Condenser Peak Late Successional Reserve Enhancement Environmental Assessment and Finding of No Significant Impact

Environmental Assessment Number OR-080-05-07

February 1, 2007

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

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BLM
Salem District

Abstract: This environmental assessment (EA) discloses the predicted environmental effects of three projects on federal land located in Township 7 South, Range 8 West, Sections 13, 14 and 15, Willamette Meridian and within the Mill Creek-South Yamhill River; Upper South Yamhill River; and Upper Siletz River Watersheds. Project 1 (Density Management) is a proposal to enhance the development of late seral forest habitat on approximately 273 acres of early to mid-seral forest land. Project 2 (Meadow Restoration) is a proposal to restore four small meadows by felling selected conifers. Project 3 (Coarse Woody Debris/Snag Creation) is a proposal to create down wood and snags on approximately 172 acres adjacent to the proposed density management area for terrestrial habitat improvement. The actions would occur within Late-Successional Reserve (LSR) and Riparian Reserve (RR) Land Use Allocations (LUA) within the North Coast Adaptive Management Area.

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-07/001+1792

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis (Environmental Assessment Number OR080-05-07) for a proposal to implement three projects as follows. *Project 1*: conduct density management on approximately 273 acres of 50 to 60 year-old stands in Late-Successional Reserve (LSR) and Riparian Reserve (RR) Land Use Allocations (LUAs) within the North Coast Adaptive Management Area to increase structural diversity. *Project 2*: fall and leave selected conifers within and around four small meadows for meadow restoration (approximately 8 acres). *Project 3*: girdle, top, or fall and leave selected conifers on 172 acres adjacent to the proposed density management area for terrestrial habitat improvement. The projects are on BLM managed lands in Township 7 South, Range 8 West, Sections 13, 14 and 15, Willamette Meridian.

Implementation of the Proposed Action will conform to management actions and direction contained in the attached *Condenser Peak Late Successional Reserve Enhancement Environmental Assessment* (Condenser Peak LSR Enhancement EA). The Condenser Peak LSR Enhancement 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. 1). The Condenser Peak projects have been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, (*RMP*) May 1995, and related documents which direct and provide the legal framework for management of BLM lands within Marys Peak Resource Area (EA pp. 1-3). Consultation with the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is described in Section 9.1 of the EA.

The EA and FONSI will be made available for public review at the Salem District office and on the internet at Salem BLM's website, http://www.blm.gov/or/districts/salem/index.htm (under Plans and Projects) from February 7, 2007 to March 8, 2007. The notice for public comment will be published in a legal notice by the *Polk County Itemizer Observer* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before March 8, 2007 will be considered in making the decisions for these projects.

Finding of No Significant Impact

Based upon review of the Condenser Peak LSR Enhancement 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 Mill Creek-South Yamhill River, Upper South Yamhill River and Upper Siletz River 5th-field watersheds and the project area boundaries. The Proposed Action would occur on approximately 273 acres of LSR and RR LUA land within the North Coast Adaptive

Management Area, encpompassing less than 1.1% of the forest cover within the three affected watersheds [40 CFR 1508.27(a)].

Intensity:

1. *Projects 1, 2 and 3* are unlikely to a have any significant adverse impacts on the affected elements of the environment (EA sections 3.7, 4.6 and 5.5 - vegetation, soils, water, fisheries/aquatic habitat, wildlife and fuels/air quality resources). The following is a summary of the design features that would reduce the risk of affecting the above resources (EA sections 3.4.2, 4.4 and 5.3).

   a. **Project 1 (Density Management)**

   - Seasonally restricting ground-based yarding, road construction and hauling operations to avoid runoff and sedimentation,
   - Operating equipment on top of slash and logging debris when possible to minimize compaction,
   - Installing erosion control measures as needed (water bars, sediment traps in ditchlines, silt fences, straw bales, and grass seeding exposed mineral soil areas),
   - Establishing stream protection zones (no cutting/no yarding) of at least 50 feet slope distance along streams and identified wet areas within the treatment area,
   - Decommissioning new road construction after the completion of the project,
   - Reserving existing snags and coarse woody debris, except within road rights-of-way, yarding corridors, skid trails or for safety reasons.

   b. **Project 2 (Meadow Restoration)**

   - All trees felled would be left on the site,
   - No trees would be felled within 10 feet of streams or open water.

   c. **Project 3 (CWD/Snag Creation)**

   - All trees felled for would be left on the site.
   - Patch openings would be up to ¼ acre in size and would occur at least 60 feet from perennial streams; a canopy of at least 70% would be maintained within the primary shade zone (60 feet).
   - Trees would be felled to create both terrestrial down wood and instream structures. No trees would be cut which are thought to be stabilizing stream banks, generally within 5 feet of streams.
   - To minimize Douglas-fir bark beetle infestation, no more than 20 Douglas-fir over 12" diameter breast height (DBH) per acre would be selected for treatment.
   - Treatment would occur between July 1st and September 30th, or as close to that period as operationally possible.

   With the implementation of the project design features described in EA sections 3.4.2, 4.4 and 5.3, 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 projects are designed to meet *RMP* Standards and Guidelines, modified by subsequent direction (EA section 1.3); and the effects of these projects would not exceed those effects described in the *RMP/FEIS* [40 CFR 1508.27(b) (1), EA sections 3.7, 4.6 and 5.5].

2. *Projects 1, 2 and 3* 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 areas (EA section 2.0);
   - 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 2.1).

3. *Projects 1, 2 and 3* are 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. *Projects 1, 2 and 3* do not set a precedent for future actions that may have significant effects, nor do they 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 *Projects 1, 2 and 3* 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 273 acres, encompassing less than 1.1% of the forest cover within the Mill Creek-South Yamhill River, Upper South Yamhill River and Upper Siletz River Watersheds), and duration (direct effects would occur over a maximum period of 4-6 years) (EA section 6.0).

6. *Fisheries:*

   Project 1

   Consultation with NOAA NMFS is required for all actions which 'may affect' listed fish species and critical habitat under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27 (b)(9)]. A preliminary determination has been made that the proposed Condenser Peak Late Successional Reserve Enhancement *Project 1* 'may affect' Upper Willamette River steelhead trout. The 'may affect' determination is primarily due to the proximity of listed fish and critical habitat adjacent to proposed haul routes. Due to the Proposed Actions' 'may affect' determination consultation with NOAA NMFS would be required on ESA listed steelhead trout.

   A determination has been made that *Project 1* would have 'no effect' to Spring Chinook salmon and Oregon chub. Generally, the 'no effect' determination is based on the distance upstream of project activities (approximately 65 miles) from ESA listed Chinook salmon critical habitat and historic habitat for Oregon chub.

   Protection of Essential Fish Habitat (EFH) as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NOAA NMFS is required for all projects which may adversely affect EFH of Chinook and coho salmon. *Project 1* 'may affect' EFH due to proximity of the proposed haul routes. Effects of the Proposed Action on EFH would be assessed concurrently with the ESA consultation with NOAA NMFS.

Projects 2 and 3

A determination has been made that *Projects 2* and *3* would have "no effect" to ESA listed fish species or critical habitat, based on the distance upstream of project activities (approximately 65 miles) from ESA listed Chinook Salmon and Oregon chub. Upper Willamette River steelhead trout critical habitat is approximately 4 miles downstream from project area.

Projects 2 and *3* would have "no effect" to EFH, based on the distance upstream of project activities (approximately 4 miles) from coho and Chinook salmon habitat.

Wildlife:

The Proposed Action is considered to be "no effect" to marbled murrelets and spotted owls since no suitable habitat would be modified and neither of these species is known to occur in this area. But the Proposed Action is considered to be a "may affect, not likely adverse affect" to spotted owl critical habitat, because it would modify a small amount (1.2%) of the available dispersal habitat within Critical Habitat Unit OR-44. The short-term reduction in canopy closure may slightly diminish the quality of dispersal habitat for owls, but since the entire project area would average more than 40% canopy closure, the treated stands are anticipated to retain their function as dispersal habitat for spotted owls in the short-term and would likely achieve suitable habitat quality for spotted owls in the long-term at a faster rate than if left untreated.

To address concerns for effects to federally listed wildlife species and potential modification of critical habitats, the Proposed Action was consulted upon with the U.S. Fish and Wildlife Service, as required under Section 7 of the ESA. Consultation for this Proposed Action was facilitated by its inclusion within a programmatic Biological Assessment (BA) that analyzes all projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2007 and 2008. The resulting Letter of Concurrence (ref# 1-7-2006-I-0190, dated October 3, 2006) concurred with the BA, that this action was not likely to adversely affect spotted owl critical habitat. This Proposed Action has been designed to incorporate all appropriate design standards set forth in the Biological Assessment which form the basis for compliance with the Letter of Concurrence.

7. *Projects 1, 2 and 3* do not violate any known Federal, State, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b)(10)].

Prepared by: Amy Haynes, Team Lead — Date: 1/31/07

Reviewed by: Gary Humbard, NEPA — Date: 1/31/07

Approved by: Gerry A. Day, Acting Field Manager, Marys Peak Resource Area — Date: 1.31.07

CONDENSER PEAK LATE SUCCESSIONAL RESERVE ENHANCEMENT ENVIRONMENTAL ASSESSMENT

INTRODUCTION

1.1 Projects Covered in this EA

Three projects will be analyzed in this EA. Project 1, Density Management, is a proposal to cut and remove a portion of the trees on approximately 273 acres of 50 to 60 year old stands within Late Successional Reserve (LSR) and Riparian Reserve (RR) Land Use Allocations (LUAs). Project 2, Meadow Restoration, is a proposal to cut and leave a portion of the conifers occurring in and around 4 small meadows for habitat improvement within the LSR. Project 3, Coarse Woody Debris (CWD)/Snag Creation, is a proposal to girdle, top, or fall and leave selected conifers on 172 acres adjacent to Project 1 for terrestrial habitat improvement within LSR and RR LUAs.

1.1.1 Relationship between Projects

Projects 1 and 3 both occur within the Upper South Yamhill River, Mill Creek-South Yamhill River and Upper Siletz River Watersheds. Project 2 is adjacent to and within Project 3 and is within the Upper Siletz River and Upper South Yamhill River Watersheds.

1.2 Project Area Location

All projects are located approximately 14 air miles northwest of Dallas, Oregon, in Polk County on forested land managed by the Marys Peak Resource Area, Salem District of the Bureau of Land Management (BLM), and are within Township 7 South, Range 8 West Willamette Meridian (see Map 1).

Table 1: Affected Watersheds

	Project 1	Project 2	Project 3
Watershed	Upper South Yamhill, Upper Siletz River, Mill Creek-South Yamhill River	Upper South Yamhill, Upper Siletz River	Upper South Yamhill, Upper Siletz River, Mill Creek-South Yamhill River

1.3 Conformance with Land Use Plans, Policies, and Programs

The Condenser Peak projects have been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District: 1/ *Salem District Record of Decision and Resource Management Plan* (*RMP*), May 1995: The *RMP* has been reviewed and it has been determined that the Condenser Peak projects conform to the land use plan terms and conditions (i.e., complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1). Implementing the *RMP* is the reason for doing these projects (*RMP* p.1-3); 2/ *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* (the *Northwest Forest Plan*, or *NWFP*), April 1994; 3/ *Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl*, March 2004 (SSSP) and 4/ *Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management*

Plans for Nineteen National Forests within the Range of the Northern Spotted Owl, Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy (*ACSROD*), March 2004.

The analysis in the Condenser Peak LSR Enhancement EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement* (*RMP/FEIS*), September 1994. 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* (*NWFP/FSEIS)*, February 1994. The *RMP/FEIS* is amended by the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines*, January 2004 (SSSP/FSEIS) and the *Final Supplemental Environmental Impact Statement, Clarification of Language in the 1994 Record of Decision for the Northwest Forest Plan National Forests and Bureau of Land Management Districts Within the Range of the Northern Spotted Owl* (*ACS/FSEIS*), October 2003.

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 Condenser Peak LSR Enhancement projects: 1/ *Late Successional Reserve Assessment for Oregon's Northern Coast Range Adaptive Management Area* (*LSRA*), USDA Forest Service, USDI BLM 1998; 2/ *Rowell, Mill and Rickreall Creek, and Luckiamute River Watershed Analysis* (*MEGAWA*), USDI BLM, 1998; 3/ *Upper Siletz Watershed Analysis* (*USWA*), USDI BLM, 1996; 4/ *Upper South Yamhill Watershed Assessment* (*USYWA*), Yamhill Basin Council, 2002.

These documents are available for review in the Salem District Office. Additional information about the proposed projects is available in the Condenser Peak LSR Enhancement Project EA Analysis File (NEPA file), also available at the Salem District Office.

The Bureau of Land Management (BLM) is aware of the August 1, 2005, U.S. District Court order in Northwest Ecosystem Alliance et al. v. Rey et al. which found portions of the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (January, 2004) (EIS) inadequate. Subsequently in that case, on January 9, 2006, the Court ordered:

- set aside the 2004 Record of Decision *To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern spotted Owl* (March, 2004) (2004 ROD) and
- reinstate the 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* (January, 2001) (2001 ROD), including any amendments or modifications in effect as of March 21, 2004.

The BLM is also aware of the November 6, 2006, Ninth Circuit Court opinion in Klamath-Siskiyou Wildlands Center et al. v. Boody et al., No. 06-35214 (CV 03-3124, District of Oregon). The court held that the 2001 and 2003 Annual Species Reviews (ASRs) regarding the red tree vole

are invalid under the Federal Land Policy and Management Act (FLPMA) and National Environmental Policy Act (NEPA) and concluded that the BLM's Cow Catcher and Cotton Snake timber sales violate federal law.

This court opinion is specifically directed toward the two sales challenged in this lawsuit. The BLM anticipates the case to be remanded to the District Court for an order granting relief in regard to those two sales. At this time, the ASR process itself has not been invalidated, nor have all the changes made by the 2001-2003 ASR processes been vacated or withdrawn, nor have species been reinstated to the Survey and Manage program, except for the red tree vole. The Court has not yet specified what relief, such as an injunction, will be ordered in regard to the Ninth Circuit Court opinion. Injunctions for NEPA violations are common but not automatic.

We do not expect that the litigation over the Annual Species Review process in Klamath-Siskiyou Wildlands Center et al. v. Boody et al will affect this project, because the development and design of this project exempt it from the Survey and Manage program. In Northwest Ecosystem Alliance et al. v. Rey et al the U.S. District Court modified its order on October 11, 2006, amending paragraph three of the January 9, 2006 injunction. This most recent order directs:

"Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

a. Thinning projects in stands younger than 80 years old;
b. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;
c. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and
d. The portions of project involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph."

The Bureau of Land Management has reexamined the objectives of Condenser Peak LSR Enhancement as described in the Condenser Peak LSR Enhancement EA. Projects 1, 2 and 3 consist of thinning 50 to 60 year old stands within LSR and RR LUA's. Therefore, Condenser Peak LSR Enhancement Projects 1, 2 and 3 meet exemption a. above. Therefore, the decision to eliminate Survey and Manage is effective on this project.

The Salem District is also aware of ongoing litigation Pacific Coast Federation of Fishermen's Associations et al. v. National Marine Fisheries Service et al. (W.D. Wash.) related to the 2004 supplemental environmental impact statement for the Aquatic Conservation Strategy (ACS). The Magistrate Judge issued findings and recommendations to the court on March 29, 2006. The court has not found this amendment to be "illegal," nor did the Magistrate recommend such a finding. Given the court has not yet adopted the findings and recommendations we will appropriately continue to follow the current direction in the *ACSROD*, until ordered otherwise. The Condenser Peak LSR Enhancement EA tiers to this document as to the clarification of how to address the ACS. Since it was only a clarification, and did not alter any of the on-the-ground components of

the standards and guidelines designed for achieving the ACS objectives, whether the court upholds the amendment or not should have little practical effect at the project level.

1.4 Decision to be made

The decision to be made by the Marys Peak Field Manager is:

- Whether to approve the Condenser Peak projects, as proposed, not at all, or to some other extent.
- Whether site specific impacts would require supplemental/additional information to the analysis done in the RMP/FEIS through a new Environmental Impact Statement.

2.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS - COMMON TO ALL PROJECTS

2.1 Identification of Affected Elements of the Environment

The interdisciplinary team reviewed the elements of the human environment, required by law, regulation, Executive Order and policy, to determine if they would be affected by the Proposed Action. Table 2 ("Critical Elements of the Human Environment") and Table 3 (Other Elements of the Environment) summarize the results of that review. Affected elements are **bold**. All entries apply to the action alternatives, unless otherwise noted.

Table 2: Review of "Critical Elements of the Human Environment" (BLM H-1790-1, Appendix 5) for All Projects

"Critical Elements Of The Human Environment"	Status: (i.e., Not Present , Not Affected, or Affected)	Do these projects contribute to cumulative effects? Yes/No	Remarks
Air Quality (Clean Air Act)	**Affected**	**No**	**Addressed in text (EA section 3.7.6 & Condenser Timber Sale Proposal Fuels Report)**
Areas of Critical Environmental Concern	Not Present	No	
Cultural Resources	Not Affected	No	Cultural resource sites in the Coast Range, both historic and prehistoric, occur rarely. The probability of site occurrence is low because the majority of BLM managed Coast Range land is located on steep upland mountainous terrain that lack concentrated resources humans would use. Post-disturbance inventory would be completed on slopes less than 10%.
Energy (Executive Order 13212)	Not Affected	No	There are no known energy resources located in the project areas. The Proposed Action would have no effect on energy development, production, supply and/or distribution.
Environmental Justice (Executive Order 12898)	Not Affected	No	The Proposed Action is not anticipated to have disproportionately high and/or adverse human health or environmental effects on minority populations and/or low-income populations.
Prime or Unique Farm Lands	Not Present	No	
Flood Plains (Executive Order 11988)	Not Affected	No	The Proposed Action does not involve occupancy or modification of floodplains, and would not increase the risk of flood loss.
Hazardous or Solid Wastes	Not Present	No	

"Critical Elements Of The Human Environment"		Status: (i.e., Not Present , Not Affected, or Affected)	Do these projects contribute to cumulative effects? Yes/No	Remarks
Invasive, Nonnative Species (plants) (Executive Order 13112)		**Affected**	**No**	**Addressed in text (EA section 3.7.1, 4.6.1 & 5.5.6, and Condenser Thinning Botanical Report)**
Native American Religious Concerns		Not Affected	No	No Native American religious concerns were identified during the public scoping period.
Threatened or Endangered (T/E) Species or Habitat	**Fish**	**Affected**	**No**	**Addressed in text (EA section 3.7.4, 4.6.4 & 5.5.4 & Condenser Peak LSR Enhancement Fisheries Report).**
	Plant	Not Affected	No	There are no known sites of any T/E vascular plant, lichen, bryophyte or fungi species within the existing proposed project areas.
	Wildlife (including designated Critical Habitat)	**Affected**	**No**	**Addressed in text (EA section 3.7.5, 4.6.5 & 5.5.5 & Condenser Peak LSR Enhancement Biological Evaluation).**
Water Quality (Surface and Ground)		**Affected**	**No**	**Addressed in text (EA section 3.7.3, 4.6.3 & 5.5.3 & Condenser Peak Timber Sale Soils/Hydrology Report).**
Wetlands/Riparian Zones (Executive Order 11990)		Not Affected	No	Wetlands and Riparian zones (i.e., near stream areas with actual riparian vegetation or characteristics) would be designated as SPZ's and buffered out of the treatment areas (except for small area within Unit 14B). (Condenser Peak LSR Enhancement Project Silvicultural Prescription: Including Upland and Riparian Reserves in NEPA file).
Wild and Scenic Rivers		Not Present	No	
Wilderness		Not Present	No	

Table 3: Review of Other Elements of the Environment for All Projects

Other Elements of the Environment	Status: (i.e., Not Present , Not Affected, or Affected)	Do these projects contribute to cumulative effects? Yes/No	Remarks
Fire Hazard/Risk	**Affected**	**No**	**Addressed in text (EA section 3.7.6, 4.6.6 & 5.5.6 & Condenser Timber Sale Proposal Fuels Report Fuels Report).**
Other Fish Species with Bureau Status and Essential Fish Habitat	**Affected**	**No**	**Addressed in text (EA section 3.7.4, 4.6.4, 5.5.4 and Condenser Peak LSR Enhancement Fisheries Report).**

Other Elements of the Environment		Status: (i.e., Not Present , Not Affected, or Affected)	Do these projects contribute to cumulative effects? Yes/No	Remarks
Land Uses (right-of-ways, permits, etc)		**Affected**	No	**Existing reciprocal right of way agreements with Weyerhauser Company would be supplemented**.
Late Successional and Old Growth Habitat		Not Present	No	
Mineral Resources		Not Present	No	
Recreation		Not Affected	No	Dispersed recreation use (hunting). The area is isolated and behind a locked gate most of the year.
Rural Interface Areas		Not Present	No	
Soils		**Affected**	**No**	**Addressed in text (EA section 3.7.2, 4.6.2 & 5.5.2 & Condenser Peak Timber Sale Soils/Hydrology Report).**
Special Areas outside ACECs (Within or Adjacent) (RMP pp. 33-35)		Not Present	No	
Other Special Status Species / Habitat (including Survey and Manage)	Plants	Not Affected	No	There are no known sites of any special status vascular plant, lichen, bryophyte or fungi species within the proposed project areas.
	Wildlife	Not Affected	No	There are no known sites of any bureau special status species nor is there any likely habitat for such species within the proposed project areas. No red tree vole suitable habitat within project areas; no surveys required; incidental surveys have not detected species within project areas.
Visual Resources		**Affected**	**No**	**Projects are located within VRM Class IV land. Changes to the landscape character are expected to be low and comply with Class IV guidelines.**
Water Resources – Other (303d listed streams, DEQ 319 assessment, Downstream Beneficial Uses; water quantity, Key watershed, Municipal and Domestic)		**Affected**	**No**	**Addressed in text (EA section 3.7.3, 4.6.3, 5.5.3 and Condenser Peak Timber Sale Soils/Hydrology Report).**
Wildlife Structural or Habitat Components - Other (Snags/CWD/ Special Habitats, road densities)		**Affected**	**No**	**Addressed in text (EA section 3.7.5, 4.6.5, 5.5.5 & Condenser Peak LSR Enhancement Biological Evaluation).**

3.0 PROJECT 1 –Condenser Peak Density Management

3.1 Purpose of and Need for Action

Management practices of the past several decades (clearcut harvesting) have shifted many contiguous stands of late-successional forest to a mosaic of young overstocked stands with high densities within the affected watersheds. The proposed forest management activities are needed immediately in these stands to reduce densities and provide the transition in structural characteristics of the treated stands that would more closely resemble late-seral forest (larger diameter trees, sub-canopy development, greater tree species diversity, greater volume and size of hard CWD, canopy gaps) and to extend the persistence of hardwood tree and shrub cover diversity. As a follow up to the findings of the MEGAWA, USWA and LSRA, the Marys Peak Resource Area silviculture and wildlife staff began prioritizing areas within the Resource Area that would benefit from density management and contribute to the provincial strategies for recovering conditions across the landscape. The proposed project is intended to implement a subset of specific management opportunities that were identified within the MEGAWA, USWA and LSRA.

