 Specialist Report Abstract, Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release project, Forest Vegetation and Silviculture. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Brown, Terri. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Project Proposal Fuels Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Wegner, S. 2010. Marys Peak Resource Area Fiscal Years 2010/2011 Legacy Tree Release Environmental Assessment Soils/Hydro Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

8.1.2 Additional References

USDA. Forest Service, USDI. Bureau of Land Management. 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR.

USDA. Forest Service, USDI. Bureau of Land Management. 1994. Final Supplemental Environmental Impact Statement Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR.

USDI. Bureau of Land Management. 1995. Salem District Record of Decision and Resource Management Plan. Salem, OR.

USDI. Bureau of Land Management. 1994. Salem District Proposed Resource Management Plan/Final Environmental Impact Statement. Salem, OR.

USDA Forest Service and USDI Bureau of Land Management. 2010. Biological Assessment, Fiscal year 2009/2010 habitat modification activities in the North Coast Province which might affect bald eagles, northern spotted owls or marbled murrelets.

Biological Assessment of Habitat Modification Projects Proposed During Fiscal Years 2009 and 2010 in the North Coast Planning Province, Oregon, That Are Not Likely to Adversely Affect (NLAA) Northern Spotted Owls or Marbled Murrelets and Their Critical Habitats

Letter of Concurrence on the Effects of Habitat Modification Activities on the Northern Spotted Owl (*Strix occidentalis caurina*), Marbled Murrelet (*Brachyramphus marmoratus*), and Critical Habitat in the North Coast Planning Province, FY 2009 – 2010, proposed by the Eugene District, Bureau of Land Management; Salem District, Bureau of Land Management; and the Siuslaw National Forest (FWS Reference Number 13420-2008-I-0125)