

**Rickard Creek Timber Sale
Environmental Assessment and
Finding of No Significant Impact**

Environmental Assessment Number OR-080-07-13

March 11, 2008

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

Responsible Agency: USDI - Bureau of Land Management

Responsible Official: Trish Wilson, Field Manager
Marys Peak Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 315-5968

For further information, contact: Phil Sjoding, Project Lead
Marys Peak Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 315-5980



Abstract: This EA (Environmental Assessment) discloses the predicted environmental effects of one project on federal land located in Township 13 South, Range 6 West, Section 29, Willamette Meridian and within the Marys River watershed. The project is a proposal to perform regeneration harvest on approximately 87 acres, commercial thinning on approximately six acres of GFMA (General Forest Management Area), and density management on approximately 21 acres of RR (Riparian Reserves) LUAs (land use allocations).

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

BLM/OR/WA/AE-08/003+1792

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The BLM (Bureau of Land Management) has conducted an environmental analysis (Environmental Assessment Number OR080-07-13) for a proposal to implement one project in GFMA (General Forest Management Area) and RR (Riparian Reserve) LUA (Land Use Allocations) as follows:

- ✓ Conduct regeneration harvest on approximately 87 acres of stands that are about 77 years old which have reached culmination of mean annual increment.
- ✓ Conduct commercial thinning on approximately 6 acres of 60 year old stands to increase individual tree growth.
- ✓ Conduct density management on approximately 21 acres of 60 to 75 year old stands to increase structural diversity.

This project is on BLM-managed lands in Township 13 South, Range 6, Section 29, Willamette Meridian.

Implementation of the proposed action will conform to management actions and direction contained in the attached *Rickard Creek Timber Sale Environmental Assessment* (Rickard Creek Timber Sale EA). The Rickard Creek Timber Sale EA is attached to and incorporated by reference in this FONSI (*Finding of No Significant Impact*) determination. The analysis in this EA is site-specific and supplements analyses found in the RMP/FEIS (*Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994) (EA p. 3). The Rickard Creek Timber Sale Project has been designed to conform to the RMP (*Salem District Record of Decision and Resource Management Plan*, May 1995) and related documents which direct and provide the legal framework for management of BLM-managed lands within Marys Peak Resource Area (EA p. 3). Consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service is described in Section 8.1 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 March 17, 2008 to April 15, 2008. The notice for public comment will be published in a legal notice by the *Gazette-Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before April 15, 2008 will be considered in making the decision for the project.

Finding of No Significant Impact

Based upon review of the Rickard Creek Timber Sale 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 Marys River 5th-field Watershed and the project areas boundaries. The proposed action would occur on approximately 114 acres of GFMA and RR LUA land,

encompassing less than 0.8 percent of the federally owned forest cover within the Marys River Watershed [40 CFR 1508.27(a)].

Intensity:

1. The *project* is unlikely to have any significant adverse impacts on the affected elements of the environment [40 CFR 1508.27(b) (1)]. The affected elements common to the project area is: hydrology (water quality, riparian zones, and other water resources), soils, wildlife (T/E, special status species, structural/habitat components), air quality and fire hazard/risk, botany (special status species, invasive/nonnative species), fisheries and aquatic habitat (T/E species), recreation and visual resources.

Design features were incorporated into the proposed action for the project area that would reduce the risk of adverse effects to the above resources (EA Section 2.2.2). These design features are proposed to meet the following objectives:

- To minimize soil productivity loss from soil compaction, slope stability or soil duff layer resulting from ground based and skyline logging operations;
- To protect other components of hydrologic functions (channels, flows, water quality);
- To protect and enhance stand diversity and wildlife habitat components;
- To protect against expansion of invasive and non-native plant species;
- To protect the residual stand;
- To minimize disturbance to federal threatened and endangered species;
- To protect BLM special status plant and animal species;
- To reduce potential hazards to high-use recreation and visual resource areas;
- To reduce fire hazard risk and protect air quality;
- To protect cultural resources.