- **Late Successional Reserve LUA (RMP p. 15-19):** To manage developing forest stands and wildlife habitat in the LSR LUA so that:
  - ü Late-successional forest conditions, which serve as habitat for late-successional forest species, can be developed, accelerated, and enhanced, (LSRA, p. 2).
  - ü Plan and implement silvicultural treatments inside Late-Successional Reserves that are beneficial to the creation of late successional habitat (RMP p. 16). This implementation would be accomplished through a timber sale that can be successfully offered to the market place.

- **Riparian Reserve LUA (RMP pp. 9-15):** To manage early to mid-seral stands in RR LUA so that:
  - ü Growth of trees can be accelerated to restore large conifers to Riparian Reserves (RMP p. 7);
  - ü Habitat (e.g. coarse woody debris, snag habitat, in-stream large wood) for populations of native riparian dependent plants, invertebrates, and vertebrate species can be enhanced or restored (RMP p. 7);
  - ü Structural and spatial stand diversity can be improved on a site-specific and landscape level in the long-term (RMP p. 11, D-6).

- **Roads (RMP p. 62) :** To maintain and develop a safe, efficient and environmentally sound road system that:
  - ü Provides appropriate access for timber harvest and silvicultural practices used to meet the objectives above;
  - ü Provides for fire vehicle and other management access;
  - ü Reduces environmental effects associated with identified existing roads within the project area.

3.2 Alternatives

3.3 Alternative Development

Pursuant to Section 102 (2) (E) of the National Environmental Policy Act of 1969, as amended (NEPA), 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." An unresolved conflict concerning sedimentation from timber hauling and hauling cost of the different haul routes were used to generate an alternative.

An alternative proposing to use an alternative road system for the timber haul route would meet the purpose and need of the project and address these conflicts. Therefore, this EA will analyze the effects of Alternative 1 [(Proposed Action) (Fire Hall Road timber haul route)], Alternative 2 (Black Rock Mainline Road timber haul route) and Alternative 3 (No Action).

3.4 Common to Both Action Alternatives

This project consists of density management treatments on approximately 273 acres of 50 to 60 year old stands within LSR and RR LUAs and would predominately occur through a timber sale (Condenser Peak LSR Enhancement). Approximately 273 acres would be thinned to a variable density (basal area ranging from 80 to 140 sq ft/acre). Approximately 5% of the treatment area would have gaps (approximately 14, one acre patch cuts) created and approximately 2% of the treatment area would have clumps (approximately ¼ acre untreated areas) created. The intent of the Alternative 1 (Proposed Action) and Alternative 2 is to create stand structural diversity and to produce a timber sale to be offered in fiscal year 2008. Trees would be skyline yarded on approximately 163 acres and ground based yarded on approximately 111 acres.

3.4.1 Connected Actions Common to Both Action Alternatives

1. **Road Work**:
   - **Road construction**: Approximately 3670 feet of new road (predominantly near ridge top locations) would be constructed. Road P1 would be surfaced with an approximate 6"-8" depth of base course aggregate, and the remainder of the new construction would remain natural surfaced, with the option remaining for the purchaser to rock it at his/her expense. Following harvest, the new construction would be decommissioned by water barring, grass seeding and blocking to all vehicular traffic.
   - **Road Renovation:** Road renovation of approximately 3.5 miles would occur. Spot rock application would occur on existing roads. Drainage structure improvement and/or replacement would occur on approximately 19 cross drains and/or stream crossings. New culverts installed would meet 100 year flood design criteria. Cut and fill slopes adjacent to drainage structure replacements would be grass seeded and riprap would be placed as needed.
   - **Development of a rock pit**: To supply rock for the proposed project and future projects, a new rock source (approximately 1 acre) would be developed in T. 7 S., R. 7 W., Section 19 within LSR LUA (RMP p. 52). Activities would include renovating approximately 300 feet of road and blocking it beyond the quarry after completion of operations.

2. **Special Mark Area**: Individual trees would be selected for removal along Road #7-8-24 in T. 7 S., R. 8 W., Section 13, as part of the road renovation. Additional trees

would be marked to enhance wildlife goals of increasing tree diameters and branch sizes.

3. **Fuel Treatments**: Fuel treatment strategies would be implemented on portions of the project areas. Strategies would include directional falling (to keep slash away from fuel breaks), followed by a reduction of surface fuels in order to reduce both the intensity and severity of potential wildfires in the long-term. Fuels reduction may be accomplished by burning of slash piles, by machine and/or hand piling of slash (including patch cuts) on-site, or by a combination of these techniques. In order to mitigate fire risk, the area would be monitored for the need to close or restrict 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 entire area would be posted and closed to all off road motor vehicle use.

4. **Skid Trail Construction:** Existing skid trails would be utilized as much as possible and new skid trail construction would be avoided where possible. New skid trail construction would follow the project design features described in section 3.4.2. Some main skid trails may be used as haul roads depending on harvest equipment used. This type of haul road would be restricted to the maximum width of 15 feet.

5. **Blocking Skid Trails:** After operations, skid trails would be waterbarred and blocked where they meet haul roads, and grass seeded where determined to be necessary by the authorized officer to mitigate soil erosion, reduce noxious weed infestation and help accelerate the return of native vegetation.

6. **Coarse Woody Debris (CWD) Creation:** New inputs of CWD would be achieved by indirect harvest activities (e.g. breakage, limbs and tops, trees felled but not harvested); post-harvest wind throw; bark beetle kill in response to new accumulations of slash and wind throw; and by post-harvest CWD creation. Approximately 2 trees per acre would be cut and left by the timber sale. Three to five years later CWD would be evaluated and a decision made as to whether more is needed.

7. **Special Forest Products (RMP p. 49):** Special forest product permits would be available by permit before and after harvest operations as appropriate for LSR and RR designated lands in this portion of the Marys Peak Resource Area.

3.4.2 Project Design Features Common to Both Action Alternatives

The following is a summary of the design features that reduce the risk to the affected elements of the environment described in EA section 3.2.

General

All logging activities would utilize the Best Management Practices (BMPs) required by the Federal Clean Water Act (as amended by the Water Quality Act of 1987) (RMP Appendix C pp. C-1 through C-10).

Table 4: Season of Operation/Operating Conditions

Season of Operation or Operating Conditions	Applies to Operation	Objective
During periods of low tree sap flow, generally July 15-April 15	Yarding outside of road right of ways (cable)	Protecting the bark and cambium of residual trees
During periods of low precipitation, generally May 1-October 31	Road Construction/renovation	Minimize soil erosion
During periods of low soil moisture, generally July 15-October 15	Ground based yarding (Tractor)	Minimize soil erosion/compaction
During periods of low soil moisture, generally June 15-October 31	Ground based yarding (Harvester/Forwarder)	Minimize soil erosion/compaction
During periods of low precipitation, generally May 1-October 31	Timber Hauling	Minimize soil erosion/stream sedimentation
July 1 to Aug 31 (Warnick tributaries) July 1 to Oct 15 (Willamette tributaries)	In-stream work period (culvert installation and/or removal)	Minimize soil erosion/stream sedimentation

Project Design Features by RMP Objectives Common to Both Action Alternatives

To minimize soil erosion as a source of sedimentation to streams and to minimize soil productivity loss from soil compaction, loss of slope stability or loss of soil duff layer:

- Ground based yarding with either crawler tractors or harvester/forwarders would take place generally on slopes less than 35 %.
- Harvester/forwarder use would require that logs would be transported free of the ground. The equipment would be either rubber tired or track mounted, and have rear tires or tracks greater than 18 inches in width. Skid trails would be spaced approximately 60 feet apart and be less than 15 feet in width. Logging debris would be placed in skid trails in front of equipment to minimize the need for machines to drive on bare soil.
- Crawler tractor use would require utilization of pre-designated skid trails spaced at least approximately 150 feet apart where they intersect boundaries and utilize existing skid trails as much as practical.
- Waterbars would be constructed where they are determined to be necessary by the Authorized Officer.
- In the skyline yarding area, one end suspension of logs would be required over as much of the area as possible to minimize soil compaction, damage to reserve trees, and disturbance. Yarding corridors would average approximately 150 feet apart where they intersect boundaries and be 15 feet or less in width. Lateral yarding up to 75 feet from the skyline using an energized locking carriage would be required.
- Timber hauling would be permitted only during periods of dry weather and low soil moisture, generally between May 1 and October 31. The Authorized Officer may restrict log hauling at any time to minimize water quality impacts, and/or require the Purchaser to install silt fences, barkbags or apply additional road surface rock.
- All locations where mineral soil is exposed (roads to be constructed, skid trails and landings, culvert replacements) would be sown with Oregon Certified (blue tagged) red fescue (*Festuca*

rubra), and/or sown with a wildlife vegetation mix and applied at a rate equal to 40 pounds per acre or sown/planted with other native species as approved by the resource area botanist.
- All skid trails would be blocked after harvest operations are completed.
- All new road construction would be located following BMPs and avoiding all wet areas (e.g., ponds, high water tables, marshy areas) and above slope breaks to avoid intercepting near surface flows.
- All of the new construction would be decommissioned following harvest, which would include waterbarring, grass seeding, and blocking

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

- Riparian Reserves in the proposed project would be 420 feet on each side of perennial fish-bearing streams and 210 feet on each side of intermittent and perennial non-fish bearing streams. These widths are in conformance with the RMP (p.10). Within these Riparian Reserves, stands would be thinned, but the actual riparian vegetation along streams would be excluded from treatment and designated as SPZ's (see below).
- Stream protection zones (SPZ's) where no cutting or yarding is permitted (except in Unit 14B noted below), would be established along all streams and identified wet areas within the harvest area and the special mark area. They would average approximately 60 to 75 feet (range is 50 to 100 feet). See *Silvicultural Prescription*, Attachment 1 for criteria used to identify SPZ's.
- To protect water quality, all trees within one tree height of SPZ's would be felled away from streams, except in Unit 14B where trees in the skid trail between streams would be cut and left in the streams. In all other cases, where a cut tree does fall within a SPZ, the portion of the tree within the SPZ would remain in place.
- An existing skid trail between two streams would be used in Unit 14B to transport logs from the ground based yarding area to Road #8-7-23. This would be accomplished using as few passes as possible through the SPZ and operations would be restricted to the instream work window, July 1 to August 31 (Table 4). All trees cut for the purpose of using the skid trail would remain on site.
- The above-mentioned skid trail within the Riparian Reserve in Unit 14B would be ripped between Road #8-7-23 and the unit boundary following harvest operations and within the instream work period (July 1 to August 31).
- In the special mark area (Map 2), all trees would be yarded from the road and no equipment would be set up adjacent to seeps or within SPZ's which cross the road.

To protect and enhance stand diversity and wildlife habitat components:

- Priorities for tree marking would be based on Marking Guidelines (see Appendix 3).
- 14 patch cuts averaging approximately one acre in size would be created within the density management areas by cutting most trees. All patch cuts located within 100 feet of streams would be less than ¼ acre in size. Trees would be left in clumps near or adjacent to some patch cuts.
- Conifer species such as western hemlock, noble fir, and western red cedar would be planted in all patch cuts and in other areas large enough to support a conifer understory.
- Except in yarding corridors/skid trails and patch cuts, species diversity would be maintained by reserving all trees (merchantable and non merchantable) other than Douglas fir, western hemlock and noble fir.

- All existing snags and coarse woody debris would be reserved, except where they pose a safety risk or affect access and operability. Any snags or logs felled or moved for these purposes would remain on site within the project area.
- Additional trees would be reserved around snags and additional trees would be cut around seedlings and understory trees in order to increase spacing variability. The number of additional reserved trees would be approximately equal to the number of additional cut trees, thereby maintaining the prescribed trees per acre described in *Silviculture Prescription* (see NEPA file) and Appendix 3 (Marking Guide).
- At least 2 green trees/acre intended to be part of the residual stand would be felled/girdled/topped to function as coarse woody debris (CWD) at the completion of harvest operations. Trees to be utilized for CWD creation would be approximately the stand average diameter or larger. Incidentally felled trees or topped trees (i.e. tail trees, intermediate supports, guyline anchors, hang-ups, etc.) that are left by harvest operations would be counted toward this target. If such incidentally felled trees are removed/sold, additional trees would be felled/girdled/topped to meet this target on a per treatment unit basis.
- Further enhancement and monitoring of CWD would occur within the proposed project as described in Table 7.

To reduce fire hazard risk and protect air quality:

- Light accumulations of debris cleared during road construction 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 on landings and along existing roads that remain in drivable condition would be machine piled, and slash within patch cuts would be either machine or hand piled. At least 90% of the slash in the ¼" to 6" diameter range within 20 feet of the road edge and within the patch cuts would be piled for burning.
- All piles would be located at least twenty feet away from reserve trees and snags. Larger piles would be preferable over small piles. Wind rows would be avoided unless approved in advance by the Authorized Officer.
- During the late summer before the onset of fall rains, all machine and hand piles to be burned, would be covered at least 80% 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 Threatened and Endangered and Bureau Special Status Plants and Animals:

- Site management of any Federal or Oregon State Threatened and Endangered (T&E) or Bureau Special Status (SS) botanical and fungal species found as a result of additional inventories would be accomplished in accordance with, BLM Manual 6840- *Special Status Species Management*.
- The Resource Area Biologist and/or Botanist would be notified if any Threatened and Endangered and Bureau Special Status Plants and Animal species are found occupying stands proposed for treatment during project activities. All of the known sites would be withdrawn from any timber harvesting activity.

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.

3.5 Alternative 1 (Proposed Action)

Timber hauling would occur on Fire Hall Road (Rd. #6-8-13). To reduce the overall quantity of sediment transported to Rock Creek and Cow Creek, the haul route would be seasonally restricted to dry weather conditions and additional cross drains and sediment traps would be installed on the Fire Hall Road.

3.6 Alternative 2 – An Alternative Timber Haul Route (Black Rock Mainline Road) would be utilized.

The alternative timber haul route would utilize the Black Rock Mainline Road (Rd. #8-7-23) as the timber haul route. The haul route would be seasonally restricted to dry weather conditions with spot rocking and culvert replacement(s) as necessary.

Because of the physical location of the proposed timber sale, there is a possibility that certain purchasers may request an alternate haul route (see Map #2) north along Fire Hall Road (Road #6-8-13). Since that haul route is entirely over privately controlled roads, and the BLM lacks the discretion or authority to either deny or permit hauling on such road, the Black Rock Mainline haul route may not be chosen to be used by the timber sale purchaser.

3.7 No Action Alternative

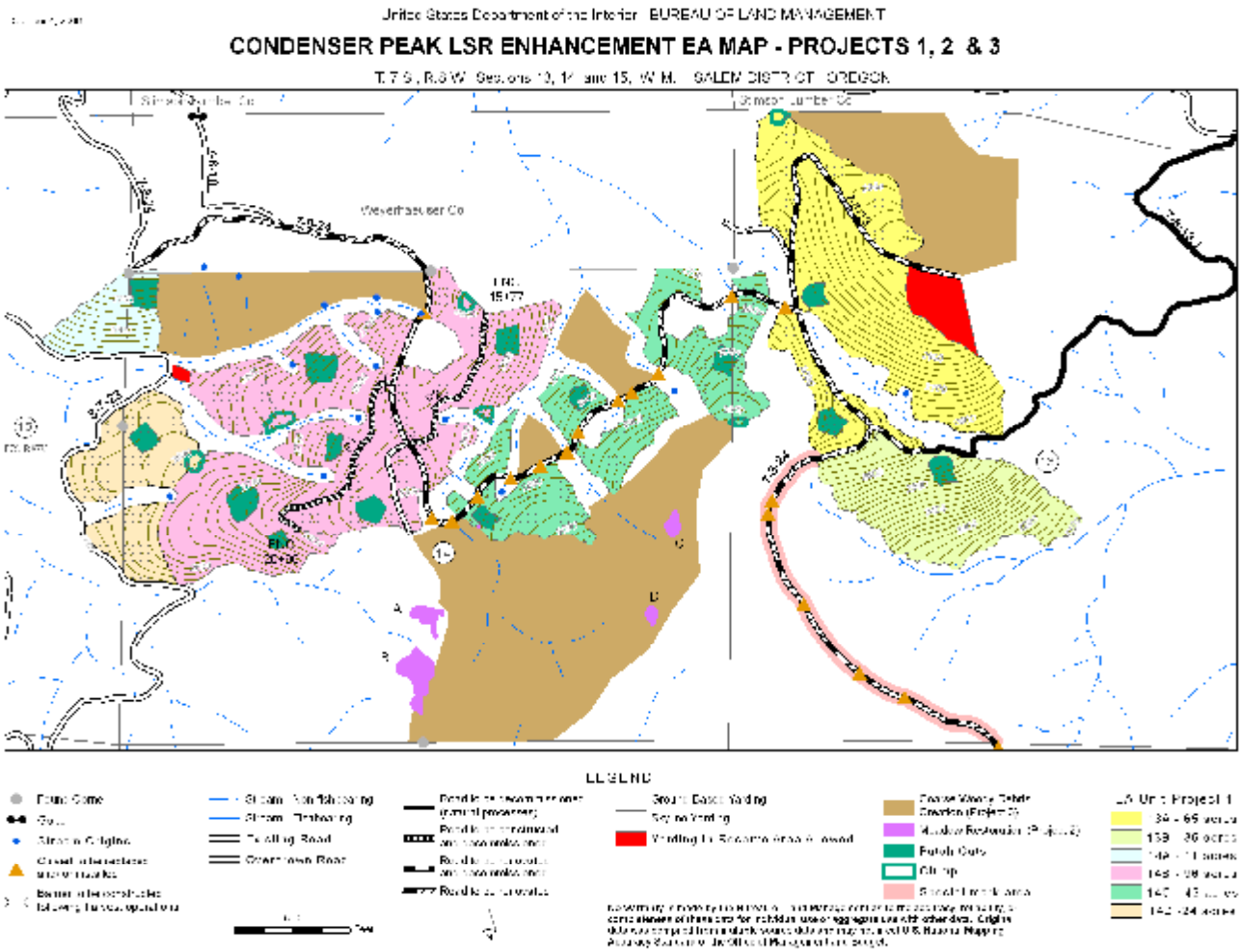
The BLM would not implement any of the action alternatives at this time. This alternative serves to set the environmental baseline for comparing effects to the action alternatives.

3.8 Alternatives Considered but not Analyzed in Detail

Inclusion of additional density management area and road construction: An alternative that would have required an additional 6,000 feet of road construction and 2,000 feet of road reconstruction to access approximately 120 acres of density management area was considered. The cost of the new road compared to the relatively small benefit of the density management in low value timber was determined to be not favorable. Consequently, this alternative was not analyzed in detail.