As a result of implementing the project design features described in EA Section 2.2.2, potential effects to the affected resources from regeneration harvest, density management, commercial thinning and connected actions in the project area is anticipated to be site-specific and/or not measurable (i.e. undetectable over the watershed, downstream, and/or outside of the project area) [40 CFR 1508.27(b) (1), - EA Section 3.2].

2. The *project* would not affect:
 - ✓ Public health or safety [40 CFR 1508.27(b)(2)];
 - ✓ Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA section 3.1)
 - ✓ Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the proposed action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA section 3.1).
3. The *project* is not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b) (4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b) (5)].
4. The *project* does not set a precedent for future actions that may have significant effects, nor 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 the *project* in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)]. Potential cumulative effects are described in the attached EA (Section 4.0). 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 areas totaling 114 acres, encompassing less than 0.8 percent of the federally-owned forest cover within the Marys River Watershed), and duration (direct effects would occur over a maximum period of four to-six years) (EA Section 3.2).
6. The *project* is not expected to adversely affect endangered or threatened species or habitat under the ESA (Endangered Species Act) of 1973 [40 CFR 1508.27(b) (9)].

Wildlife:

- ✓ The proposed action would have “no effect” to marbled murelets and is considered to be a “may affect but not likely to adverse affect” to northern spotted owls.
- ✓ To address concerns for potential effects to spotted owls, 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 will be accomplished 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 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards likely to be included in the pending BA. Upon completion of consultation, if any additional design standards are set forth in a biological opinion or letter of concurrence, then these standards would be incorporated into the design of this project prior to issuance of a decision record for this EA. The biological opinion will be completed during October, 2008.

Fish:

Protection of EFH (Essential Fish Habitat) as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NOAA NMFS (U. S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service) is required for all projects which may adversely affect EFH of Chinook salmon. The proposed Rickard Creek Timber Sale Project is not expected to affect EFH due to distance of all activities associated with the project from occupied habitat.

A determination has been made that this proposed project would have ‘no effect’ on UWR (Upper Willamette River) steelhead trout, Chinook salmon and Oregon chub. Generally, the ‘no effect’ determination is based on the distance of a project to ESA listed fish habitat. The distance from ESA habitat is approximately two miles to project activities.

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

Prepared by: Philip R. Sjoding
Phil Sjoding, Team Lead

3/10/08
Date

Reviewed by: Gary J. Humbard
Gary Humbard, NEPA

3/10/08
Date

Approved by: Trish Wilson
Trish Wilson, Field Manager
Marys Peak Resource Area

3/11/08
Date

Glossary: Abbreviations, Acronyms, and Terms

ACS	Aquatic Conservation Strategy
Alternative	Proposed project (plan, option, choice)
Anadromous Fish	Species that migrate to oceans and return to freshwater to reproduce.
BLM	Bureau of Land Management
BMP	Best Management Practice(s) design features to minimize adverse environmental effects
CEQ	Council of Environmental Quality, established by the National Environmental Policy Act of 1969
CEQ Regulations	Regulations that tell how to implement NEPA
Crown	The portion of a tree with live limbs
Culmination of Mean Annual Increment	The age at which a stand produces the maximum average annual growth over the lifetime of the timber stand. This age is typically between 70 and 110 years for Douglas-fir.
Cumulative Effects	Past, present, and reasonably foreseeable effects added together (regardless of who or what has caused, is causing, and might cause those effects)
CWD	Coarse Woody Debris refers to a tree (or portion of a tree) that has fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter as described in Northwest Forest Plan and FEMAT
Density Management	Reduction and composition of trees in a stand for purposes other than timber production
DBHOB	Diameter Breast Height Outside Bark
EA	Environmental Assessment. NEPA document that describes a federal action(s) and analyzes the effects to the public and other agencies and tribes
EFH	Essential Fish Habitat
Endangered Species	Any species of plant or animal defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register
ESA	Endangered Species Act. Federal legislation that ensures federal actions would not jeopardize or elevate the status of living plants and animals
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy Management Act
FONSI	Finding of No Significant Impact. NEPA document that describes why the proposed action within a EA would not significantly affect the quality of the human environment, individually or cumulatively
Fuels	Any natural combustible material left on site that is available for burning (ie. logs, limbs, needles, vegetation)
GFMA	General Forest Management Area (a NWFP designated land use allocation). These lands are managed primarily for timber production)
Girdle	Removal of the inner bark from the entire circumference of a tree. This typically results in the death of the tree within 3-5 years
Ground Base Yarding	Moving trees or logs by equipment operating on the surface of the ground to a landing where they can be processed or loaded
Harvester/Forwarder Equipment (cut to length)	A logging system which uses harvesters to fell and delimb a tree and then cut it into logs, paired with a tracked forwarder that has a long reach,