Maps of the Action Alternatives

Map 1: Map Common to Both Action Alternatives

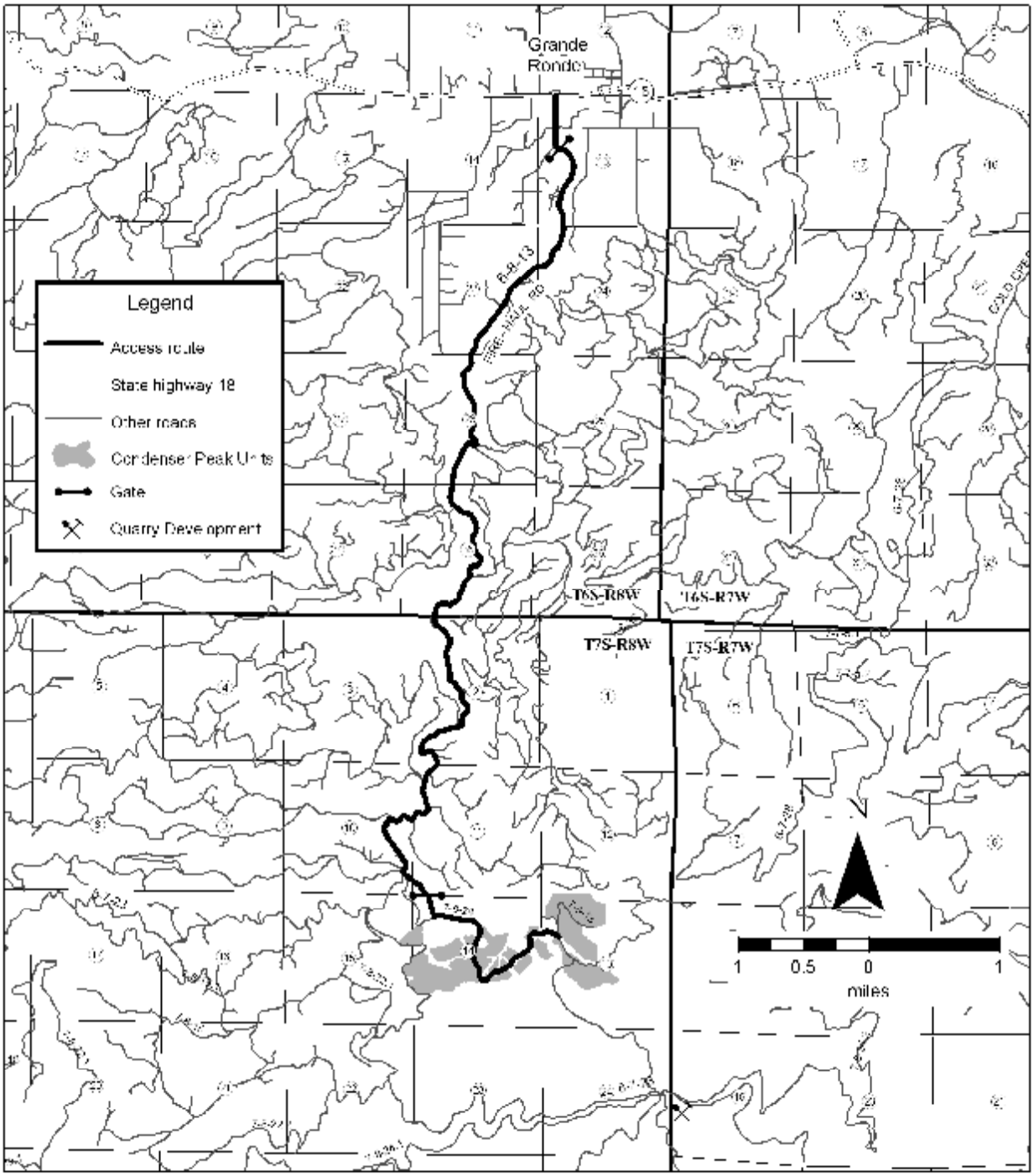


Map 2: Map of Alternative 1 (Proposed Action) Timber Haul Route

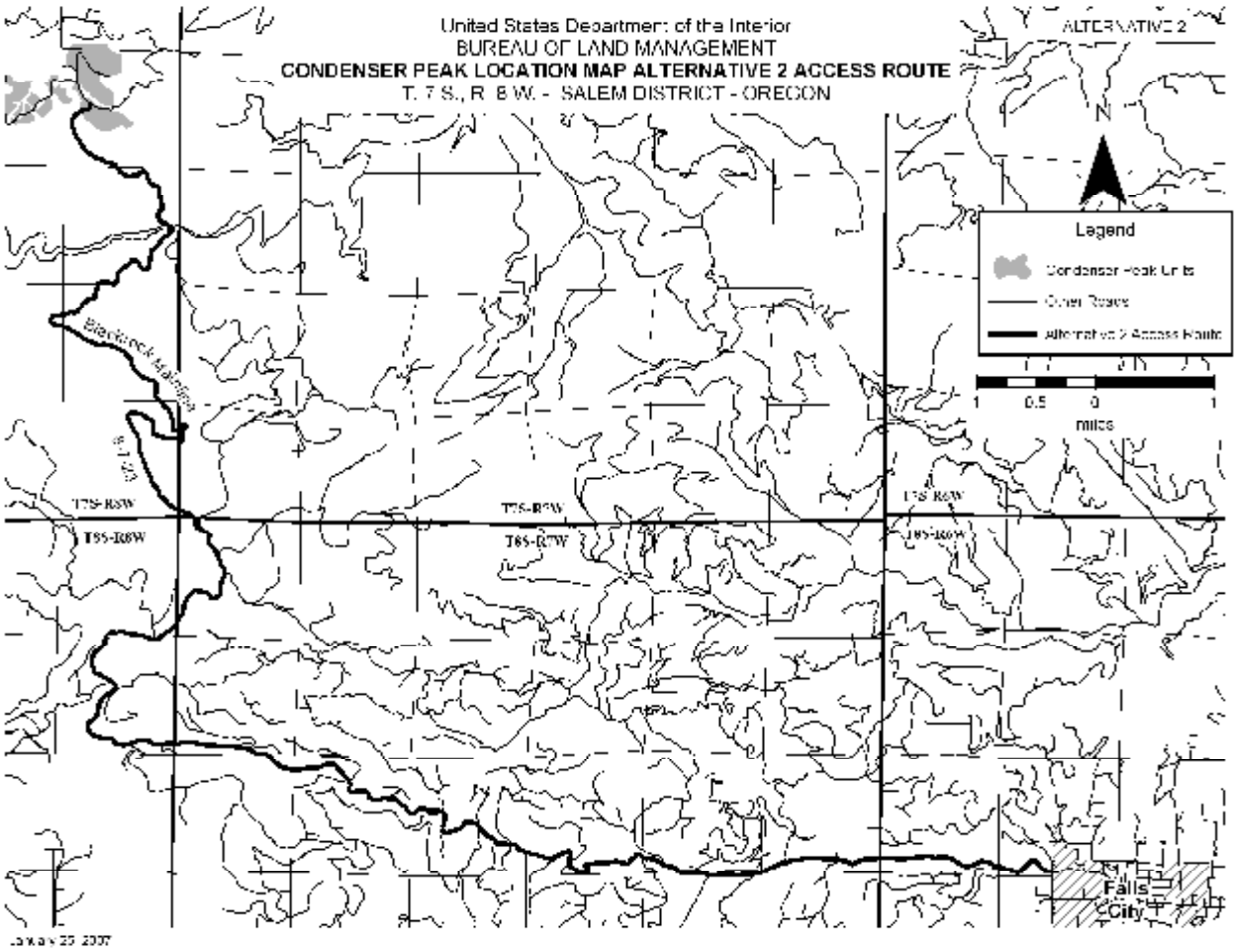
January 26, 2007

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
CONDENSER PEAK LOCATION MAP
T. 7 S., R. 8 W. - SALEM DISTRICT - OREGON

Map 1
PROPOSED ACTION



Map 3: Map of Alternative 2 Timber Haul Route



3.9 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, soils, water, fisheries/aquatic habitat, wildlife, and fuels/air quality*. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

3.9.1 Vegetation

(IDT Reports incorporated by reference: Condenser Peak Late Successional Reserve Enhancement Project Silvicultural Prescription: Including Upland and Riparian Reserves [Silviculture Prescription] and *Marys Peak Resource Area Botanical Report [Condenser Thinning])*

Affected Environment

Structure/Species Composition

The project area consists of young densely stocked managed stands, composed of Douglas-fir, western hemlock, and scattered large noble firs (Table 5). A small number of western red cedar and hardwoods occur mostly near streams. Relative densities (RD) are all above 0.6, indicating that the stands are undergoing mortality due to competition. There are few to many pockets of understory conifers, depending on the stand; most of these are western hemlock and fewer noble fir and Douglas-fir (Table 5). A few scattered large snags, and down wood in older classes (3, 4 and 5) occur throughout the stand (see Table 7). Fresh down wood is mostly in the form of snapped out tops from recent wind storms and a few small areas of blowdown.

Table 5. Specific Stand Data[1]

Unit	Age	Overstory Trees/acre	Understory Trees/acre	Basal Area	Mean DBH	Relative Density[2]	Mean Crown Ratio[3]
13A	54	280	46	327	DF 14.0 WH 12.3 NF 20.4 All spp: 13.9	.82	.51
13B	53	119	33	222	DF 16.3 WH 18.5 NF 23.1 All spp: 17.6	.61	.45
14A	53	395	288	271	DF 11.2 WH 9.1 NF 9.9 All spp: 10.5	.91	.33
14B	50	215	12	282	DF 15.8 WH 13.4 NF 16.1 All spp: 15.1	.83	.45
14C	54	319	155	278	DF 16.4 WH 10.7 NF 13.4 All spp: 11.8	.66	.45

Unit	Age	Overstory Trees/acre	Understory Trees/acre	Basal Area	Mean DBH	Relative Density[2]	Mean Crown Ratio[3]
14D	52	167	120	252	DF 16.0 WH 18.3 NF 8.1 All spp: 15.6	.73	.41

1. From stand exams performed in Nov. 2004 and Sept. 2005.
2. Relative Density (RD) is a measure of stand density: generally 0.35 indicates full site occupancy (beginning of competition due to density) and 0.6 indicates mortality due to competition.
3. Mean Crown Ratio is a ratio of live crown to total tree height. The larger the number, the deeper the crown.

Shrub species consist mostly of dense to scattered salal, rhododendron and vine maple, depending on light conditions, and some scattered sword fern and Oregon grape. Areas under dense canopy have very little understory shrub vegetation while areas under canopy openings are densely stocked with shrub species.

The fire regime in this part of the Coast Range is low frequency (more than 200 years) and severe, often involving large areas. Wind is the most frequent cause of disturbance.

Plant associations which occur in the project area are typical of the western hemlock, dry environment described in the LSRA (p. 58 – 59) where stands which occur on upper slopes are exposed to year round wind and dry summers. They have relatively thin droughty soils with low available nutrients. The LSRA describes these types of stands (when unmanaged) as having a moderate potential for growing large diameter trees and moderate to low potential for producing several canopy levels.

Forest Health

The stand is located in a harsh environment, with heavy precipitation, often in the form of snow in the winter. As a result there are many Douglas-fir with snapped out tops, many of them dead, presumably from wind blowing on trees heavy with snow/ice. Western hemlock dwarf mistletoe affects pockets of overstory hemlocks, particularly in unit 14C. No other evidence of insects or disease is evident in the stand, although *Armillaria* root disease, *Phellinus weirii* and Douglas-fir bark beetle are endemic to Oregon Coast Range conifer stands and probably affect a small portion of trees in the project area.

Large Woody Debris (LWD) in Streams

Wood in tributary channels in the project area was not measured; however observations of wood quantities were made during field survey work. There are moderate amounts of wood in streams throughout the proposed project area. Recent additions of wood are predominately smaller sized deciduous species and occasional second growth conifer that has blown down or fallen over due to slope instability.

Threatened/Endangered and Special Status Botanical and Fungal Species

Inventory of the project area for Federal and Oregon State threatened and endangered and Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species were accomplished through intuitive controlled surveys, in accordance with the 2001 S&M ROD and survey protocols for each specific group of species. (see *Botany Report* for list of species, protocols and survey dates). Since these inventories are in compliance with the *2001 ROD* they also comply with the *2004 ROD*. This is because both the *2004 ROD* and the *2001 ROD* requires botanical and fungal surveys to be conducted in accordance with the same species protocol documents.

There are no "known sites" of any Federal or Oregon State threatened or endangered or Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species nor were any found during subsequent surveys.

Noxious Weeds:
The following noxious weeds are known from within or adjacent to the project area: tansy ragwort (*Senecio jacobaea*), bull and Canadian thistles (*Cirsium vulgare* and *C. arvense*), St. John's wort (*Hypericum perforatum*) and Scot's broom (*Cytisus scoparius*).

Environmental Effects

3.9.1.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Development of stand structure and individual tree characteristics desirable for attainment of composition and structural diversity objectives in the LSRA and the Aquatic Conservation Strategy would be accelerated in the following ways:

- Restored structural complexity of the stands

Trees would be removed in a variable spacing, providing both openings for understory tree and shrub development, and areas of higher density. This would provide habitat for a wider variety of species than a dense uniform stand. The Proposed Action would increase the amount of light penetrating the canopy and promote growth and development of vegetation found at mid canopy and ground levels. In the short term a more complex understory would develop consisting of more shrub species which are important habitat components for insects, a major food source for fish, amphibians and birds. Understory initiation of shade tolerant conifers associated with canopy layering would be promoted in areas of increased light over the long term. Relative density (RD), an indicator of mortality due to competition, is decreased by density management, which indicates a better chance for understory development. RD 30 years later is still lower for the treated stand (Tables 2a – 2f in *SilviculturePrescription*).

- Accelerated development of desired tree characteristics

Residual trees would increase in diameter and crown depth/width. Limb diameter on large limby trees would be maintained by releasing those trees to an open grown condition. The long-term results of density management would be larger average DBH and deeper crowns (higher crown ratios) at any given age, compared to the no treatment option (Tables 2a – 2f in *Silviculture Prescription*). Average stand diameters 30 years in the future in the treated stands would be 25 to 30 percent larger than if the stands were not thinned. Average stand crown ratios, which is an indicator of wind firmness and crown depth, averages 30 percent higher.

- Maintained/ increased species diversity

The proportion of conifer species other than Douglas-fir would be increased from the current approximately 30 percent in Units 13B, 14A, and 14D to approximately 60 percent. In Units 13A and 14B the proportion of those species is either maintained or increased and in Unit 14C Douglas-fir would increase from 12 percent to approximately 40 percent.

- Maintenance of stand health and stability

Trees grown in more open conditions become more wind firm than those in very dense stands, both because individual trees experience more wind as they develop and because trees with less competition maintain their live crowns longer, giving them a lower center of gravity and

decreasing their height/diameter ratios. Crown ratios below 0.30 indicate a stand is no longer suitable for density management, as the trees will likely not respond to more open conditions, and are more subject to wind throw if the stand is opened up. Some researchers now suggest that wind firmness and individual tree stability may be factors in a tree reaching age 300 and over. Average crown ratios of the stands before treatment are already high, and thinning would increase them even more. Thirty years later, crown rations in the treated stands would be 20 to 30 percent higher than in untreated stands. (Tables 2a -2f in *Silviculture Prescription*).

Habitat for aquatic and riparian dependent species would be maintained or enhanced in the following ways:

- Long term increase in quality instream LWD recruitment

In the long term, trees smaller than stand average and at a consequently higher risk of mortality, would reach large diameters earlier compared to the no treatment option, creating natural opportunities for high quality LWD recruitment. Average stand diameter reaches 20 inches 10 to 60 years earlier than if the stands were not treated (*Silviculture Prescription*). Large amounts of smaller wood would continue to fall from within the untreated SPZ's, and larger wood would begin to be recruited from farther up the slopes as the treated stands reach heights of 200 feet. Thus, wood with a larger range of sizes would potentially be recruited into streams over the long term in treated stands.

- Maintenance of stream shade

Stream shading would not be affected by the proposed treatments. According to the Stream Shading Sufficiency Analysis (USDA USFS et al 2004) done for the proposed treatment (*Silviculture Prescription*, attachment 2), SPZ's need to be 50 to 55 feet wide to provide critical shade in the primary shade zone, based on topography and average tree height. Stream protection zone widths average 60 feet wide, with some areas up to 100 feet in width and none less than 50 feet. Additional criteria required for shade sufficient to maintain stream temperatures are that vegetation density is high and will benefit from thinning and that vegetation treatment in the secondary shade zone (approximately one tree height from the stream) will not result in canopy reduction of more than 50 percent. The proposed treatment meets these criteria.

Threatened/Endangered and Special Status Botanical and Fungal Species:
This project would not directly affect any Federal or Oregon State T&E or bureau special status or special attention vascular plant, lichen, bryophyte or fungi species since there are no known sites within the project area or adjacent to the project.

Noxious Weeds:
Any ground disturbing activity may lead to an increase in the noxious weeds known from within the project area. All road construction, improvements, renovation, decommissioning, timber falling and yarding operations would expose mineral soil to varying degrees. Non-native species may become established in any exposed mineral soil areas. Often non-native species persist for several years but soon decline as native vegetation increases within the project areas.

This project would be in compliance with the Mary's Peak integrated non-native plant management plan. The risk rating for the long-term establishment of noxious weed species and consequences of adverse effects on this project area is low and adverse effects from noxious weeds within the project area are not anticipated for the following reasons: The Condenser Peak project design feature of

revegetating exposed soil areas by sowing with Oregon Certified (blue tagged) red fescue (*Festuca rubra*), and/or sowing with a wildlife vegetation mix and applied at a rate equal to 40 pounds per acre or sowing/planting with other native species as approved by the resource area botanists are expected to minimize the establishment of noxious weeds.

Risk Assessment:
There would be a short term elevated risk of blowdown which would be minimized by selecting leave trees with deep healthy crowns and grouping them where possible. Additionally, higher basal areas would be maintained on ridges and more trees could be removed from lower, more sheltered slopes.

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 both the logging operation and creation of additional snags and down wood subsequent to the proposed treatment. Guidelines and an update provided by the Westside Forest Insect and Disease Technical Center would be followed to minimize this risk (*Silviculture Prescription*, attachment 3).

There is a risk of spreading dwarf mistletoe, which occurs in scattered areas throughout the project area on overstory western hemlocks (particularly in Unit 14C) and spreads by explosively ejected seeds which can travel distances up to approximately 50 feet, and land on uninfected branches and understory western hemlock. (BC Ministry of Forests, 1995).

3.9.1.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

3.9.1.3 No Action Alternative

- There would be no disturbance and consequently no microclimate changes in the Riparian Reserves.

- There would be no short term elevated risk of bark beetle infestation. However, as stand health is compromised due to high densities, risk of long term bark beetle infestation is increased, especially during extended periods of drought.

- Risk of catastrophic consequences due to wildfire may increase. Densely stocked stands with consequent large numbers of small snags and CWD burn more readily and are more subject to crown fires than stands growing at lower densities.

- Trees would continue at their present rate of growth, slowing as the canopy closes and competition for light becomes more intense (*Silviculture Prescription*). The canopy would remain closed, allowing little light to penetrate to the ground. The relative density (RD) of the stands as modeled in Organon would be greater than 0.99 within 45 years if left untreated. 0.6 is considered the point where mortality due to competition begins. Therefore it can be concluded that no significant understory would develop within the next 45 years and beyond without density management. Increasing stand mortality due to competition would lead to increased amounts of small CWD, snags and instream LWD. Crown ratios would decrease at a faster rate compared to Alternative 1. Wind firmness and individual tree stability would decrease as crown ratios decrease

- Natural disturbance would be the agent for creation of stand structural diversity. The most

likely agent for this disturbance would be wind, which would create openings in patches. It is unknown how long it would take for natural disturbance to create the structural and species diversity needed in these watersheds, but it is expected, based on experience and a considerable body of research, that this diversity would take considerably longer to develop than if the proposed treatment were implemented.

- Without any new human caused disturbances in the proposed project area the established noxious weed populations would remain low.

3.9.2 Soils

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Affected Environment

The predominant soil series, in and around the project area is the Valsetz, with smaller areas of Cruiser, Lurnick, and Yellowstone (including a Valsetz-Yellowstone complex) (USDA 1982). These soil types are usually moist and are dry less than 45 consecutive days during the summer. The cooler weather at high elevations can limit soil nutrient production and soil nitrogen levels in the project area are likely low. The site's large amounts of precipitation and high weathering rates result in the rapid leaching of nutrients through the soil. Therefore, the greatest concentration of soil nutrients are found just below the forest duff in the top soil layers, which are also the most productive. Due to the rocky nature and high infiltration of these soils, they are at a greater risk of nutrient loss from top soil displacement than to soil compaction.

A stand replacing wildfire during the summer of 1945, followed by salvage logging in at least portions of the project area, likely removed much of the existing available organic matter and accumulated O horizon. Since the 1950s, nutrient recovery has been slow. Fifty year old stands on the site exhibit relatively slow growth rates (have a shorter growing season) and there is little understory development (with the exception of rhododendron-which tolerates the high soil acidity). In particular, areas of Unit 13A are completely devoid of vegetative ground cover or understory, due to a combination of low light levels, rocky shallow, poor-nutrient soils, and high elevation.

Moderately compacted soils still exist in scattered skid trails that date back to the original tractor logging that was done in the proposed project area in the 1940s and 1950s. High weathering rates have led to the partial recovery of most trails in the project area. However, they are still devoid of substantial vegetation. This is presumably due more to the lack of nutrient laden top soil on the trails, than to soil compaction. Trees growing on piles of displaced topsoil adjacent to skid trails or root pockets show substantial growth and vigor compared to their cohorts. This further exemplifies that removing the nutrient-rich topsoil in the project area can greatly reduce the site's already limited productivity.

According to data obtained from the Natural Resources Conservation Service (NRCS), soils in the project area units have a slight to very severe hazard of off-road or off-trail erosion and are moderately to poorly suited for natural surfaced roads (skid trails). All proposed new construction would occur on Valsetz soil, which received the poorest rating for natural surface road suitability due to slope and erodibility. Project areas proposed for new road construction and haul also are rated as having a "severe" limitation affecting haul road construction and as "poorly suited" for

log landings due predominantly to slope. The soil rutting hazard is rated as "moderate" due to soil strength. The majority of the project area is rated "poorly suited" for the use of harvesting equipment, with smaller areas rated as "well suited" (NRCS 2005). The Timber Productivity Classification Code (TPCC) classified the project area as "Fragile Problem" with some areas labeled as "Fragile and Reforestation Problem." The USWA identified soils in the project area as having "soil nutrient limitations", with areas of compacted soil and areas of hydric soil conditions.

Erosional Processes
Slopes in the vicinity of the project area average 29% with slopes in the proposed units reaching a maximum of approximately 78%. Steep rock outcrops line the 7-8-24 road in Section 13 to the southwest, with slopes exceeding 90%.

Throughout the project area, trees have low pistol butts, indicating past movement which has now been stable for some time. The USWA identified the project area as having a "low" slope hazard rating for mass movement events, however slow soil creep is evident in Sections 14 and 15 of the project area. The MEGAWA (MP-1) identified areas in Section 13 with moderate (60-75%) to severe (greater than 90%) slope hazard and the USYWA (Map 9, pg. 65) identified the middle of the project area (Section 14) as having a "high" to "very high" risk of erosion, based on slopes and soil type.

Environmental Effects

3.9.2.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Tree harvest and yarding could increase surface soil displacement, surface erosion and dry ravel, and soil compaction, thereby reducing site productivity. The following estimates for potential compaction and site productivity losses are based on preliminary/potential logging plans developed by the project's logging systems specialist. Actual systems implemented could vary depending on the operator and equipment used. The proposed ground-based units were assumed to be entirely treated with tractors in order to quantify the maximum possible disturbance; harvesting exclusively with a harvester/forwarder or a combination of the two methods (or other equipment) would result in fewer impacts than those described below. The amount of total project acreage used for this analysis was 289 acres, (122 ground-based, 167 skyline) and total road construction and renovation was 5700 feet and 4.5 miles respectively.

Soil Displacement and Compaction/ Erosion Potential

Some soil displacement would occur along all corridors, skid trails, and at landing sites due to vegetation clearing and excavation. The loss of top soil could be minimized by maintaining slash/duff on the soil surface where possible and rehabilitating the sites (seeding, pull back, planting, etc.) after use. Soil displacement would be expected to remain localized to the sites – it is not anticipated that the proposed actions would result in extensive soil loss or erosion over the site or in sediment leaving the site.

Skyline Yarding Corridors: Preliminary logging plans estimate that no more than 5 acres would be used for skyline corridors. This would result in light compaction of narrow strips less than 4 feet in width. A maximum of 3% of the total proposed skyline units could be subject to measurable compaction from yarding operations (1.7% of the total project area). Skyline yarding would occur on steeper areas of the project, with deep and moderately deep soils. The high rock

component of these soils should buffer soil compaction, resulting in relatively moderate compaction to the upper soil layers. However, due to the steeper slopes in the skyline units, they are more susceptible to soil displacement by surface ravel and erosion than the flatter ground-based units.

Ground-Based Skid Trails: Impacts would vary depending on how dry the soils would be when heavy equipment operates on them, and how deeply covered with slash the soils in the yarding roads would be. Assuming all units were to be harvested by crawler tractor systems and the suggested design measures are followed (soils are dry, less than 25% moisture content, and equipment operates on some slash), soil impacts would be expected to result in moderate to heavy, fairly continuous compaction within the main skid trails. In tractor skid trails, a moderate amount of top soil displacement and moderate to heavy soil compaction could occur depending on the amount of use. Because of gentler topography in the ground-based units, surface ravel and erosion would be minimal.

Impacts would be light to moderate and less continuous on less traveled portions of skid trails. Preliminary logging plans estimate that if yarding is done using a crawler tractor, no greater than 7 acres would be used for skid trails. The percentage of total tractor unit area impacted by surface disturbance and soil compaction (as a result of skid trails only) would be a maximum of 6%, or 2% of the entire project area. Impacts would be less if a harvester/forwarder system or combination of systems were used.

Some of the potentially impacted acreage listed above, includes already existing skid roads from previous logging in the 1920 to 1950s period. Where practical, portions of these existing roads would be used for harvest roads for this project. Best management practices can help to alleviate compaction, but some residual shallow compaction would be expected within the ground based skid trails and landings. As a result, the amount (acreage) of new or additional harvest impacts would be less than the totals listed above.

Landings: A maximum of 70 total landings may be needed to harvest the proposed units (60 for ground-based yarding, 5 for cable yarding, and 5 for both methods). Approximately 4 of these landings would be at the terminus of yarding roads, with the remainder of landings located along existing or proposed roads. The landings at the ends of roads could range from 0.3-0.5 total acres. The amount of soil surface disturbance and compaction on these landings could range from moderate to severe, depending on how much excavation is required to level/construct the landing and how often equipment operates/turns around on the site.

For the remaining landings along existing roads, some additional ground adjacent to the road surface (approximately 1200 sq ft per landing) would be used to turn equipment around on and to sort and deck logs until transport. The degree of compaction in areas where logs are sorted or decked would be expected to be low. Areas where equipment turns or backs around on, multiple times would experience heavy compaction and disturbance to the top soil layer.

For the entire proposed project area this amounts to a total of 1.8 acres for all road-side landings (as a percentage of the total project area less than 1%). The road surface of existing roads is already assumed to be severely compacted, with the degree of compaction following harvest on proposed roads to be variable with amount of use. The additional area (aside from the road prism) cleared for these landings may experience little to moderate compaction – as heavy equipment would likely operate on the existing road prism.

RMP guidelines limit the aerial extent of compaction from yarding corridors, skid trails, and landings to no more than 10% of the proposed unit (Appendix C-2). Skyline yarding corridors plus landings used exclusively for skyline yarding systems (including those for both skyline and ground-based systems) would result in compaction of no more than 3% of the total proposed skyline units. If tractors are used exclusively, ground-based skid trails plus proposed landings for ground-based operations (including those for both ground and cable harvest) would result in compaction of no more than 7% of the total proposed ground-based units.

Timber Haul: During periods of rainfall when water is flowing off of road surfaces and in ditchlines, soil erosion off the road surface and exposed cut banks can occur. The amount of soil erosion coming from a rocked road prism in the project area would be very small.

Road Work: Constructing approximately 5700 feet of road would result in loss of topsoil and compaction of sub-soil on approximately 2 acres (about 0.7% of the total proposed project area). The area is currently forested land that would be converted to non-forested (reducing productivity). The roads to be constructed would be on moderate topography (grades of approximately 2% to 25%), so the total width of the clearings would be expected to be around 22-25 feet. These clearings would have a small effect on overall tree spacing and stocking. Rocking these new roads would help to alleviate some compaction and limit soil erosion from the road surface.

Road renovations would occur on approximately 4.5 miles of road and result in no change in the amount of current non-forest land. Drainage structure improvements and/or replacement would occur on approximately 19 cross drains and/or stream crossings. These improvements would improve drainage and road surface conditions, resulting in less road surface erosion into the surrounding area and streams. The improvement work would be expected to result in some short-term roadside erosion; this would be most likely to occur when the established vegetation in the ditch and culvert catchment areas would be removed in affiliation with the cleaning, reshaping, or culvert installment operations. Litter-fall accumulations and the growth of vegetation generally re-establish within one to two seasons and erosion rates would be expected to return to low levels thereafter.

The addition of extra cross-drain culverts and the road surface reshaping would reduce the volume of water flowing on the road surfaces and could also result in less future erosion.

Fuels Treatment: Machine piling of slash would increase soil compaction in areas where the equipment turns around multiple times (such as within patch cuts). Burning slash piles could produce small patches of soil with altered surface properties that restrict infiltration. However, erosion rates would be expected to return to original levels a year or two after the burn, as soil and vegetation recover.

Rock Pit Development: Quarry development would consist of renovating approximately 550 feet of abandoned road and clearing approximately one acre for the quarry itself. The rock face quarried would be impacted by development and rock removal. Soil displacement would be expected in the immediate vicinity during and following extraction activities and soil compaction would is heavy equipment were to operate off of existing road. End haul would be on an existing road and therefore cause no additional compaction. The proposed site is on a ridge outside any potential Riparian Reserve. The gentle gradient of the access road and in the area of the rock outcrop is expected to keep sediment disturbance localized. Minimal disturbance would occur on

existing road prism and the cutslope rock outcrop. Minor soil disturbance impacts may occur due to proposed actions, until vegetative recovery occurs within one or two growing seasons.

Skid Trail Blocking: Closing skid trails by water barring and grass seeding would promote out-slope drainage and prevent water from accumulating in large quantities, running down the skid trail surface, and accelerating soil erosion. After several seasons, accumulated litter fall on the surface would further reduce surface erosion potential.

CWD Creation: Girdling or topping 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. Coarse woody debris would be cut and left in place and the impacts would be of no greater extent than a natural tree fall. Coarse woody debris left on site following operations would help cover the soil surface, limit surface erosion, and restore nutrients to the site.

Site Productivity

Because of the current low soil productivity of the project area, the site is highly susceptible to further reductions in site productivity due to timber harvest and conventional logging systems which can increase both soil displacement and soil compaction. Soil displacement can remove the nutrient-rich top soil layer and soil compaction can limit root penetration, and the infiltration of water, gases, and nutrients into the soil.

The effect of skyline yarding on overall site productivity from light compaction and soil displacement on approximately 2% of the total project area would be expected to be low. Assuming a 20% reduction in yield on the acres most impacted by skyline operations (yarding corridors and landings), the overall site productivity losses for all the proposed skyline units would be approximately a 0.7% reduction in yield.

For the ground-base yarding units, the effect on project site productivity for a maximum of approximately 9 acres of highly impacted ground (including skid trails and all landings) would be a 2% reduction in overall yield for the ground-based units; this assumes tractor yarding exclusively, as impacts from using a harvester/forwarder would be less severe. The effect on overall project site productivity (from all proposed units, both ground and cable logged) would be a 1% reduction in overall yield for the entire 289 acre treatment area. These estimates represent a "worst case" scenario assuming that all ground based corridors and landings suffer a 30% reduction in productivity and all skyline corridors and landings suffer a 20% reduction in productivity.

The estimated reduction in growth rate for trees on moderate to severely impacted areas is 15%-30% during the first 10-20 years of growth. As trees age and become established, the negative effect on growth from soil compaction and displacement becomes less pronounced and growth rates may approach that of trees on similar, undisturbed sites. This is especially true where the area of compaction / displacement tends to be in narrow strips, as is the case with skid trails and small landings.

Road Work: New road construction would result in loss of topsoil and compaction of sub-soil on approximately 2 acres (about 0.7% of the total proposed project area). The area is currently forested land that would be converted to non-forested, thereby reducing site productivity. The

roads to be constructed would be on moderate topography (grades of approximately 2% to 25%), so the total width of the clearings would be expected to be around 22-25 feet. These clearings would have a small effect on overall tree spacing and stocking. All of the new construction would be decommissioned following harvest, which could include waterbarring, grass seeding, and/or blocking. Therefore, some recovery back to a forested condition would occur in this area over time.

Road renovations would occur on approximately 4.5 miles of road and result in no change in the amount of current non-forest land.

Fuel Treatments: A slight mineralization of nitrogen under the piles burned could occur, which would likely enhance plant growth at the spot. Pile burning is not expected to result in any long-term losses to soil structure or productivity, as piles are likely to comprise a very small percentage of the project area.

Rock Pit Development: Access to the proposed rock quarry is by existing (abandoned) road, therefore new ground permanently removed from production would only be the quarry area itself, consisting of approximately one acre.

3.9.2.2 Alternative 1 (Proposed Action)

Timber Haul: Soil modeling indicates that the Fire Hall Road is producing fine sediments during hauling operations by private timber industries. Erosion off the road surface would be greatest during periods of wet weather and frequent traffic. Consequently, the haul route would be seasonally restricted to dry weather conditions and mitigation measures would be applied (as required by NOAA NMFS through Section 7 ESA consultation) to reduce erosion during hauling operations. Road improvement would occur on Fire Hall Road to reduce road surface erosion and sediment transport to stream channels. Proposed improvements would result in short-term soil disturbance at each treatment site which would be expected to stabilize within one or two growing seasons.

3.9.2.3 Alternative 2

Timber Haul: The Black Rock Mainline is currently rocked and in moderate condition. If the Black Rock Mainline road is used for timber haul for this project, the haul route would be seasonally restricted to dry weather conditions with spot rocking and culvert(s) replacement if necessary. Minimal improvement to the Black Rock haul route is proposed. If the Black Rock Mainline Road is used for timber haul no direct or indirect impacts to soil resources are anticipated due to the proposed hauling.

3.9.2.4 Cumulative Effects

Addressed for all projects in EA Section 6.0

3.9.2.5 No Action Alternative

There would be no additional impacts to soil resources other than those described under the Affected Environment. Without road improvements (culvert replacements), some project area

roads would continue to redirect surface flows, causing soil erosion and potentially resulting in sedimentation into nearby streams.

3.9.3 Water

(IDT Reports incorporated by reference: *Condenser Peak Timber Sale Soils/Hydro Reports)*

Affected Environment

The project area spans the crest of the Oregon Coast Range and lies within three 5th-field watersheds: Upper Siletz River, Upper South Yamhill, and Mill Creek - South Yamhill River. Tributaries draining the east side of the project flow into Mill Creek, tributaries to the north drain into Rock Creek and the western tributaries flow into Upper Warnick Creek. The western project area lies within the North Fork Siletz River key watershed.

The project area lies entirely within the rain-on-snow zone (ROS), which receives periodic snow pack during most winters. Rain on snow events are common and can lead to pulses of increased surface runoff and peak stream flows (USDI 1995). Overlapping areas between high intensity rainfall and high ROS events are particularly vulnerable to rapid snowmelt and may lead to flooding (USDI 1996).

The project area receives approximately 98-136 inches of rain annually. Most surface runoff is associated with winter storm events that melt snow pack. Peak stream flow events are concentrated in the months of November through March. Project area soils tend to be either well-drained or saturated with moderate permeability. However the compaction of clay layers from past logging practices has generated a perched water table in some areas of the proposed project.

The Proposed Action includes the development of a rock pit in T 7 S., R 7 W., Section 19 located in the headwaters of Mill Creek Watershed (7^{th} - field watershed). The rock pit would be located along an existing road (Road #7-8-19), utilizing a projecting rock outcrop. The existing road is benched, with a grade of no more than 1% slope, and almost entirely outsloped. The existing road surface is partially overgrown with vegetation. No more than 500 feet of road renovation would be necessary to access this rock source.

Project area streams

Stream channels in the project area are primarily very small, intermittent and perennial, 1^{st} and 2^{nd} order headwater tributaries. Several streams in the project area are associated with marsh areas. These channels tend to transition between a Rosgen B4 type channel: 2-4% gradient, moderately entrenched, low width/depth ratio, and low sinuosity, to a series of shallow, braided channels/scour paths winding through these open flats. Channel substrates are predominately in the gravel to sand size classes.

Smaller tributaries in the project area are typically Rosgen A channel types: steep, narrow, valley constricted, entrenched channels with little sinuosity and cascade flow. Most of these channels have intermittent surface flow; being filled with colluvium (including cobbles and small boulders) between episodic debris torrents. Flow can be observed in holes and pockets in the duff along the channel length.

All channels viewed in the project area are vegetative and/or bedrock stabilized (controlled by either the surrounding vegetation or a soil restrictive layer). Some streams have small stretches of bedrock glides; these are likely determined by the underlying geology in addition to gradient increases. Near the northern property line, the primary north/south trending stream between Units 14C and 14B plunges approximately 100 feet onto bedrock.

Surface flow in some areas of the proposed project has been intercepted by compacted skid roads. However, the majority of stream channels appear to be functional and stable and are currently in proper functioning condition for these stream types (U.S.D.I. 1998).

The Mill Creek tributaries in the project area have been identified as having a "low" to "moderate" potential for CWD (MEGAWA, MP-7). Project area tributaries of the Upper North Fork Siletz River have been identified as having a "low" to "moderate" potential for LWD recruitment (USWA, Map 9). Although some scattered pieces of in-channel CWD and LWD were observed in the field, levels are assumed to be depleted in all streams compared to historic conditions.

Project Area Water Quality

Fine sediment and turbidity
During field review stream channels were observed to be mostly stable and functional with sediment supplies in the range expected for these stream types. However, no quantitative turbidity data was located for this analysis.

A WEPP sediment analysis was completed on a portion of the proposed timber haul route adjacent to ESA critical habitat for winter steelhead along Fire Hall Road. The analysis and field verification indicate that the Fire Hall road is currently eroding sediment from the road prism, with the potential for sediment to reach adjacent streams. Sedimentation potential is greatest during wet weather conditions and with increased road use.

Stream Temperature
No stream temperature data was located for project area streams. Stream reaches in the project area were identified in the MEGAWA (MP-6) and USWA as having a "low" risk of temperature increases due to inadequate shading, with small reaches with a "high risk; these reaches being associated with marsh/wetland areas with partial canopy cover (MP-6, p.51 & Map 8). Most stream channels in the field appear well-shaded by conifer and brush. Additionally, these channels have discontiguous flow and are usually dry during the summer months; therefore, they are unlikely to be substantially heated due to direct solar radiation.

Other Water Quality Parameters
Additional water quality parameters (e.g. nutrients, dissolved oxygen, pesticide and herbicide residues, macroinvertebrates, etc.) are unlikely to be affected by this proposal and were not reviewed for this analysis (U.S.E.P.A. 1991).

Oregon Department of Environmental Quality (ODEQ) Standards
The Oregon Department of Environmental Quality's (ODEQ) 1998 303d *List of Water Quality Limited Streams* (Oregon DEQ 2002) is a compilation of streams which do not meet the state's water quality standards. A review of receiving waters from the project area was completed for this report (to the 5th -field watershed scale). None of the project area streams or immediate receiving bodies are listed for water quality concerns.

The ODEQ also published an assessment, the 319 Report, which identifies streams with potential non-point source water pollution problems (*1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution*). A review of identified streams for receiving bodies of project area streams was completed for this report. Neither Rock Creek nor Upper Mill Creek, are listed in the 319 Report. Lower Mill Creek is listed for having severe general water quality conditions and water quality conditions affecting aquatic habitat, with moderate water quality conditions affecting fish. The South Yamhill River is also listed as having severe general water quality conditions, severe conditions affecting water contact, recreation, or shellfish, severe water quality conditions affecting drinking water supplies, and moderate water quality conditions affecting fish and aquatic habitat. The North Fork of the Siletz River is also listed in the report for having moderate general water quality conditions and moderate water quality conditions affecting fish and aquatic habitat.

Other sources of information (watershed analyses, ODFW habitat surveys) give more up-to-date information, supported by data, on fish and aquatic habitat conditions for these streams.

Beneficial Uses

The project area lies within two municipal watersheds: the City of Siletz and the City of Sheridan. The drinking water for the City of Siletz is supplied by intakes on the Siletz River, over 30 miles downstream of the proposed project. The drinking water for the City of Sheridan is partially supplied by an intake on the South Yamhill River (over 20 miles downstream of the proposed project). The Willamina Water Department and the Buell-Red Prairie Water Association public water systems are also located on the South Yamhill River or its tributaries upstream of the Sheridan intake; the City of Amity Water Department drinking water intake is located on the South Yamhill River downstream of Sheridan's intake.

Within each watershed, the ODEQ identified "sensitive areas" where potential contamination could occur from contamination sources and/or land use activities (ODEQ 2004). Some of the proposed new road construction for the project would occur within and/or adjacent to these "sensitive areas".

There are no known domestic or municipal water rights located in the project area. The closest proximity water right to the project area is an instream water right on Mill Creek for pollution abatement immediately adjacent to (and possibly extending into) the project area. The nearest water right along Rock Creek is for irrigation, approximately 6 stream miles downstream. The closest water right downstream of the project area for the Warnick Creek tributaries is an instream water right along the North Fork Siletz River, over 6 miles downstream, for anadromous and resident fish rearing (Water Rights Information System 2004).

Additional recognized beneficial uses of stream-flow in the project area include anadromous fish, resident fish, recreation, and esthetic values.

Environmental Effects

3.9.3.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Logging: Alterations in the capture, infiltration and routing (both surface and subsurface) of precipitation may occur as a consequence of the mechanical removal of trees and reductions in

stand density. This effect would be unlikely to substantially alter stream flow or water quality. It can be assumed that this project would likely result in some small increase in water yield which correlates with the removal of conifers. However, other than increased peak flows, an increase in fall and winter discharge from forest activities is likely to have little biological or physical significance (USEPA 1991).

The proposed project would affect less than 0.3% of the forest cover in the Mill Creek – South Yamhill 5th-field watershed, 0.5% of the forest cover in the Upper Siletz watershed, and 0.4% of forest cover in the Upper South Yamhill watershed. Because of the small percentage of forest cover being affected by this project, increases to mean annual yield and summer base flow caused by this action alone are likely to be negligible. However, because the project area lies within the rain-on-snow zone, it may be at risk for increasing peak flow events (*Hydro/Soils Report* and EA Section 6).

It is unlikely that logging would lead to measurable increases in sediment delivery to streams, stream turbidity and alteration of stream substrate composition, channel morphology, or sediment transport regime. Stream protection zones would eliminate disturbance of streamside vegetation; no trees would be cut from the stream bank or where roots are stabilizing the stream bank.

Skyline yarding corridors and ground-based skid trails, if sufficiently compacted, could route surface water and sediment into streams. However, several factors would limit the potential for this to occur. Even if compacted, high levels of residual slash left on yarding corridors (both machine and cable), could reduce runoff by deflecting and redistributing overland flow laterally to areas where it could infiltrate into the soil. In addition, riparian areas have high surface roughness, which can function to trap any overland flow and sediment before reaching streams.

Because of their high rock content, project area soils are not highly susceptible to surface or deeper compaction. However, in some areas legacy skid roads have intercepted near-surface flow, disrupting infiltration, and creating marshes with discontiguous surface water. Road construction and skid trails in these areas are likely to further alter water movement, but as they are already disturbed areas, the net effect would be neutral (relatively beneficial at some spots and adverse at others).

A skid trail would occur between the two east-west trending streams in Unit 14B. Because of its close proximity to these streams, this trail would only be operable during the in-stream work guidelines produced by ODFW (generally late summer), in order to minimize sedimentation potential into the streams, and would be ripped following operations to disperse surface runoff and prevent routing sediment directly into streams.

Increases in stream temperature as a result of timber removal are also unlikely; the no-treatment zones along all surface waters should maintain adequate shading, where it exists. The primary shade zone along all streams would remain essentially intact, with the possible exception of the two streams draining the western boundary of Unit 14B to reconstruct a skid trail. The number of trees that would be removed for the skid trail would be small (less than 10) and unlikely to measurably increase stream temperatures.

Logging would impact potential LWD levels in project area streams by removing trees that could potentially fall into the streams. However, a substantial number of trees would be retained within Riparian Reserves, with the opportunity to fall towards or into streams. Also, trees closest to

streams, with the highest potential of providing instream LWD, would be retained within stream protection zones.

Since the actions are unlikely to result in any measurable increase in stream temperature or sedimentation and would not place large amounts of fine organic material in the stream or alter stream reaeration, it is unlikely that it would have any measurable effect on dissolved oxygen or nutrient levels.

Timber Haul: Timber haul (including along main skid trails and existing roads) could impact water quality by introducing fine sediments into streams, particularly at stream crossings. Sediment could be dislodged during hauling from natural surfaced road prisms, eroding cutbanks, and/or scoured ditchlines. Erosion would be accelerated during periods of rainfall when water is flowing off of road surfaces and in ditchlines and during high traffic conditions.

Road Work: Road construction and renovation effects would be limited by restricting work to periods of low rainfall and runoff. New road construction would occur along moderate gradients (approximately 2-25%) and generally follow along contour or mid-slope. There would be no new stream crossings, however, construction would take place within Riparian Reserves (1365 feet). Where existing roads are currently being used, renovations would likely improve road drainage.

Due to local soil conditions few legacy logging roads have intercepted surface or near-surface flow in the area. The risk of disturbance would increase with increasing road use. The proposed P1 road would be a minimum of 75 feet from an intermittent stream initiation point. As past logging activities have disrupted natural surface and near-surface flow paths in the vicinity, the effect of any disturbance from road construction and use on hydrologic resources would be neutral.

During road renovation, impacts to water quality from sedimentation and channel alterations would be expected while drainage structures are being improved or replaced. Impacts would be greatest if equipment is operating in and/or adjacent to the stream channels. Depending on weather conditions and site-specific bank characteristics, turbidity levels may remain elevated during the winter following culvert operations (or until grass/vegetation has had a chance to stabilize the disturbed stream banks).