system)	gathers up the logs and transfers them to a log truck. Many of these systems are known for their low PSI (pounds per square inch) impact to the ground
Hydric	Hydric soils are those that are wet enough in the upper layer during the growing season to develop anaerobic conditions
Interdisciplinary Team	IDT. A group of individuals assembled to solve a problem or perform a task
Intermittent Stream	Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. Includes ephemeral streams if they meet these two criteria
Invasive Plant	Any plant species that is aggressive and difficult to manage
Landing	Any designated place where logs are laid after being yarded and are awaiting subsequent handling, loading and hauling
LSR	Late-Successional Reserve (a NWFP land use allocation) Lands that are to be protected or enhanced for the purpose of providing habitat for older forest related species
LSRA	Late-Successional Reserve Assessment for Oregon Coast Province – Southern Portion. Interagency document which facilitates appropriate management activities to meet LSR objectives
LUA	Land Use Allocation. Lands designated using objectives as described in the NWFP
LWD	Woody material found within the bankfull width of the stream channel and is specifically of a size 23.6 inches diameter by 33 feet length (per ODFW - Key Pieces)
Native Plant:	Species that historically occurred or currently occur in a particular ecosystem and were not introduced
NEPA	National Environmental Policy Act (1969)
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration. Federal agency which is responsible for the regulation of anadromous fisheries
Non-native Plant	Any species that historically does not occur in a particular ecosystem or were introduced
Non-Point	No specific site
Noxious Weed	A plant species <u>designated</u> by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or diseases; or non-native, new, or not common to the United States
NWFP	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
ODFW	Oregon Department of Fish and Wildlife
Old-Growth	Usually 180-220 year-old trees
Oregon Smoke Management Plan	The State of Oregon’s plan for implementing the National Clean Air Act in regards to burning of forest fuels
Perennial Stream	A stream that typically has running water on a year-round basis
Regeneration Harvest	The harvest of mature timber from a stand leaving some residual trees for

	remnant old-growth trees and recruitment for future snags and large CWD
RMP	Salem District Record of Decision and Resource Management Plan (1995)
RMP/FEIS	Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994)
Road Decommissioning	Road work which generally includes removal of culverts, re-establishment of natural drainage patterns, and blocking
Road Reconstruction	Road work done to restore a damaged or deteriorated road to a useable condition
Road Renovation	Road work which restores an existing road to its original standard
ROD	Record of Decision
RR	Riparian Reserves (NWFP land use allocation) Lands on either side of streams or other water feature designated to maintain or restore aquatic habitat. The boundary of riparian reserves is a distance of two site potential tree heights(420 feet) from fish bearing streams and one site potential tree height(210 feet) from non fish bearing streams.
Rural Interface	BLM managed lands within ½ mile of private lands zoned for one to 20 acre lots. Areas zoned for 40 acres and larger with homes adjacent to or near BLM-managed lands
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)
Silviculture	The manipulation of forest stands to achieve desired structure
Skid Trails	Path through a stand of trees on which ground based equipment operates
Skyline Yarding	Moving trees or logs using a cable system to a landing where they can be processed or loaded. During the moving process, a minimum of one end of trees and logs are lifted clear of the ground
Snag	A dead standing tree lacking live needles or leaves
Special Status Species	Plant or animal species falling in any of the following categories: Threatened or endangered, Proposed threatened or endangered, Candidate species, State listed species, Bureau sensitive species, or Bureau assessment species
SPZ	Stream Protection Zone is a buffer along streams where no material would be removed and heavy machinery would not be allowed. The minimum distance is 50 feet
Succession:	A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant communities that are favorable for the establishment of the next stage. The different stages in succession are often referred to as seral stages
Threatened Species	Those plant and animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future and published in the Federal Register
Topped	Completely severing the upper portion of a standing live tree. The typical purpose for this action is to enhance wildlife habitat by creating snags from standing live trees
Turbidity	Multiple environmental sources which causes water to change conditions
USDI	United States Department of the Interior