Rock Pit Development: The proposed rock pit and access road do not appear to be hydrologically connected to any streams. One stream inception point is located approximately 100 feet downhill of the access road between the road junction and the rock pit. The nearest stream to the proposed rock pit development is approximately 200-300 feet to the east of the rock pit on a portion of the access road that is not proposed to be improved. The access road gradient to the pit site is less than 1 percent and any disturbance is unlikely to be transported from road surfaces. Soil disturbance would be limited to the road surfaces and the rock outcrop; and no sediment is anticipated to be transported away from disturbed areas. The limited extent of potential disturbance combined with the lack of hydrologic connectivity indicated the proposed rock development is not likely to measurably affect water resources.

Fuel Treatments: Fuel treatments are not likely to measurably impact water resources. Burning machine piles could produce patches of soil with altered surface properties that restrict infiltration. However, these surfaces would be surrounded by larger areas that could absorb runoff or sediment

that reach them. In addition, piles would be burned outside of SPZ's and away from standing or running surface water.

Skid Trail Blocking*:* Following project completion, water-barring and grass-seeding the trails would help to minimize surface runoff on and erosion of these trails; this would thereby reduce any sedimentation potential from these trails.

CWD Creation*:* There would be no measurable impacts to water resources from indirect CWD creation (windthrow, broken tops, bark beetle infestation), girdling or topping trees to create snags or falling trees for CWD. Trees would be selected from outside SPZ's and their removal would not likely impact stream shade, bank stability, or channel structure.

3.9.3.2 Alternative 1 (Proposed Action)

Timber Haul: As sediment analysis indicates, the Fire Hall Road prism is actively eroding sediment. Sediment generated from road segments along milder road gradients appears to be accumulating in ditchlines and steeper road segments appear to be transporting sediments down ditchlines. The transport of sediment from road surfaces has the potential to enter nearby streams, particularly at stream crossings. It is difficult to determine the amount of sediment being generated (or potentially generated) due to varying conditions of the roads, the weather, equipment/operators, etc. However, hauling during the proposed project is likely to increase sedimentation along the Fire Hall Road. In order to minimize further erosion, log hauling would be restricted to dry weather conditions and mitigation measures would be applied to trap sediment (which may include installing silt fences and/or bark bags, applying additional surface rock, vegetating or otherwise armoring cut banks and ditchlines etc.). In addition the installation of additional cross drains along the road could substantially reduce the amount of sediment reaching stream channels during and following timber haul.

3.9.3.3 Alternative 2

The Black Rock Mainline is currently rocked and in moderate condition. If the Black Rock Mainline road is used for timber haul for this project, the haul route would be seasonally restricted to dry weather conditions with spot rocking and culvert replacement if necessary. Water quality impacts would be minor in magnitude and short term in duration and would quickly return to background condition following cessation of hauling.

3.9.3.4 Cumulative Effects

Addressed for all projects in EA Section 6

3.9.3.5 No Action Alternative

The No Action Alternative would result in a continuation of the condition and trends as described in the USWA and MEGAWA, and the Affected Environment section of this report. No additional disturbance to flow paths resulting from yarding and road work/use would occur. Streams disturbed from past management would continue to evolve towards a stable condition.

3.9.4 Fisheries/Aquatic Habitat

(IDT Reports incorporated by reference: Condenser Peak Late Successional and Riparian Reserve Enhancement Project—Fisheries [Fisheries Report])

Affected Environment

Anadromous salmonids are not present in the project area, but are present in some portions of the proposed Fire Hall Road haul route. Habitat occupied by coho salmon and steelhead trout is adjacent to Rock Creek and Cow Creek (Upper Rock Creek, South Yamhill watersheds) along the northern half of the proposed Fire Hall Road haul route. Chinook salmon and summer steelhead are present in the Upper Siletz River watershed however, falls four miles downstream on Warnick Creek prevent utilization of the channel within the project area. The falls at Falls City is the limit for steelhead in the Little Luckiamute River.
Resident cutthroat trout are present in Mill Creek and distribution extends into the project area of Section 13 adjacent to Unit 13B (Map 2). No other fish bearing streams are adjacent to the proposed treatment units.

Oregon Department of Fish and Wildlife (ODFW) aquatic habitat surveys were conducted 0.25 to 4 miles downstream from all the streams draining the project area. Generally, streams in the project area tend to be steeper and narrower than the reaches surveyed in Warnick Creek, Boulder Creek, Rock Creek, Mill Creek, and Little Rowell Creek and survey information would not likely represent actual conditions of aquatic habitat in the project area.

Project area stream channel slopes in Rock and Warnick Creeks are generally moderate with abundant understory present in the main channels and some large woody debris (LWD) is present in the effected streams. Immediately downstream of the proposed treatment units 14B and 14C on Warnick Creek, a waterfall drops approximately 150 foot. Boulder Creek was not field reviewed; however, GIS analysis indicates this stream would likely be similar to Warnick and Rock Creeks in slope, vegetation, and CWD. Field review of Mill Creek in the project area indicates the stream is largely defined by a series of steps over boulders with gravels in the outlet pools. Channel slope increases substantially as the stream approaches the headwalls.

Threatened, Endangered, and Special Status Species

The NOAA NMFS listed the Upper Willamette River (UWR) Evolutionarily Significant Unit (ESU) winter steelhead as a threatened species under the ESA on March 25, 1999. Critical habitats were designated for UWR steelhead on September 2, 2005.

The NOAA NMFS listed spring Chinook salmon in the UWR ESU as threatened under the Endangered Species Act (ESA). Upper Willamette River Chinook salmon critical habitat was designated over 70 miles downstream from the project area in the mainstem of the Willamette River, and 64 miles downstream from the gravel haul routes in the Rock Creek drainage. No effects are anticipated to UWR Chinook salmon habitat due to distance to occupied habitat.

The NOAA NMFS determined that Oregon Coastal (OC) coho salmon were not warranted for listing under the ESA on January 19, 2006. However, OC Coho Salmon is designated a special status species by the BLM. OC Winter Steelhead is also designated a special status species by the

BLM. Oregon Coast coho salmon and OC Winter Steelhead do not migrate past Siletz Falls, 12 miles downstream from the project area (ODFW 1997). No effects are anticipated to OC Coho Salmon and OC Winter Steelhead habitat due to distance to occupied habitat.

The U.S. Fish and Wildlife Service listed Oregon chub as endangered under the ESA. Critical habitat for Oregon chub has not been designated. Oregon chub historically were found throughout the Willamette River drainage. There are no known chub populations currently residing in Yamhill basin. No effects are anticipated to Oregon chub historic habitat.

Environmental Effects

3.9.4.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Other native species (sculpins, dace, lamprey, etc…) may be present concurrent with native salmonids in the effected drainages, analysis of potential effects to native cutthroats and steelhead were assumed to be sufficient to address impacts to these other species.

The amount of total project acreage used for this analysis was 283 acres, (111 acres ground-based, 163 acres skyline, and 9 acres special mark) and total road construction and renovation was 5700 feet and 4.5 miles respectively.

Yarding/Falling: Reductions in canopy closure, and vegetative cover, can result in changes in peak or base flows which in turn impair the availability or quality of aquatic habitat. The proposed project would affect less than 0.4% of the forest cover in the Upper South Yamhill Watershed, 0.3% of the cover in the Mill Creek Watershed, and 0.5% of the cover in the Upper Siletz Watershed. The small percentage of forest cover affected is unlikely to measurably alter stream flows (LaForge, 2006). Negligible changes in peak and base stream flows are unlikely to affect fish habitat within the treatment area, and are even less likely to affect fish habitat downstream.

According to the stream shading sufficiency analysis done for the proposed treatment the proposed SPZ's of 50 to 55 feet was sufficient to protect critical shade in the primary shade zone, based on topography and average tree height (Haynes 2006). The proposed vegetation treatment in the secondary shade zone (approximately one tree height from the stream) would not result in canopy reduction of more than 50%. The hydrology analysis indicated that the SPZ's should maintain adequate shading and increases in stream temperatures at the site were considered unlikely (LaForge 2006). Based on the shade sufficiency analysis, the hydrology report water quality analysis, and the project design features the proposed actions are unlikely to affect fish habitat both at the treatment site and downstream.

Loss of CWD and LWD due to harvest can affect the stability and quality of aquatic habitat. The action would retain trees which would reach larger diameters (20 inches DBH) 10 to 60 years earlier compared to the no treatment option, creating natural opportunities for higher quality LWD recruitment in the long-term (Haynes 2006). In the short-term the smaller woody debris would continue to fall from within the untreated SPZ's, and larger wood would begin to be recruited from farther up the slopes as the treated stands reach heights of 200 feet. Thus, wood with a larger range of sizes would potentially be recruited into streams over the long-term in treated stands. As short-term recruitment of the existing CWD is expected to be maintained, the proposed ctions are not expected to cause short-term effects to fish habitat at the site or downstream. In the long-term,

growth in the size of trees near streams could beneficially affect LWD recruitment to the stream channel, thus potentially improving the quality/complexity of aquatic habitat adjacent to the treatment areas in the future.

Skidding can compact soil and displace soil thus allowing sediment to be transported down slope and potentially to the stream channel. Skyline corridors can also displace soil thus allowing sediment to be transported down slope and potentially to the stream channel negatively affecting stream channel bedload. The proposed project is unlikely to result in any measurable changes in sediment delivery to the surrounding stream network which could affect the turbidity, substrate composition, or the sediment transport regimes (LaForge 2006). Stream protection zones, residual slash, and use of existing skid trails should keep sediment movement to a minimum. The proposed project is unlikely to measurably alter dissolved oxygen or nutrient levels. As the proposed actions are not likely to measurably alter water quality characteristics at the treatment sites, it would be unlikely to affect aquatic habitat adjacent to or downstream from the project area.

Road Work: Road work primarily within riparian areas and stream channels can alter the amount of sediment reaching stream channels directly, or by increasing the drainage network and importing more sediment from surface erosion due to connected road beds. Road work in the riparian area can also affect the availability of CWD/LWD recruitment to stream channels. These effects in turn can affect the quality of aquatic habitat.

The proposed actions include the construction of approximately 5,700 feet of road. The proposed roads are unlikely to increase drainage network in the watershed as the majority of new construction is outside Riparian Reserves, and no new construction would cross any existing stream channels. All new construction would be decommissioned following harvest operations. Thus road construction is unlikely to increase sediment or stream flows which may affect stream channels and affect fish.

Approximately 1,365 feet of road would be constructed in the Riparian Reserves of the Upper Siletz and Upper South Yamhill Watersheds. Construction would not occur closer than 70 feet from stream channels and outside of the primary shade zone. There would be a negative effect to the recruitment potential of large wood to the upper reaches of Rock Creek and Warnick Creek as a result of proposed road construction. However, transport potential of LWD in the effected streams is low, due to mild channel topography at the project site. No effects to fish habitat 3 miles downstream in Warnick Creek and 2.4 miles downstream in Rock Creek is anticipated from the proposed action.

Approximately 4.5 miles of road renovation would occur as part of the proposed actions. Drainage improvement/replacements would occur on approximately 19 cross-drains and/or streams. These improvements would improve drainage and road surface conditions, resulting in less erosion into surrounding streams over time (LaForge 2006). Proposed road renovation treatments (ditchline reconstruction and crossing replacements) would result in a minor short-term increase in erosion, until reestablishment of vegetation occurs in the following growing season. Treatments are at least 2.5 mile from fish habitat in Rock Creek, over 3 miles from fish habitat in Warnick Creek, and approximately 1,300 feet from fish habitat in Mill Creek. Construction in the stream channels would be limited to the instream working periods as defined by ODFW (2000). During renovation, flows are expected to be very minimal or dry channels, and sediment is unlikely to reach fish downstream. In the following winter, sediment from the proposed actions

may reach fish habitat during rain events. The amount of transported sediment is expected to be negligible against background turbidity. In addition, the majority of coarse sediment would likely be captured in the low gradient ponded stream channels downstream of the treatment sites before reaching fish habitat (Swanston 1991).

Rock Pit Development: No impacts to fishery resources are anticipated from the proposed rock pit development. Proposed road renovation and rock pit development would be expected to generate some sediment that could be transported from the exposed surfaces (Furnis et al 1991). This impact would be a pulse effect, typically occurring during the wet-season. The duration of the impact would be expected to be short term (one or two wet-seasons) until vegetative recovery and surface armoring prevents additional sediment transport. However, these site specific hydrologic impacts are highly unlikely to affect fishery resources downstream. The Proposed Action is approximately $7/10^{th}$ of a mile from fish habitat. In addition, the gentle gradient of the road makes it unlikely for transport to occur down road ruts and the lack of stream crossings over active stream channels makes it highly unlikely that any sediment movement would enter any stream channels and subsequently affect fish habitat downstream.

Fuels Treatment: Pile burning is not expected to result in short-term or long-term effects to fish. Short-term effects on soil infiltration is possible at the site of the burn pile resulting in surface runoff (LaForge 2006), but not likely to influence fish habitat. The SPZ's are expected to provide sufficient distance from the streams to capture any surface erosion from pile burning treatments.

Threatened, Endangered, and Special Status Species

No effects to listed steelhead are anticipated from the following proposed treatments: yarding/falling/pile burning/road construction/road renovation/road decommissioning/girdling due to the distance of treatment to occupied habitat.

A no effect determination was made for UWR Chinook salmon and Oregon chub primarily due to the distance of listed habitat from the Proposed Action.

The Magnuson-Stevens Act (MSA) of 1976, as amended, requires identification of Essential Fish Habitat (EFH) for commercial fish species of concern. Chinook salmon and coho salmon are included under the MSA-EFH provisions. The distributions of Chinook salmon are substantial distances downstream in the affected watersheds, between 6 miles (Warnick Creek) and 64 miles (Yamhill River) downstream. In general, the proposed actions associated with the project are substantial distances from habitat occupied by coho salmon and are not anticipated to affect EFH.

3.9.4.2 Alternative 1 (Proposed Action)

Timber Hauling: The majority of the haul route (Fire Hall Road) is located in the Upper South Yamhill Watershed on rock surface roads which drain towards or are adjacent to Rock Creek and Cow Creek, both of which are fish bearing and contain winter steelhead.

Timber hauling can increase the risk of sediment reaching stream channels and negatively affect aquatic habitat. Six stream crossings and several cross drains are within two site potential tree heights of occupied habitat for salmonids, four of which are near listed steelhead habitat. Improvements in Fire Hall Road, including additional cross drains and sediment traps, intended to reduce the overall quantity of sediment transported to aquatic habitat in Rock Creek and Cow

Creek, should result in improved conditions over the long-term. Seasonally restricting hauling on Fire Hall Road such that no surface runoff from roads would occur and implementation of sediment reduction design features would minimize the quantity of sediment expected to reach fish habitat in the Upper South Yamhill River Watershed.

The proposed hauling on Fire Hall Road close to Rock Creek and Cow Creek in the Upper South Yamhill Watershed could affect listed steelhead due to the proximity of listed habitat adjacent to the proposed haul route and hydrologic connectivity of the road to occupied habitat. For this reason a may affect determination was made for UWR steelhead and UWR steelhead critical habitat. However, proposed road improvements on Fire Hall Road and seasonally restricting haul to the dry season would be expected to minimize effects to the listed species.
Coho salmon are located concurrent with the distribution of UWR winter steelhead in Rock Creek and Cow Creek of the Yamhill Watershed. Impacts associated with the proposed haul route which may affect UWR steelhead habitat are also anticipated to potentially affect EFH for coho salmon.

3.9.4.3 Alternative 2

Timber Hauling:. The majority of the haul route is located near the ridge top between Rickreall Creek and the Luckiamute River watershed, with few stream crossings. Cutthroat trout occupy habitat along the Little Luckiamute River which parallels a portion of the haul route. Approximately thirteen perennial stream crossings along Little Luckiamute River are associated with the haul route, of which seven crossings are within 400 feet of the Little Luckiamute River. The nearest graveled stream crossing associated with the haul route to steelhead occupied habitat (tributary to the Little Luckiamute River) is approximately 1/3 of a mile upstream from the falls in Falls City.

Utilization of this haul route may include minimal road improvements. No long-term reductions in sediment yield would be expected from hauling activities, and its connected action's, associated with this road. Minor quantities of sediment could be transported in the short-term, localized to the road prism and immediately below stream crossings, during and immediately following hauling periods. Within the first wet season following cessation of hauling activities sediment yield would be expected to return to baseline conditions."

The proposed dry season hauling on roads close to the Little Luckiamute River associated with Black Rock Mainline Road is not anticipated to affect listed steelhead since no surface erosion would be occurring during hauling that could reach occupied habitat at least 1/3 of a mile downstream of the nearest stream crossing, subsequently no effects are anticipated to UWR steelhead and its habitat.

3.9.4.4 Cumulative Effects

Addressed for all projects in EA Section 6.0.

3.9.4.5 No Action Alternative

Current timber stand conditions would be maintained. Expected benefits of thinning riparian stands would not be realized. The existing road network would remain unchanged, with no new construction. Beneficial actions intended to reduce chronic sediment recruitment from the Fire

Hall Road network would not occur and Fire Hall Road would continue to negatively affect aquatic habitat in Rock Creek and Cow Creek of the Upper South Yamhill. Aquatic habitat conditions would be expected to continue in the current trends.

3.9.5 Wildlife

(IDT Reports incorporated by reference: Condenser Peak LSR Enhancement Project Biological Evaluation [Wildlife Report])

Affected Environment

A broad-scale analysis of federal lands within this part of northern Oregon was presented within the LSRA (USDA-FS and USDI-BLM 1998). The LSRA describes the BLM lands in the project area which form a distinct checker-board linkage between a larger block of federal ownership to the west, and smaller blocks of BLM ownership to the south. The LSRA considers this landscape to function as an important corridor of mostly younger-aged stands which form a connecting linkage between adjacent blocks of federal ownership, and which is expected to grow into a substantial patch of older forest habitat over the next several decades.
The majority of this landscape is composed of early- and mid-seral forest habitats; with very little late-seral and old-growth remaining, except for a few patches on BLM lands outside the project area. The project area lies along a high ridge line (2500' to 3100' feet elevation) that divides the Oregon Coast Range. This area was salvage logged and cut over in the late 1940s through early 1960s. As a result, the structural characteristics of late-seral and old-growth forests, such as large snags, abundant down logs, and complex forest canopies are lacking across the landscape. The intervening parcels of private ownership are also dominated by young forest stands that are currently being managed on 40-60 year rotations.

Following timber harvest or wildfire events, the remnant live trees, snags and down logs that are retained on the landscape can provide an important component to wildlife habitats; and are believed to add considerable complexity to young forest plantations (Carey 2002). Mid-seral conifer forests in this region exhibit a wide range in the density of snags and down logs that are present (Mellen et al. 2003, Rose et al. 2001, USDA-FS and USDI-BLM 1998). The legacy of logging and fire history in this project area has resulted in moderate to high accumulations of large down logs in advanced stages of decay within all units (see Table 7). Stem exclusion processes and small wind-throw events have recently contributed low levels of small diameter snags and down logs in most of the proposed units (see Table 7). The volume of down logs within the project area falls well within the higher range of what might be expected to occur in natural stands in this seral stage (LSRA Table 20), while the density of snags appears to be lower than what might be expected in most of the natural stands in this seral stage within this province (Mellen et al. 2003). None of the proposed treatment units contains any live old-growth remnant trees, and very few large diameter snags exist in this vicinity.

Table 7. Coarse Woody Debris Conditions within the Condenser Peak LSR Enhancement Project Area.

Part A. Current Coarse Woody Debris conditions. [1]						
Proposed Unit	**Down Wood Volume. [2]**		**Snags per Acre by Size Class. [3]**			
	CF/Acre	%DC4+5	7-10"	11-18"	19"+	Total
13A	6,648.8	98.1	24.3	8.3	4.8	37.4
13B	1,593.7	94.2	0	8.1	0.6	8.7
14A	1,219.8	79.9	0	0	2.3	2.3
14B	39,713.0	99.8	10.3	8.3	1.9	20.6
14C	7,279.0	94.9	15.6	4.0	5.7	25.3
14D	1,526.8	100.0	0	0	1.4	1.4

1). Coarse woody debris (CWD) data comes from stand exam surveys where down logs were counted along transects and the number of standing snags were counted at fixed plots.
2). Down log volume is reported in cubic-feet per acre, and the % of that volume that exists in advanced decay classes (decay-class 4 and 5).
3). Snags are reported in size classes based on diameters at breast height.

Threatened, Endangered, and Special Status Species or Habitats

Northern spotted owls are the only federally listed wildlife species that occurs in forest habitats similar to the proposed treatment area. No spotted owl surveys were required for this project evaluation. However, extensive spotted owl surveys were completed in this vicinity in the early 1990s, with no spotted owls being detected in the project area. More recently, private timber companies have surveyed their lands adjoining the project area, without finding any resident spotted owls. The nearest active spotted owl site is 3.5 miles east, in the Mill Creek drainage, placing this project area beyond the expected home range for any resident spotted owls. The proposed treatment units do not provide suitable habitat for spotted owls, but they might function as dispersal habitat since they do provide sub-canopy flying space for owls that may be dispersing across the landscape. The project area falls within a critical habitat unit (CHU OR-44) that has been designated for spotted owls. There are 27,640 acres of federal lands within CHU OR-44, and about 25,580 acres (92.5%) currently provide dispersal habitat for spotted owls. Dispersal habitat is considered a constituent element of spotted owl critical habitat (USDI-FWS 1992). The project area lies outside of Reserved Pair Areas that have been designated by the Northwest Forest Plan (NFP) for protection of resident spotted owl habitat (USDA-FS and USDI-BLM 2000).
Marbled murrelets are not expected to occur within the project area since they do not nest in young forest stands which lack canopy structures for nest platforms (McShane et al. 2004); and since habitats above 3,000 feet are unlikely to be occupied by murrelets, even if suitable nesting structure were present (USDI-FWS 2004, Appendix E, page 161). The BLM lands within this project area have been designated as critical habitat for this species (Unit: OR-02-d), but no constituent elements of critical habitat are present within the proposed treatment units (USDI-FWS 1996).

No other Special Status Species or Survey and Manage Species are known to exist in this project area, and no pre-disturbance surveys are required for this project evaluation.

Environmental Effects

3.9.5.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Effects to Wildlife Habitats

The proposed density management of about 273 acres (and including Special Mark area and Quarry Site creation) would change the existing forest structure and alter the development of future forest stand conditions. The direct and indirect changes anticipated to occur to forest habitat characteristics from this project are:

Short-term (less than 10 years)

- light to moderate reduction of canopy closure (resulting canopy greater than 40%) over entire treatment area which represents less than 4% of the mid-seral forests within the adjoining watersheds;
- increased horizontal spatial variability within treated stands (gaps and clumps);
- minor reduction and disturbance to existing CWD material (snags and down logs) resulting from felling, yarding, and road construction;
- reduced recruitment rate of small sized CWD would mostly be offset by immediate creation of larger CWD of desirable size (Table 8), and augmentation of decadence processes;
- retention and enhancement of hardwood tree and shrub diversity.

Long-term (greater than 10 years)

- a substantial 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, sub-canopy development, greater tree species diversity, greater volume and size of hard CWD, canopy gaps);
- extended persistence of hardwood tree and shrub cover diversity.

Table 8: Coarse Woody Debris and Snag Prescription.

Proposed Unit	Prescription Objective [1]	Desired Input [2]	
		Down Logs	Snags
13A	Minimal input of hard snags/logs needed, since existing CWD volume is relatively high.	2	2
13B	Input of CWD should balance the need to boost existing volume of logs and snags, with limitations on availability of larger stem sizes within stand.	2	2
14A	Input of CWD should balance the need to boost existing volume of logs and snags, with limitations on availability of larger stem sizes within stand, favoring creation of snags.	3	2

14B	Minimal input of hard down logs and snags needed, since existing log volume is very high. Create modest input of larger-sized snags favoring Noble fir selection.	3	1
14C	Input of CWD should favor snag creation since existing down logs are relatively high.	2	2
14D	Modest input of CWD should favor creation of snag, within limitations on availability of larger stem sizes within stand.	4	3

1). All prescription objectives generally follow Strategy # 2 from LSR Assessment (page 97). The general goal is to balance both long-term and short-term needs for CWD by adding some new material now and to let residual trees grow larger for future CWD recruitment.

2). Desired Input is expressed as trees per acre created in the units. Harvest activities (intermediate supports, stand damage, limbs and tops, felled but retained logs) and post-harvest processes (wind throw, bug kill, etc.) would be evaluated within 5 years of harvest action and these inputs would be considered prior to creating additional CWD to meet desired inputs.

The Proposed Action is anticipated to enhance local forest habitat conditions and thereby benefit numerous wildlife species, especially those species that are associated with late-seral forest structure and CWD. All proposed units would benefit from augmentation of CWD which would provide larger pieces of hard material sooner than if left untreated, and which would initiate desired decadence processes (topping, girdling) in the larger-sized residual trees (Table 7).

Effects to Wildlife Species of Concern

The Proposed Action is considered to be no effect to marbled murrelets and spotted owls since no suitable habitat would be modified and neither of these species is known to occur in this area. But the Proposed Action is considered to be a may affect, not likely adverse affect to spotted owl critical habitat, because it would modify a small amount (1.2%) of the available dispersal habitat within CHU OR-44. The short-term reduction in canopy closure may slightly diminish the quality of dispersal habitat for owls, but since the entire project area would average more than 40% canopy closure, the treated stands are anticipated to retain their function as dispersal habitat for spotted owls in the short-term and would likely achieve suitable habitat quality for spotted owls in the long-term at a faster rate than if left untreated.

To address concerns for effects to federally listed wildlife species and potential modification of critical habitats, the Proposed Action was consulted upon with the U.S. Fish and Wildlife Service, as required under Section 7 of the ESA. Consultation for this Proposed Action was facilitated by its inclusion within a programmatic Biological Assessment (BA) that analyzes all projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2007 and 2008. The resulting Letter of Concurrence (ref# 1-7-2006-I-0190, dated October 3, 2006) concurred with the BA, that this action was not likely to adversely affect spotted owl critical habitat. This Proposed Action has been designed to incorporate all appropriate design standards set forth in the Biological Assessment which form the basis for compliance with the Letter of Concurrence.

No other Special Status Species or Survey and Manage Species are anticipated to be adversely affected by this Proposed Action.

Site specific concerns for all wildlife species have been adequately addressed and minimized by design features incorporated within the action alternatives. Potential negative effects such as disturbance and disruption of wildlife use patterns, temporary increase in road density, and habitat alteration are anticipated to be short-term and local in nature, and would not contribute to the need to list any Special Status Species.

3.9.5.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

3.9.5.3 No Action Alternative

The No Action alternative would result in no change to the affected environment. Short-term impacts to wildlife species and habitats as described for the action alternatives would be avoided. However, the anticipated benefits to future conditions of late-seral forest habitat in this project area would not be achieved.

3.9.6 Fuels\Air Quality

(IDT Reports incorporated by reference: Condenser Timber Sale Proposal Fuels Report)

Affected Environment

Existing fuels are typical for a 50-60 year old Douglas fir stand in a high elevation location in the northern coast range. Total dead fuel loading ranges from 5 to 25 tons per acre. A substantial portion of this material is only partially sound. Fuels are all shaded by forest canopy. Units are oriented primarily in a westerly, southwest or south direction. Approximately 35% of the treatment area has slopes under 35%. The remaining area has slopes ranging between 35% up to 60%. Access to the area is by all-weather gravel roads, behind locked gates most of the year.

Environmental Effects

3.9.6.1 Common to Alternative 1 (Proposed Action) and Alternative 2

Fuels

A moderate increase in fire risk is expected. The number of fires that have occurred in this area historically has been very low and it is unlikely that this additional slash would result in a fire occurring in the area. Very little treatment of slash on commercial thinning areas has been done in the past in NW Oregon and there have been very few fires resulting from this practice. The general area in and around this project is not a high use recreation area (the primary recreational use is hunting). The primary ignition source (people) is considered a low to moderate high risk factor for a fire start in this area.

Risk would be greatest during the first year “red needle stage”. Fire risk along the roads would be reduced when slash concentrations are piled and burned off. Risk would decline significantly within 1-3 years following harvest as needles and twigs detach and break down. Green up and increasing growth of understory vegetation would combine with decomposition of the slash to continue the decline in fire risk back to normal background levels within approximately 15 years following harvest.

Increasing the spacing between the tree crowns in these stands would have the beneficial result of decreasing the potential for crown fire occurrence in the treated stands in the event of a fire. However, the increased fuel loading of slash on the ground within the stand would most likely result in high stand mortality due to crown scorch if a fire started under dry summer or early fall conditions

Air Quality

Burning approximately 450 tons of dry, cured, piled fuels under favorable atmospheric conditions at high elevations in the coast range is not expected to result in any long-term negative effects to the air quality in the air shed. Locally, within ¼ mile of the piles there may be some very short-term smoke impacts after piles are ignited resulting from drift smoke but generally the piles are expected to burn fairly free of smoke during the main combustion period. Following several hours of burning minor amounts of smoke may be produced as the piles cool and burn out. Smoke production would diminish over several days (sooner if rain develops). No negative impacts to air quality around residences or in any DEQ designated areas is expected as a result of prescribed burning planned under this action.

3.9.6.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

3.9.6.3 No Action Alternative

With a No Action Alternative there would be no change from the current conditions for the fuels resource. Conditions would remain as they are at present. No changes in aerial extent of disturbed fuel loadings.

3.10 COMPARISON OF ALTERNATIVES WITH REGARD TO PURPOSE AND NEED

Table 9: Comparison of Alternatives by Purpose and Need and Alternative Development

Purpose and Need (EA section 2.1)	Alternative 1 (Proposed Action)	Alternative 2	No Action
Development of late-successional forest habitat (clumps, coarse woody debris CWD, gaps), snag creation and protection etc.	Creates patch openings with adjacent clumps of trees. Retains existing limbs on open grown trees through selective cutting of trees. Larger diameter trees felled for safety or operational reasons would be retained for CWD. Increases the quality and value of wildlife habitat.	Same as Alternative 1	Does not meet this purpose and need. Creates high level of small size CWD for the next decade or two in all stands within the project area.
Offer a marketable density management sale.	Offers approximately 5000 MBF of timber for sale through 273 acres of density management. Due to reduction in transportation costs to nearest utilization center, the selection of Fire Hall Road as the designated timber haul route could conceivably result in a net increase of $200,000.00 to the U. S. Treasury.	Same as Alternative 1 except for moderately higher transportation costs and longer distance to nearest utilization.	Does not meet this purpose and need.
Increase structural diversity in relatively uniform conifer stands.	Reduces tree densities within stands to increase diameter growth and more open stand conditions to preserve limbs and high crown ratios. Increases species diversity and understory regeneration, shrubs, forbs etc.	Same as Alternative 1	Does not meet purpose and need. Maintains a highly dense, uniform, small diameter stand of trees with receding crown ratios, loss of limbs and loss of growth. Understory regeneration, shrubs etc. would be lacking.
Provides appropriate access for timber harvest and silvicultural practices used to	Constructs 3670 feet of new roads. Following harvest, all of the new construction would be decommissioned.	Same as Alternative 1	No change. Maintain existing road densities.
	Would implement maintenance	Same as Alternative 1	Delay maintenance on

meet the objectives above, while minimizing increases in road densities.	on feeder roads, allowing for continued access.		feeder roads, main routes would be maintained.
Reduces environmental effects associated with existing roads within the project area	Renovates approximately 3.5 miles of existing road within the project area. In addition, road improvements to Fire Hall Road could result in both a short term increase and long term decrease of sediment entering ESA listed fish species critical habitat and EFH.	Same as Alternative 1 except selection of Black Rock Mainline Road would have a negligible effect on short term sediment entering streams, however, road improvements to Fire Hall Road would not occur, thus resulting in higher amounts of long term sediment entering ESA listed fish species critical habitat and EFH	No change. Maintain existing drainage and road surface conditions.

4.0 PROJECT 2 –Meadow Restoration

4.1 Purpose of and Need for Action

Meadow habitat, which adds diversity across the landscape (LSRA, p. 84) and provides important attributes to certain wildlife species (USWA, p. 9) has decreased in the Oregon Coast Range. Conifer succession due to fire exclusion and other factors has greatly reduced this habitat type from the past, as evidenced by historical records and current stand conditions. The purpose of the project is to restore four small mesic meadows which occur within the project area. To restore habitat on areas formerly characterized by very low conifer density, falling of conifer trees is needed.

4.2 Alternatives

4.3 Alternative Development

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act 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.

4.4 Proposed Action

Project 2 would cut or girdle most conifers in 4 meadows in T. 7 S., R. 8 W., Section 14 (Map 2) and would thin conifers within approximately 100 feet of the meadow edges. Meadows vary in size from ½ acre to 2½ acres. A minimum of 100 square feet of basal area would be maintained in thinned areas around the meadows and trees felled or girdled would be suppressed, intermediates

and codominants, leaving the largest trees standing. All noble fir trees and all other conifer over 16" DBH would be reserved. All cut trees would remain in place. Except within the meadows, no cutting would be allowed within 10 feet of streams or open water.

4.5 No Action Alternative

The BLM would not implement the action alternative at this time. This alternative serves to set the environmental baseline for comparing effects to the Proposed Action.

4.6 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, soils, water, fisheries, wildlife and fuels*. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

4.6.1 Vegetation

(IDT Reports incorporated by reference: Condenser Peak Late Successional Reserve Enhancement Project Silvicultural Prescription: Including Upland and Riparian Reserves [Silviculture Prescription] and *Marys Peak Resource Area Botanical Report [Botany Report])*

Affected Environment

Project 2 occurs adjacent to four small mesic meadows located in T. 7 S., R.8 W., Section 14. The meadows have thin soil, essentially moss covered basalt. *Racomitrium elongatum* and *Polytrichum juniperum* are the dominant mosses in these areas. The meadows also support some vascular plant species that otherwise wouldn't occur in the adjacent forested habitats. The species include; *Allium crenulatum, Agrostis exarata, Erythronium oregonum, Lupinus latifolius, L. lepidus* and *Lomatium martindalei*. The forest surrounding the meadows is mainly western hemlock and Douglas-fir trees. The conifers are densely stocked and other vegetation, shrubs and forbs are mostly lacking due to the low light levels. At the meadow/forest interface are many small conifer saplings and seedlings encroaching on the meadow areas. Over time the meadows will shrink in size and some of the species will die out. (Table 10 & Map 2)

Table 10 Forest Stand Conditions Adjacent to Meadows.

Meadow	Acres	T/A*	Basal Area	Average DBH
A & B	A-1.5 B-2.5	269	214	9.9
C	0.5	172	195	13.5
D	0.5	330	204	13.5

*Trees per Acre (T/A), Basal area and DBH data are taken from stands surrounding the meadows

Threatened/Endangered and Special Status Botanical and Fungal Species

Inventory of the project area for Federal and Oregon State threatened and endangered and Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species were accomplished through intuitive controlled surveys using the same protocols as Project 1 (see *Botany Report* for specific protocols).

There are no "known sites" of any Federal or Oregon State threatened or endangered or Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species nor were any found during subsequent surveys.

Noxious Weeds:
The following noxious weeds are known from within or adjacent to the project area, Tansy ragwort (*Senecio jacobaea*), bull and Canadian thistles (*Cirsium vulgare* and *C. arvense*), St. John's wort (*Hypericum perforatum*) and Scot's broom (*Cytisus scoparius*).

Environmental Effects

4.6.1.1 Proposed Action

The felling of conifer trees within 100 feet of the edge of the meadows would reduce the conifer canopy cover allowing for increased sunlight into the understory. The shrub and forb density and diversity is expected to increase post treatment. The cutting of saplings and seedlings adjacent and into the meadows would allow for maintenance of the existing size of the meadows and maintain species diversity. All of the material killed by this project would remain on site to decay. A small infestation of Douglas-fir bark beetles is anticipated but would allow for an additional action to reduce the canopy in the other portions of this densely stocked stand of conifers.

Noxious Weeds:
This project is expected to have minimal mineral soil disturbances. The risk rating for any adverse affects from non-native species is very low.

4.6.1.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.1.3 No Action Alternative

The conifer canopy around the meadows would remain closed and the shrubs and forb densities and diversity would remain low until the stand begins to thin itself out. The meadow areas would eventually fill in and become smaller in size. Some of the species present in the meadow would die out of the conifer dominated stand. In time, when the conifer trees begin shading each other out naturally, there would be additional losses of Douglas-fir trees to Douglas-fir bark beetles.

4.6.2 Soils

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Affected Environment

Project 2 would occur in four small meadow areas, all with Valsetz stoney loam soils. These soil types are usually moist and are dry less than 45 consecutive days during the summer. Slopes within the Project 2 area range from approximately 13% to 60%.

Environmental Effects

4.6.2.1 Proposed Action

Girdling and felling select conifer trees would not result in any increased impacts to soil resources than natural tree fall due to mortality or windthrow. Some slight soil compaction would occur immediately beneath a fallen log, due to the weight of the log. This minor compaction would be diminished as the log decomposed through time and natural soil processes (biological and mechanical) continue. As no yarding of the logs would take place, there would be no loss of top soil or erosion from the site; consequently there would be no losses to site productivity.

4.6.2.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.2.3 No Action Alternative

The soil conditions at the meadow sites would continue as described under the affected environment section of this EA. Potential biochemical changes to the soil could occur with further conifer encroachment into the meadows, thereby encouraging the establishment of more conifers.

4.6.3 Water

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Affected Environment

Project 2 would occur within the Upper South Yamhill and Upper Siletz River 5th-field watersheds. The western meadows (Units A & B) lie within the Upper Warnick Creek 7th-field catchment, and the northeastern meadow (Unit C) lies within the Upper Rock Creek 7th-field catchment, all described under the Affected Environment section for Project 1 (EA sec. 3.2.3).

The southeastern meadow (Unit D) lies within the Upper Boulder Creek catchment (Upper Siletz River 5th-field watershed). Although there are no streams within the vicinity of this meadow, it lies within the drainage area for Boulder Creek, i.e. terrain within the meadow could potentially drain towards unnamed upper tributaries of Boulder Creek (tributary to the North Fork Siletz River). There are no identified water rights along Boulder Creek. The creek is neither 303d listed nor identified in the 319 Report for water quality concerns. The North Fork of the Siletz River is a key watershed upstream of the Boulder Creek confluence. Boulder Creek is within the Siletz River municipal watershed. Additional characteristics of the North Fork Siletz River and the Upper Siletz River watershed are described under Project 1.

Environmental Effects

4.6.3.1 Proposed Action

The girdling and felling of select conifers is not likely to produce any measurable impact on hydrologic resources. None of the meadows contain streams and no activity would take place within 10 feet of stream channels. As no excavation would be needed, effects to groundwater are

also unlikely. As the removal of scattered trees would not be likely to measurably impact canopy cover, the action would not likely impact peak flow events in the watershed.

4.6.3.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.3.3 No Action Alternative

The No Action Alternative would result in a continuation of the condition and trends of water resources as described under the Affected Environment section for Project 1. No potential disturbance to water resources would occur.

4.6.4 Fisheries

(IDT Reports incorporated by reference: Condenser Peak Late Successional and Riparian Reserve Enhancement Project—Fisheries)

Affected Environment

The affected environment for this Proposed Action is the same as that described for Project 1. The Proposed Action entails girdling and felling select conifer trees within meadows and would thin conifers within approximately 100 feet of the meadow edges.

Environmental Effects

4.6.4.1 Proposed Action

The proposed treatment area would affect approximately 5.8 acres in the Upper Warnick Creek, Upper Boulder Creek, and Upper Rock Creek drainages. All impacts would be very small and localized to the area where the trees were treated. No avenues of impacts are expected to occur which may affect fish habitat over a mile downstream from the treatment area in Upper Boulder Creek and nearly 3 miles downstream in Warnick Creek and Rock Creek.

4.6.4.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.4.3 No Action Alternative

Current meadow conditions would be maintained.

4.6.5 Wildlife

(IDT Reports incorporated by reference: Condenser Peak LSR Enhancement Project Biological Evaluation [Wildlife Report])

Affected Environment

The Salem District RMP (p. 26) and the Watershed Analyses have recognized that special habitat features (caves, cliffs, exposed rock, talus, wetland types, and meadows) add valuable wildlife

diversity to the local landscape. Within the proposed treatment units for Project 1, there are no known special habitat features. Projects 2 and 3 includes a few small natural openings (thin soils and bedrock covered by mosses and shrubs with encroaching conifers), that are the subject of this habitat enhancement.

Environmental Effects

4.6.5.1 Proposed Action

This Proposed Action would affect wildlife habitat conditions within a localized area immediately adjacent to the existing meadow openings. A short-term disruption in the current patterns of use by resident wildlife species is likely. There are no known sites of any Special Status Species within these meadow sites. These meadow sites do not provide suitable habitat for any federally listed wildlife species, nor are they recognized as a constituent element of critical habitat that has been designated for the spotted owl or marbled murrelet. This action would have no effect on spotted owls, marbled murrelets, and their designated critical habitat. Maintaining a diverse landscape or natural occurring habitat types would benefit many wildlife species that make use of open habitats within an otherwise forested environment. This Proposed Action would help restore this important habitat type and would not appreciably diminish the forest habitat within this project area.

4.6.5.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.5.3 No Action Alternative

The No-Action alternative would result in no change to the affected environment. Short-term disruption of wildlife use patterns would be avoided. However, the anticipated benefits to enhancing habitat diversity within the local landscape would not be achieved.

4.6.6 Fuels

(IDT Reports incorporated by reference: Condenser Timber Sale Proposal Fuels Report [Fuels Report])

Affected Environment

The affected environment for the Proposed Action is the same as that described for Project 1. The Proposed Action entails girdling and felling select conifer trees and would thin conifers within approximately 100 feet of the meadow edges.

Environmental Effects

4.6.6.1 Proposed Action

<u>Fuels</u>
Environmental effects of the proposed project on fuels would be essentially the same as for Project 1, except that the project area is much smaller (approximately 5 acres) and the risk of human

caused fire would be less due to a lack of road accessibility. No trees are being removed which would increase the risk of fire spread for the first few years.

4.6.6.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

4.6.6.3 No Action Alternative

Current fuel conditions would be maintained.

4.7 COMPARISON OF ALTERNATIVES WITH REGARD TO PURPOSE AND NEED

Table 11: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA section 5.1)	Proposed Action	No Action
To restore the structure and species composition of small mesic meadow habitat to conditions believed to have existed before fire exclusion and intensive management.	Removal of encroaching conifer trees and opening the meadow edges to additional sunlight would release herbaceous species native to the meadows.	Does not meet this purpose and need. Conifers would continue to encroach on the meadows, decreasing their size and shading herbaceous species native to the meadows.

5.0 PROJECT 3 –CWD/Snag Creation

5.1 Purpose of and Need for Action

Several areas were considered for density management, but were excluded from Project 1 because of logging feasibility difficulties (including several thousand feet of required new road construction) and possible high cumulative effects for peak flow. There is still a need, however, to enhance terrestrial habitat by creating CWD and snags in these excluded areas (USWA, p. 9, 91, 132 and MEGAWA, p. SI&MR-19). The purpose of this project is to enhance habitat for wildlife species that are associated with late-seral forest habitats and CWD by creating CWD and snags in areas adjacent to Project 1. Trees would also be felled into area streams to enhance stream structure.

5.2 Alternative Development

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act 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.

5.3 Proposed Action

Project 3 would enhance wildlife habitat within a treatment boundary that includes areas of similar stand age and structural characteristics as have been targeted for treatments in Project 1. The proposed treatment area is approximately 172 acres (Map 2).

- Western hemlock and Douglas-fir trees would be selected for girdling, topping, or falling and leaving within defined boundaries that are adjacent to Project 1 (see Map 2)
- Selected trees would be scattered individuals or occur in patches up to ¼ acre in size, with no more than one such patch occurring per 2 acres of treatment area. No more than 10% of the total treatment area would be in open patches, while maintaining a canopy greater than 60% over the entire treatment area.
- To minimize Douglas-fir bark beetle infestation, no more than 20 Douglas-fir over 12" DBHOB per acre would be selected for treatment. Additional trees less than 12" and western hemlock of any size would be cut and left as needed to create patch openings. In no case would more than 10% of the total trees within the CWD project units be selected for treatment.
- To minimize Douglas-fir bark beetle infestation, treatment would occur between July and September, or as close to that period as operationally possible.
- Trees selected for felling would be located at least 50 feet away from open roads.
- To maintain shade in the primary shade zone, patch openings would be located at least 60 feet from perennial streams, and a canopy greater than 70% would be maintained.
- Individual scattered trees would be cut within the SPZ (typically within 50 feet of streams), but all trees thought to be stabilizing stream banks, typically within 5 feet of streams would be left standing.
- Where possible, trees within reach of streams would be directionally felled into or toward streams.
- Such treatments would be accomplished within 5 years after completion of harvest activities, and likely concurrent with CWD monitoring/treatment of proposed harvest units as described in Project 1 (or sooner if funding is available).

5.4 No Action Alternative

The BLM would not implement the action alternative at this time. This alternative serves to set the environmental baseline for comparing effects to the Proposed Action.

5.5 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, soils, water, fisheries, wildlife and fuels*. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

5.5.1 Vegetation

*(IDT Reports incorporated by reference: Condenser Peak Late Successional Reserve Enhancement Project Silvicultural Prescription: Including Upland and Riparian Reserves [Silviculture]*and *Marys Peak Resource Area Botanical Report [Botany])*

Affected Environment

The areas proposed for Project 3 are adjacent to Project 1 and within the same stands as Project 1. The project primarily occurs in areas with a high percent canopy closure with limited shrubs and

forbs. The lack of direct sunlight through the overstory limits the density and diversity of vascular plants within the project area.

Threatened/Endangered and Special Status Botanical and Fungal Species
Inventory of the project area for Federal and Oregon State threatened and endangered and Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species were accomplished through intuitive controlled surveys using the same protocols as Project 1 (see *Botany Report* for specific protocols).

There are no "known sites" of any Federal or Oregon State threatened or endangered or Bureau special status and special attention vascular plant, lichen, bryophyte and fungal species nor were any found during subsequent surveys.

Noxious Weeds:
The following noxious weeds are known from within or adjacent the project area, Tansy ragwort (*Senecio jacobaea*), bull and Canadian thistles (*Cirsium vulgare* and *C. arvense*), St. John's wort (*Hypericum perforatum*) and Scot's broom (*Cytisus scoparius*).

Environmental Effects

5.5.1.1 Proposed Action

Conifer trees would be felled, girdled or topped. All portions of the trees would remain on site. The felling, girdling or topping of the trees would allow for an increase in sunlight to the forest floor. The increase in sunlight would allow for additional diversity and density of shrubs and forbs within the project area.

The addition of dead conifer wood within the project area at one time would increase the amount of bark beetles in the project area. Small infestations of bark beetles are anticipated after the project is completed and additional weak or suppressed live trees may be killed the following year or two after the project is completed. The consequences of additional trees killed by beetles over the following years are anticipated to be minimal.

Noxious Weeds:
This project is expected to have minimal mineral soil disturbances. The risk rating for any adverse affects from non-native species is very low.

5.5.1.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.1.3 No Action Alternative

The No Action Alternative would be similar to the No Action Alternative in Project 1. Conditions described above would continue.

5.5.2 Soils

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Affected Environment

Project 3 would occur in similar soil conditions as those described for Project 1. In general, these soils are nutrient-limited and fairly resistant to soil compaction. Slopes range from less than 1% to over 90%. The northeastern project area has very rocky, shallow surface soil. This area is susceptible to soil loss through surface ravel.

Environmental Effects

5.5.2.1 Proposed Action

Girdling and/or felling select conifer trees would not result in any increased impacts to soil resources than natural tree fall due to mortality or windthrow. Some slight soil compaction would occur immediately beneath a fallen log, due to the weight of the log. This minor compaction would be diminished as the log decomposed through time and natural soil processes (biological and mechanical) continue. As no yarding of the logs would take place, there would be no loss of top soil or erosion from the site; consequently there would be no losses to site productivity.

5.5.2.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.2.3 No Action Alternative

The No Action Alternative would result in a continuation of the soil condition and trends as described under the Affected Environment section of this report.

5.5.3 Water

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Affected Environment

Project 3 would occur primarily in the Upper South Yamhill River 5th-field watershed. The western and southern-most treatment areas would occur in the Upper Siletz River 5th-field watershed, with a very small portion of the east side of the southern treatment area lying within the Mill Creek – South Yamhill River 5th-field watershed.

The northeast treatment area of Project 3 does not contain any streams. There is a small spring emerging from a cliff in the center of the area which retreats subsurface after a few hundred feet. At the base of the treatment area is a small pond which feeds an intermittent headwater tributary of Little Rowell Creek.

Environmental Effects

5.5.3.1 Proposed Action

There would be no substantial impacts to water resources from girdling, felling, or overtopping trees to create snags or falling trees for CWD. Following design features, trees selected from within SPZ's would not likely impact stream shade, bank stability, or channel structure. To maintain shade in the primary shade zone, patch openings would be located at least 60 feet from perennial streams. As no yarding would take place, the risk of soil erosion and subsequent sediment delivery to streams would be very small.

Because the Proposed Action would maintain canopy closure greater than 60% over the entire treatment area, the risk of increasing peak flows by this action is low (measurable effects to peak flows are generally seen in areas with less than 30% canopy closure). Any additional potential impacts to peak flow events resulting from the falling and leaving, girdling and topping of these trees is described under the Cumulative Effects of All Projects (Section 6.0).

5.5.3.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.3.3 No Action Alternative

The No Action alternative would result in a continuation of the condition and trends of water resources as described under the Affected Environment (Section 3.7.3) of this EA. No substantial reduction of forest canopy would take place.

5.5.4 Fisheries

(IDT Reports incorporated by reference: Condenser Peak Late Successional and Riparian Reserve Enhancement Project)

Affected Environment

The affected environment for this Proposed Action is the same as those described for Project 1. Proposed treatments are located in Upper Rowell Creek, Upper Rock Creek, Headwaters of Mill Creek, and Upper Warnick Creek Drainages covering approximately 172 acres.

Environmental Effects

5.5.4.1 Proposed Action

The Proposed Action is not anticipated to negatively affect stream shade, bank stability, or channel structure (LaForge 2006). The Proposed Action has a low probability of negatively affecting peak flows. Since the Proposed Action is not anticipated to negatively affect hydrology and soil resources beyond short-term site scale affects, or measurably contribute to negative cumulative effects, the Proposed Action is subsequently unlikely to negatively affect fish habitat 1,800 feet to 3 miles downstream.

5.5.4.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.4.3 No Action Alternative

Current conditions would be maintained.

5.5.5 Wildlife

(IDT Reports incorporated by reference: Condenser Peak LSR Enhancement Project Biological Evaluation)

Affected Environment

Affected environment is the same as for Project 1 (EA sec.3.7.5)

Environmental Effects

5.5.5.1 Proposed Action

Managing coarse woody debris and maintaining decadence processes within a forested environment is recognized as an important component in maintaining forest health and restoring late-successional forest conditions (Rose, et al. 2001, Carey 2002, Mellen, et al. 2003). This Proposed Action would enhance the CWD and help differentiate forest canopy conditions within the proposed CWD treatment units. This would result in a short-term and minor reduction in forest canopy conditions within these units. A short-term disruption in the current patterns of use by resident wildlife species is also likely. There are no known sites of any Special Status Species within the proposed treatment units. This action would have no effect on spotted owls, marbled murrelets, or their designated critical habitat. Although it would slightly diminish forest canopy conditions; canopy closure would remain above 60% for the treated units, and these units would retain their function as dispersal habitat for spotted owls.

5.5.5.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.5.3 No Action Alternative

The No Action Alternative would result in no change to the affected environment. Short-term disruption of wildlife use patterns would be avoided. However, the anticipated benefits to future conditions for coarse woody debris and late-seral forest habitat in this project area would not be achieved.

5.5.6 Fuels

(IDT Reports incorporated by reference: Condenser Timber Sale Proposal Fuels Report [Fuels Report])

Affected Environment

The affected environment for the Proposed Action is the same as that described for Project 1.

Environmental Effects

5.5.6.1 Proposed Action

Fuels

Environmental effects of the proposed project on fuels would be essentially the same as for Project 1, except that the project area is smaller (approximately 172 acres). No trees are being removed which would increase the risk of fire spread for the first few years, but risk of human caused fire would be reduced because of inaccessibility by roads.

5.5.6.2 Cumulative Effects

Addressed for all projects in EA Section 6.0

5.5.6.3 No Action Alternative

Current fuel conditions would be maintained.

5.6 COMPARISON OF ALTERNATIVES WITH REGARD TO PURPOSE AND NEED

Table 12: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA section 7.1)	Proposed Action	No Action
CWD and snags, required for terrestrial wildlife habitat are lacking in the project area watersheds as a whole.	Creates small patches, increases size of scattered dominant conifers, creates immediate CWD and snags.	Does not meet this purpose and need.

6.0 Cumulative Effects for All Projects

6.1.1 Vegetation

(IDT Reports incorporated by reference: Condenser Peak Late Successional Reserve Enhancement Project Silvicultural Prescription: Including Upland and Riparian Reserves [Silviculture Prescription] and *Marys Peak Resource Area Botanical Report [Botany Report])*

There would be no cumulative effects to the vegetation, as the effects from Projects 1, 2 and 3 would be local, and there would be no other uses affecting this resource. However, wildlife

habitat enhancement on federal land may provide a greater habitat connectivity function over adjacent areas.

6.1.2 Soils

(IDT Reports incorporated by reference: Condenser Peak Timber Sale Soils and Hydrology Report)

Cumulative Effects Common to Alternative 1 (Proposed Action) and Alternative 2

The combined effect of each of the proposed and connected actions (density management, road work, rock pit development, fuels treatments, skid trail construction, CWD creation and meadow restoration), would together increase the overall amount of compaction and soil displacement in the project area. The greatest cumulative effect on the site would likely be a reduction in overall site productivity from top soil displacement, primarily from Project 1 and associated activities. The total extent of disturbance would be relatively moderate over the longer term (with some soil recovery) and local to the project sites.

Cumulative Effects for Alternative 1 (Proposed Action)

Cumulative impacts to soil resources over the landscape would continue to occur due to private operations, as clear-cutting and subsequent broadcast burning on private lands can further reduce soil nutrients (unless fertilizers are applied). High frequency timber hauling down the Fire Hall Road would likely continue to dislodge fine sediments and contribute to erosion and sedimentation along the road's cutbanks and ditchlines.

Cumulative Effects for Alternative 2

The Black Rock Mainline Road is primarily on ridge tops or along contour, and due to the soil types in the area, appears to dislodge less fine sediment than the Fire Hall Road. If the Black Rock Mainline Road is used for timber haul, it may be in conjunction with (or in temporal proximity to) haul from the BLM's K-Line LSR Enhancement Timber Sale (2007) as well as continuous private hauling operations. However, since little sediment is generated from this road, the proposed project would not be expected to produce measurable cumulative impacts to soil resources.

6.1.3 Water

(IDT Reports incorporated by reference: Soils/Hydro, including Cumulative Effects Analysis)

Because the Proposed Action lies within a key watershed and two municipal watersheds with mixed ownership, and also lies within the transient snow zone, it has the potential to contribute to cumulative effects – particularly to increases in peak flow events due to timber removal.

Cumulative Effects to Peak Flows

Two analyses were performed to determine the risk of increasing peak flows in the five 7^{th}-field watersheds (catchments), which could be affected by the Proposed Actions (Projects 1, 2 and 3): Upper Warnick Creek, Upper Rock Creek, Rowell Creek, Upper Boulder Creek and Headwaters Mill Creek.

According to initial analysis, the catchments all have a "moderate" risk of increasing peak flows from timber removal. This analysis used the original vegetation coverage derived from the 1993

Western Oregon Digital Information Program (WODIP) data and did not include clearcuts since 1993. As clear-cutting has increased substantially in these watersheds during the past decade, the actual "current" risk of increasing peak flows in these catchments is likely to be higher. Because of this, further analysis using the methodology of the Oregon Watershed Assessment Manual was completed, with updated vegetation data.

Using the methodology of the Assessment Manual, the Headwaters Mill Creek, Rowell Creek, and Upper Boulder Creek catchments had a "low risk of peak flow enhancement", whereas the Upper Warnick Creek and Upper Rock Creek had a "potential risk of peak flow enhancement". However, because such a considerable portion of the catchments lie within the transient snow zone, with the potential for frequent rain-on-snow events, an additional test was performed to further quantify risks to peak flows.

This additional analysis used the methodology of the *Standard Methodology for Conducting Watershed Analysis*, also referred to as the "Water Available for Runoff" model or "WAR". Because the analysis found that the Proposed actions alone would be too limited in scope to result in any measurable effect to WAR or peak flows, they were evaluated in the context of "probable" actions that are likely to occur over the next ten years. Ten years was assumed to be the average length of time necessary for moderate recovery of stand density following harvest. Future BLM actions included all recently harvested, proposed harvest, or "likely to be proposed harvest" units. This included the Salem District's proposed density management treatment within the Upper Boulder Creek catchment (2007 K-Line LSR Enhancement). Private forested land was assumed to be regeneration harvested on a 40-year rotation for all but the Upper Rock Creek watershed (for which higher harvest rates were assumed. The model results showed that for a "typical" 2-year precipitation event, Rowell Creek is the only catchment with an "indeterminate" risk for increasing peak flows based on timber harvest. The risk in the other four catchments is "low". The natural hydrologic regime in the watershed has been altered and peak flows are likely currently larger in basin streams than historically. Because so much of the private land has already been harvested, there is little acreage remaining to be further harvested over the next decade. Therefore the percent change in risk over "current" conditions is very low.

For an unusually large 2-year precipitation event, the risk of increasing peak flows in the Upper Boulder Creek, Headwaters Mill Creek, and Upper Warnick Creek, remains "low". The risk in the Upper Rock Creek watershed is "indeterminate" and the risk in the Rowell Creek watershed is "high". Both the Upper Rock Creek and Rowell Creek watersheds have experienced significant timber removal during the past several decades. Consequently, peak flows in these watersheds are likely already affected by land management activities. Because so little mature forest remains for potential clearing during the next decade, the risk of increasing peak flows over "current condition" is small. The trend in these watersheds is likely to be towards more "mature" forest stands, as most of the harvested areas have been replanted.

The Proposed Action in the Upper Rock Creek watershed would not remove substantial portions of the canopy and is therefore unlikely to measurably impact cumulative peak flow. In addition, the only action proposed to take place in the Rowell Creek watershed is the felling of select trees for coarse woody debris. This action would not substantially alter the forest canopy and would be very unlikely to have any effect on peak flow events in the watershed. Because there are no streams in the Rowell Creek project area, and due to the small scope of the project, a Level II Analysis for bed load stability was not performed.

Cumulative Effects to Water Qualitpy & Channel Morphology
Because the proposed projects are not likely to have a direct effect on temperature, channel characteristics, or nutrient concentrations, they are unlikely to contribute to cumulative effects to these parameters.

The projects do have the potential to contribute cumulatively to accelerated sediment loads in streams adjacent to roads. The scale for cumulative effects for sediment deposition is adjacent streams within and downstream from the project area. This scale was chosen because effects resulting from actions which overlap in time and space can be seen downstream from the separate actions where they occur in a shared watershed.

For all cumulative actions, the risk of short-term increases in stream turbidity as a result of road work and timber hauling would likely contribute to direct increases in turbidity levels directly below road/stream intersections. The effect would come from a small area; sediment would originate from areas generally no more than a few hundred square feet of surface area. The risk of short-term increase in stream turbidity resulting from live-stream culvert replacement would be episodic, occurring while the repairs are being made, and again after the first heavy rains have occurred. Short-term increases in sediment resulting from hauling would occur after the first heavy rains. Over the long-term, conditions and trends in turbidity and sediment yield would likely return to current levels.

The cumulative accelerated sediment load is unlikely to result in any measurable change in water quality on the scale of the 6th or 7th-field watersheds, and would therefore be unlikely to have any effect on designated beneficial uses of stream flow.

6.1.4 Fisheries/Aquatic Habitat

(IDT Reports incorporated by reference: Condenser Peak Late Successional and Riparian Reserve Enhancement Project—Fisheries [Fisheries Report])

The cumulative effects of the proposed actions associated with the Condenser Peak Density Management to the vegetation, hydrology, and soil resources were assessed under the Hydrology/Soils Report (LaForge 2006) and the Vegetation Analysis and Thinning Prescription Report (Haynes 2006). These analyses form the basis of the fisheries resource cumulative effects analysis.

In general, the proposed stand treatment actions are not expected to alter stream bank stability and sediment supply to channels at the 5th field watershed scale in the short term or long term. However, the proposed road construction through the riparian reserve may affect Large Woody Debris (LWD) recruitment, and potentially alter instream structure, at the site scale in Upper Siletz River Watershed. The proposed road construction would cover a very small amount of Riparian Reserve acres. Approximately 0.07 acres of the Upper Rock Creek drainage in the Upper South Yamhill Watershed and approximately 0.21 acres of the Upper Warnicke Creek drainage in the Upper Siletz River Watershed would be affected by new road construction. This effect would be extremely small in area compared to the total areas of Upper South Yamhill River 5th Field Watershed (89,512 acres) and Upper Siletz River 5th Field Watershed (44,512 acres). No cumulative effects to LWD is expected as the change in LWD recruitment, and instream structure, to stream channels is expected to be unmeasurable at the site scale and highly unlikely to influence aquatic habitat downstream.

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 report's analysis of alterations to peak flows the headwaters of Mill Creek, Rowell Creek, and Upper Boulder Creek were considered low risk for changes in peak flows and are unlikely to contribute to cumulative effects. The report did indicate that Upper Warnick Creek and Upper Rock Creek were potentially at risk for changes in peak flow, primarily due to extensive clearing of private ownerships; however impacts to peak flows were considered unlikely due to the light thinning prescriptions and the small amount of area affected by the project treatments. Therefore the proposed project is unlikely to result in cumulative effects to fishery resources as no changes to peak flows were anticipated that could alter aquatic habitat downstream where fish reside.

The Hydrology report indicated that the proposed project was considered unlikely to have direct effects on stream temperatures and not expected to result in any cumulative affects to temperature. No cumulative effects are anticipated for peak flows, streambanks, and instream structure which could also affect temperature. Since no cumulative effects were anticipated for temperature, streambank conditions, and peak flows these issues would not result in cumulative effects for fisheries resources.

Proposed timber hauling, over or adjacent to fish bearing stream channels, may contribute sediment to the streams. The extent of the cumulative impacts from sediment entering stream channels on fisheries resources would largely depend on the haul route utilized from the timber sale area. Both Black Rock (rd # 8-7-14) and Fire Hall (rd # 6-8-13) Roads are heavily utilized main roads that access large tracks of timber in or near the project area. Use of either haul route would be seasonally restricted, generally to May thru October. However, timber hauling over either route would be expected to increase sediment runoff and turbidity at stream crossings and ditchlines which connect to stream channels. Turbidity associated with timber hauling impacts would be episodic, generally associated with rain events. The impacts would be of short duration during project implementation and thru the first heavy rains of the wet season.

Cumulative Effects for Alternative 1 (Proposed Action)

The Fire Hall Road haul route has several first and second order streams crossings, which are a short distance from fish bearing streams, and the northern half of the Fire Hall Road haul route is adjacent to large fish bearing streams. In addition, several improvements in drainage features on Fire Hall Road would be implemented if this road were used. The implementation of these design features would be expected to minimize the amount of sediment generated due to timber hauling.

Rock Creek, adjacent to the Fire Hall haul route, is similar to the Little Luckiamute River being predominately cobble, boulder, and bedrock and channel gradients indicate any sediment entering this stream would likely be rapidly transported out of the watershed during winter freshets and is unlikely to cause substantial local affects to aquatic habitat. Cow Creek, adjacent to Fire Hall Road is much gentler in gradient and consists of a higher percentage of gravels and fines. Increases in sediment reaching this stream could have direct cumulative impacts to the quality of fish habitat. However, the segment of road adjacent to Cow Creek is very mild in gradient, generally around 1 percent with short segments up to 5 percent, and the magnitude of sediment entering the stream channel is expected to be low. Implementation of drainage improvement prior to hauling would be expected to further minimize the risk of this impact. Due to improved drainage features reducing ditchline connectivity to active channels, sediment and turbidity generated from Fire Hall Road should be reduced over the long term.

Cumulative Effects for Alternative 2

The Black Rock Road haul route has limited connectivity to fish bearing streams, being predominately located on ridge tops until it crosses and parallels the Little Luckiamute River. The underlying geology, road surfacing, hydrologic connectivity, and proximity of Black Rock Road to fish bearing streams suggests the magnitude of sediment generated by timber hauling over this route would be less when compared to utilization of the Fire Hall Road haul route. With Black Rock Road haul route the minor extent of connectivity and the gentle road gradients indicates that this road may contribute a very small quantity of sediment to the Little Luckiamute River and tributaries before reaching paved roads. The Little Luckiamute River in the vicinity of the haul route is predominately a bedrock cobble river. The small amount of sediment that does enter the Little Luckiamute is expected to be rapidly transported during winter freshets and is unlikely to substantively affect aquatic habitat adjacent to, or immediately downstream from the haul route. Some localized cumulative impacts from hauling may occur to soil resources due to combined hauling associated with federal and private timber. Following project completion, turbidity and sediment yield would be expected to return to background levels on Black Rock Road.

6.1.5 Wildlife

(IDT Reports incorporated by reference: Condenser Peak LSR Enhancement Project Biological Evaluation)

Within the northern Oregon Coast Range, the condition of dispersal habitat for spotted owls is a matter of elevated concern (USDI-FWS 1990; USDI-FWS 1992; Courtney et al. 2004). All three projects within this Proposed Action (about 490 acres) along with previous BLM thinnings (320) and foreseeable BLM thinnings (300 acres) would alter about 4.3% of the available dispersal habitat in CHU OR-44. Since the majority of the proposed thinning harvests are designed to maintain an average of at least 40% canopy closure, the treated stands would continue to function as dispersal habitat, whereby these projects and all foreseeable federal thinning harvests would not contribute to a cumulative loss of dispersal habitat within CHU OR-44, but rather these thinning treatments would likely provide long-term beneficial effects to the quality of critical habitat. Due to ecological succession and forest management, the amount of habitat in each seral stage within the local watersheds is not stagnant, but constantly in transition from early open habitats toward mature forest stands. Thinning harvests and habitat restoration treatments such as the Proposed Action would alter existing forest structure, yet these treatments do not result in a loss of habitat for most of the wildlife species that are known or suspected to use these forests. The cumulative impact on habitat availability for wildlife species of concern resulting from past BLM thinning harvests and foreseeable thinning treatments is considered negligible.

6.1.6 Fuels\Air Quality

(IDT Reports incorporated by reference: Condenser Timber Sale Proposal Fuels Report)

<u>Fuels:</u>
Although there would be an increase in fuel loading and resultant fire hazard in the short-term, there would be positive net benefits in the long-term due to the proposed thinning treatment. When looked at from a watershed scale, the thinning of approximately 273 acres of forest habitat would reduce the long-term (5 or more years) potential of the stand to carry a crown fire. This is because of the spacing out of the trees and their crowns, in addition to removal of current ladder fuels that are conducive to the spread of wildfire.

Air Quality:
There would be few cumulative effects to this resource, as the effects from the project would be local, and there would be no other uses affecting this resource. Burning of slash would be coordinated with the Oregon State Smoke Management Plan which serves to coordinate all forest burning activities on a regional scale to prevent negative impacts to local and regional air sheds. Based on this control of smoke production there are no expected cumulative effects from the planned fuels treatment under this proposal.

7.0 Compliance of All Projects with the Components of the Aquatic Conservation Strategy

Table 12 and Appendix 1 describe the project's compliance with the four components of the Aquatic Conservation Strategy.

Table 13: Projects' Compliance with Components of the Aquatic Conservation Strategy.

ACS Component	Project Consistency
Component 1 - Riparian Reserves	**All Projects:** Riparian Reserve boundaries would be established with direction from the RMP (p. 10). Canopy cover would be maintained along all streams, and would thereby protect stream bank stability and water temperature. **Project 1**: The project would close and decommission roads based on the ongoing and potential effects to ACS objectives and considering short-term and long-term transportation needs (RMP p. 11). There would be approximately 1,365 feet of road construction within the Riparian Reserves. **Projects 2 & 3:** There would be no road construction/renovation or hauling associated with the projects.
Component 2 - Key Watershed	The projects are located within the Upper South Yamhill River, Mill Creek-South Yamhill River and Upper Siletz River watersheds. The North Fork Siletz River sixth-field watershed is designated as a key watershed.
Component 3 - Watershed Analysis	These projects are consistent with the recommendations in the *Rowell Creek/Mill Creek/Rickreall Creek/Luckiamute River Watershed Analysis, Upper Siletz Watershed Analysis* and *Upper South Yamhill Watershed Assessment.*
Component 4 - Watershed Restoration	**Project 1:** Increasing stand diversity and tree growth in Riparian Reserves addresses this component. Complies with Watershed Restoration management actions/direction as stated on p. 7 of the RMP: "Focus watershed restoration on removing some roads". **Projects 2 & 3:** The Proposed Actions are not a component of the resource area's watershed restoration program.

Projects 1 and 3:– Over the long-term, these projects should aid in meeting ACS Objectives by speeding the development of older forest characteristics in Riparian Reserves, 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 (EA Appendix 1).

Project 2 –This project would not have an adverse effect on aquatic restoration efforts.

8.0 LIST OF PREPARERS

Table 14: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Dave Calver	DHC	11/16/06
Hydrology/Water Quality/Soils	Ashley LaForge	AL	11/16/06
Silviculture/Riparian Ecology	Amy Haynes	AH	11/16/16
Botany TES and Special Status Plant Species	Ron Exeter	RE	11/16/06
Wildlife TES and Special Status Animal Species	Scott Hopkins	SH	11/16/06
Fuels/Air Quality	Tom Tomczyk	TST	11/16/06
Fisheries	Scott Snedaker	SS	11/20/06
Logging	Andy Frazier	AFF	11/20/06
Engineering	Steve Cyrus	SBC	11/20/06
Recreation	Traci Meredith	TMM	10/13/2006
NEPA	Gary Humbard	GLH	11/16/06

9.0 CONTACTS AND CONSULTATION

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

U. S. Fish and Wildlife Service

To address concerns for effects to federally listed wildlife species and potential modification of critical habitats, the Proposed Action will be consulted upon with the U.S. Fish and Wildlife Service, as required under Section 7 of the ESA. Consultation for this Proposed Action was facilitated by its inclusion within a programmatic Biological Assessment (BA) that analyzes all projects that may modify the habitat of listed wildlife species on federal lands within the Northern Oregon Coast Range during fiscal years 2007 and 2008. The resulting Letter of Concurrence (ref# 1-7-2006-I-0190, dated October 3, 2006) concurred with the BA, that this action was not likely to adversely affect spotted owl critical habitat. This Proposed Action has been designed to incorporate all appropriate design standards set forth in the Biological Assessment which form the basis for compliance with the Letter of Concurrence.

NOAA NMFS

Consultation with NOAA NMFS is required for all actions which 'may affect' ESA listed fish species and critical habitat. A determination has been made that Alternative 1 (Proposed Action) Project 1 'may affect' UWR steelhead trout. The 'may affect' determination is primarily due to the proximity of listed fish and critical habitat adjacent to proposed haul routes. Due to the Proposed Actions' 'may affect' determination on ESA listed steelhead consultation with NMFS would be required. A 'no effect' determination is anticipated with the implementation of Alternative 2 for Project 1 to UWR steelhead trout and no consultation would be necessary.

A determination has been made that these proposed projects would have 'no effect' to Spring Chinook salmon and Oregon chub. Generally, the 'no effect' determination is based on the distance upstream of project activities (approximately 65 miles) from ESA listed Chinook critical habitat and historic habitat for Oregon chub.

Protection of Essential Fish Habitat (EFH) as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NOAA NMFS is required for all projects which may adversely affect EFH of Chinook and coho salmon. The proposed project may affect EFH of coho salmon due to proximity of the proposed haul routes. Effects of the Proposed Action on EFH will be assessed concurrently with the ESA consultation with NMFS.

9.2 Cultural Resources - Section 106 Consultation and Consultation with State Historical Preservation Office:

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.

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

- A scoping letter, dated May 19, 2005, was sent to 55 potentially affected and/or interested individuals, groups, and agencies. – One response was received during the scoping period.
- A description of the project was included in the December 2004, March, June and December 2005, and March, June and September 2006 project updates to solicit comments on the proposed projects.

9.3.1 30-day public comment period

- The EA and FONSI will be made available for public review November 29, 2006 to December 28, 2006. The notice for public comment will be published in a legal notice by the *Polk County Itemizer-Observer* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before December 28, 2006 will be considered in making the final decisions for these projects.

10.0 MAJOR SOURCES AND COMMON ACRONYMS

10.1 Major Sources

10.1.1 Interdisciplinary Team Reports:

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10.2 Common Acronyms

ACS ---------- Aquatic Conservation Strategy
BLM ---------- Bureau of Land Management
BMP---------- Best Management Practice(s)
BO---------- Biological Opinion
CWD ---------- Coarse Woody Debris
DBH---------- Diameter Breast Height
EA---------- Environmental Assessment
ESA ---------- Endangered Species Act
FONSI -------- Finding of No Significant Impact
HUC# --------- Hydrologic Unit Code Number (US Geological Survey)
LSR ---------- Late Successional Reserve
LUA---------- Land Use Allocation
LWD ---------- Large Woody Debris
MEGAWA Rowell, Mill and Rickreall Creeks and Luckiamute River Watershed Analysis (1998)
NEPA --------- National Environmental Policy Act (1969)
NMFS --------- National Marine Fisheries Service
NOAA -------- National Oceanic Atmospheric Administration
NWFP--------- 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 Related Species within the Range of the Northern Spotted Owl (1994) (Northwest Forest Plan)
ODEQ--------- Oregon Department of Environmental Quality
RMP---------- Salem District Record of Decision and Resource Management Plan (1995)
RMPFEIS----- Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994)
RR---------- Riparian Reserves (land use allocation)
RWA ---------- Rowell, Mill and Rickreall Creeks and Luckiamute River Watershed Analysis (1998)
S&M FSEIS -- Final Supplemental Environmental Impact Statement for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2000)
S&M ROD --- Record of Decision and Standards and Guidelines for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2001)
SPZ---------- Stream Protection Zone (no-cut protection zone/no-cut buffer/no-treatment zone/stream buffer)
USDI ---------- United States Department of the Interior
USFWS ------- United States Fish and Wildlife Service
USWA -------- Upper Siletz Watershed Analysis
UWR----------Upper Willamette River
USYWA ------ Upper South Yamhill Watershed Assessment

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11.0 APPENDICES

11.1 Appendix 1 - Aquatic Conservation Strategy Objectives

11.1.1 Documentation of the Projects' Consistency with the Nine Aquatic Conservation Strategy Objectives

Unless otherwise specified, the No Action Alternative would not prevent the attainment of any of the nine ACS objectives. Current conditions and trends would continue and are described in EA Sections 3.7, 4.6 and 5.5. EA section 11.1 describes the project's consistency with the Aquatic Conservation Strategy Objectives.

Table 15: Projects' Consistency with the Nine Aquatic Conservation Strategy Objectives

ACS Objective	How Projects Meet the ACS Objective
1. Maintain and restore distribution, diversity, and complexity of watershed and landscape features to ensure protection of aquatic systems	All three watersheds where these projects occur lack late seral/old growth habitat and coarse woody debris, while the upper Siletz watershed has greatly reduced structural diversity and species composition. Projects 1 and 3 would enhance late-successional forest conditions and speed up attainment of these conditions across the landscape. Project 2 would restore meadow habitat where conifers are encroaching on it, thus adding diversity to the landscape.
2. Maintain and restore spatial connectivity within and between watersheds.	All projects: No stream crossing culverts would be used that would potentially hinder movement of aquatic species; therefore no aquatic barriers would be created. Both terrestrial and aquatic connectivity would be maintained, and over the long-term, as Riparian Reserves develop late successional characteristics, lateral, longitudinal and drainage connectivity would be restored.
3. Maintain and restore physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	A minimum 50 foot no cut SPZ would maintain the integrity of shorelines, banks and bottom configurations in Project 1. Trees would be directionally felled within one tree height of the SPZ and any part that falls within the SPZ would be left on site, thereby preventing disturbance to stream banks and bottom configurations. In Project 3, although trees would be felled toward streams in the hopes of adding LWD to those streams, no trees would be cut which are thought to be stabilizing stream banks. In Project 2, there would be a 10 foot no-cut buffer along any streams or wet areas within the project area.
4. Maintain and restore water quality necessary to support healthy riparian aquatic, and wetland ecosystems.	Stream temperature: According to the stream shading sufficiency analysis done for Project 1, the proposed no-entry SPZ's of 50 to 55 feet was sufficient to protect critical shade in the primary shade zoned, based on topography and average tree height. There are no known streams within approximately 50 feet of the meadows in Project 2 therefore that project does not affect stream shading. No patch cuts would be allowed within 60 feet of streams in Project 3, and within the primary shade zones of streams a canopy of greater than 70% would be maintained. Therefore stream shade would be protected in all three projects. Sedimentation and stream turbidity: see No. 5 below
5. Maintain and restore the sediment regime under which the system evolved.	Projects 2 and 3: Yarding is not proposed, therefore increases in sediment delivery to streams are unlikely to result from these actions. Project 1: Project 1 is designed to minimize the risk of a mass soil movement event (slump/landslide). Stream protection zones and project design features would minimize any potential sediment from harvest and road-related activities from reaching water bodies. Road renovation and drainage improvements on Rd #7-8-24 would help to restore the sediment regime to streams in the area.
6. Maintain and restore instream flows sufficient to	The proposed projects would not measurably alter instream flows. All projects would affect less than 0.4% of the forest cover in the Upper South Yamhill watershed, 0.3% of the cover in the Mill Creek watershed, and 0.5% of the cover in

create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.	the Upper Siletz watershed—well below the 20% threshold for measurable effects.
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	Design features for all three projects, such as no-treatment buffers, coupled with the relatively small percent of vegetation proposed to be removed, would maintain groundwater levels and floodplain inundation rates. Detectable direct or indirect effects to stream flow as a result of this action are unlikely.
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	The actual riparian areas along streams would be excluded from treatment in Project 1, by designating SPZ's, and only the upslope portions of the Riparian Reserves would be included in the density management treatment. There are no streams within 50 feet of Project 2 and therefore no riparian areas would be affected. Riparian areas within Project 3 would be minimally affected by falling occasional trees into streams. There would be little or no change to riparian vegetation on banks or within the riparian zone along streams resulting from the proposed projects.
9. Maintain and restore habitat to support well distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	All projects: Habitat to support well distributed riparian-dependent and riparian associated species would be restored by reducing overstocked stands, moderating tree species diversity, altering forest structural characteristics and amending coarse woody debris conditions.

11.2 Appendix 2 - Response to Scoping Comments

A scoping letter, dated May 19, 2005, was sent to 18 potentially affected and/or interested individuals, groups, and agencies. One response was received during the scoping period.

11.2.1 Summary of comments and BLM responses

The following addresses comments raised in one letter from the public received as a result of scoping (40 CFR Part 1501.7). Additional supporting information can be found in Specialists' Reports in the NEPA file.

11.2.1.1 Oregon Natural Resource Council (June 17, 2005)

Comment: *"The land designations in the project area all require that variability in leave tree spacing between and among stands be paramount in the BLM's planning efforts… In order for the prescriptions to work, agencies must thin to create variable spacing between and among stands."*

Response: We always try to achieve variable density in our LSR treatments, within our operational constraints, and believe that our prescription would accomplish that. We plan to create canopy gaps over the project area which would equal approximately 5% of the treatment area, and also to leave small unthinned areas (clumps). The clumps and gaps would range from approximately .25 to 1.25 acre, as recommended by Andrew Carey and Jerry Franklin in the reference you gave us (http//www.reo.gov/ama/franklin2001.htm).

We believe the smaller gaps would promote increased growth of shrub species (rhododendron and vine maple), and the larger gaps would promote conifer understory species such as noble fir, western red cedar and western hemlock, which we plan to plant. Within the larger gaps we would leave large "wolfy" trees or trees with other wildlife values, releasing them completely so as to promote epicormic branching and deep crowns. Between the gaps, we plan to mark the project in a range of basal areas. We would also reserve all species other than Douglas-fir, western hemlock and noble fir to give us additional spacing variability.

Vertical diversity would be achieved over the long-term by planting conifers in the patch openings and openings with lower basal areas. Although we are primarily thinning from below, the marking guide calls for leaving healthy intermediate trees in place of dominant ones, recognizing that, because this is a dense even-aged stand, there would be few of them.

Comment: *"…agency resources should focus on obliteration of existing roads. We would vociferously oppose new system road construction. Especially in the LSRs, ONRC strongly urges BLM to look for opportunities [to] pull out roads following thinning. If you do plan to use temporary roads, disclose in the EA how many acres of forest to which each temporary road would provide access…Although temporary roads do not result in as much wildlife harassment as permanent roads, temporary road[s] still degrade soil productivity, increase the risk of sedimentation, and serve as conduits for invasive weeds."*

Response: The Marys Peak RA decommissions roads wherever future operability and right-of-way agreements allow it. The short portion of Road #7-8-13.1 which would be renovated for the

project would be decommissioned, and the rest of that road (approx. 6,000 feet) would be removed from the transportation plan, essentially obliterating it. The project area is located behind locked gates, therefore little traffic would normally be expected following completion of harvest operations, except for a few weeks a year during deer and elk hunting seasons.

Some new road construction is necessary for operability due to topography of the project area. Best Management Practices would be followed during road construction to reduce the risk of adverse effects to aquatic resources.

The following table includes the length of each new road to be constructed, the number of acres accessed by each road and the computed cost: benefit ratio of the number of acres treated per mile of road construction.

Road #	Miles	Acres accessed	Unit acres/road miles
P1	0.37	45	122
P2	0.29	15	52

As stated in the EA (p. 24), "constructing approximately 3670 feet of road would result in loss of topsoil and compaction of sub-soil on approximately 2 acres (about 0.7% of the total proposed project area)" "All of the new construction would be decommissioned following harvest, which could include waterbarring, grass seeding, and/or blocking. Therefore some recovery back to a forested condition would occur in the area over time" (p. 26)

The EA recognized on p. 19 that "any ground disturbing activity may lead to an increase in the noxious weeds known from within the project area. All road construction, improvements, renovation, decommissioning, timber falling and yarding operations would expose mineral soil to varying degrees. Non-native species may become established in any exposed mineral soil areas. Often non-native species persist for several years but soon decline as native vegetation increases within the project areas.

This project would be in compliance with the Mary's Peak integrated non-native plant management plan. The risk rating for the long-term establishment of noxious weed species and consequences of adverse effects on this project area is low and adverse effects from noxious weeds within the project area are not anticipated for the following reasons: The Condenser Peak project design feature of revegetating exposed soil areas by sowing with Oregon Certified (blue tagged) red fescue (***Festuca rubra***), and/or sowing with a wildlife vegetation mix and applied at a rate equal to 40 pounds per acre or sowing/planting with other native species as approved by the resource area botanists are expected to abate the establishment of noxious weeds".

Comment: *"…we feel it is absolutely essential to maintain all large diameter snags, regardless of height or decay class. In your analysis, disclose the current condition of those snags and CWD that are legacies of the natural stands clearcut 50-60 years ago…BLM must design criteria to protect all large diameter legacy snags regardless of height or decay class."*

The EA discloses the current condition of legacy snags and CWD on page 38 and contains plans for enhancing legacy features on page 40 for Project 1, and on pages 50 & 51 for Project 3. We agree that large diameter snags are important legacy features that should be retained in treatment units, and we understand your concern that safety/operational issues should not diminish these

structures. We believe the design features for the protection of existing down logs and snags as stated in the EA (page 12) provides the necessary protection for these resources and removes any incentive for needlessly felling or removing them.

Comment *"As we have noted [in] numerous previous comments, recent scientific studies call into question the assumptions about snag retention in the RMP and NFP. The RMP and NFP rely on outdated data that is no longer valid, especially due the presence of more thorough research and management recommendations…BLM should use the DecAID decision support tool and consider all the many values of snags and down wood…"*

The BLM is not relying on old out-dated science concerning management of snags and down logs. As required by the Northwest Forest Plan, a Late-Successional Reserve Assessment was completed in January 1998 that covers BLM lands in the project area, and addresses management considerations for retention and creation of CWD based on relevant research findings from a number of studies within the Coast Range Province. This document, along with the DecAID tool and other references provided a foundation for development of the prescription for snags and down logs, and are cited in the Biological Evaluation of wildlife resources.

The Marys Peak RA will be enhancing recently harvested density management projects by creating snags and CWD (girdling/falling/leaving average stand diameter reserve trees), falling and leaving on site trees that are encroaching on and ultimately impeding the survival of the live crowns of old growth trees and by falling trees into live streams for LWD enhancement purposes. Approximately $40,000/year will be spent on these types of habitat enhancement projects from Fiscal Years 2007 through 2010.

The Marys Peak RA collected pre harvest (2000) and post harvest (2003) snag and CWD data within the Crooked Alder LSR enhancement project (FY 2001) to determine the effectiveness of CWD enhancement in conjunction with the timber sale contract requirements. The data indicates that overall, the volume of CWD increased from 244 cu/ft/ac to 3,164 cu/ft/ac and the number of pieces of CWD increased from 7.5 pieces/ac to 120 pieces/ac. Since 2001, when implementing LSR enhancement projects, the Marys Peak RA has included the reservation of all existing CWD and the creation of new CWD within the timber sale contract. We understand that CWD is an important component of late successional forest conditions and will continue to enhance this condition through LSR projects.

11.3 Appendix 3 – CONDENSER PEAK MARKING GUIDE

Goals:
The goals are to increase understory canopy development, maintain existing snags and down wood, increase species diversity & increase the size of the leave trees.

NOTE: All conifers other than Douglas-fir, western hemlock and noble fir will be reserved from cutting in the timber sale contract. All reserved conifers and all marked trees count toward retained basal area.

EA Unit/ Marking Unit	Acres	Species to Mark	Priority of species to mark	Basal Area Range (Average)
13A/2, 3, 4	65	DF, WH NF	1.NF 2. DF 3. WH	Unit 2: 100-140 (120) Unit 3: 80-120 (100) Unit 4: 120-160 (140) All conifers count toward retained basal area
13B/11	35	DF and WH (NF reserved)	1. DF 2. WH	100-140 (120) All conifers count toward retained basal area
14A/10		DF and WH (NF reserved)	1. DF 2. WH	80-120 (100) All conifers count toward retained basal area
14B& 14D/1, 5, 6	B-97 D-25	DF and WH (NF reserved)	1. WH 2. DF	Unit 1: 100-140 (120) Unit 5: 120-160 (140) Unit 6: 80-120 (100) All conifers count toward retained basal area
14C/7, 8, 9	43	DF, NF, WH	1. DF 2. NF 3. WH	Unit 7: 80-120 (100) Unit 8: 100-140 (120) Unit 9: 120-160 (140) All conifers count toward retained basal area

Tree Condition:

Mark trees with complex structures (forked, broken/missing top, dead top, and otherwise weird looking trees) and leave them clumped with other marked trees where possible. Generally, mark the biggest and best trees (except as above), but if there are healthy looking smaller trees, mark them instead and leave trees around them unmarked, to maintain as much vertical diversity as possible.

Openings and Leave Islands:

1. Among all units there are a total of 14 openings of approximately 0.5 to 1.5 acres in size designated by fluorescent pink flagging and signs on the perimeter. A total of 15 to 30 trees, which includes reserved conifers, will be marked to leave within each opening.
2. Among all units there are a total of 5 leave islands approximately ¼ acre in size designated by yellow flagging on the perimeter. All trees will be marked within them.
3. Natural openings occur in these units, and no special provisions apply adjacent to them.

Lacking these special features, gaps can be located anywhere within the above marking units.