USEPA	United States Environmental Protection Agency
Viewshed	The landscape that can be directly seen from a viewpoint or along a transportation corridor
VRM	Visual Resource Management. Lands are classified from 1 to 4 based on visual quality ratings
Watershed	The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake
Wind Throw	Trees uprooted or blown over by wind events
Yarding Corridors	Corridors cut through a stand of trees. Cables are strung in these corridors to transport logs from the woods to the landing

**RICKARD CREEK TIMBER SALE
ENVIRONMENTAL ASSESSMENT**

Table of Contents

1.0	INTRODUCTION	1
1.1	Project Covered in this EA (Environmental Assessment).....	1
1.2	Project Area Location	1
1.3	Conformance with Land Use Plans, Policies, and Programs	3
1.4	Decision Criteria/Project Objectives	5
1.5	Results of Scoping	5
1.6	Purpose of and Need for Action.....	6
2.0	ALTERNATIVE DEVELOPMENT	7
2.1	Alternative 1 (No Action).....	7
2.2	Alternative 2 (Proposed Action)	7
2.2.1	Connected Actions.....	8
2.2.2	Project Design Features	8
2.3	Alternatives Considered but not Analyzed in Detail	12
2.4	Comparison of Alternatives With Regard To Purpose and Need	14
3.0	AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS	15
3.1	Identification of Affected Elements of the Environment	15
3.2	AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS	18
3.2.1	Vegetation	18
3.2.1.1	Alternative 1 (No Action)	20
3.2.1.2	Alternative 2 (Proposed Action).....	20
3.2.2	Soils	21
3.2.2.1	Alternative 1 (No Action).....	22
3.2.2.2	Alternative 2 (Proposed Action).....	22
3.2.3	Water.....	24
3.2.3.1	Alternative 1 (No Action)	26
3.2.3.2	Alternative 2 (Proposed Action).....	26
3.2.4	Fisheries/Aquatic Habitat	28
3.2.4.1	Alternative 1 (No Action)	29
3.2.4.2	Alternative 2 (Proposed Action).....	29
3.2.5	Wildlife	32
3.2.5.1	Alternative 1 (No Action)	34
3.2.5.2	Alternative 2 (Proposed Action).....	34
3.2.6	Fuels/Air Quality	36
3.2.6.1	Alternative 1 (No Action)	36
3.2.6.2	Alternative 2 (Proposed Action).....	36
3.2.7	Recreation/Rural Interface/VRM.....	38
3.2.7.1	Alternative 1 (No Action)	38
3.2.7.2	Alternative 2 (Proposed Action).....	38
4.0	CUMULATIVE EFFECTS	39
4.1	Vegetation.....	39
4.2	Soils.....	40
4.3	Water.....	40
4.4	Fisheries/Aquatic Habitat	41
4.5	Wildlife	42
4.6	Recreation.....	42
5.0	COMPLIANCE WITH THE AQUATIC CONSERVATION STRATEGY	42

6.0	LIST OF PREPARERS.....	47
7.0	CONTACTS AND CONSULTATION	47
7.1	Agencies, Organizations, and Persons Consulted (ESA Section 7 Consultation).....	47
7.2	Cultural Resources - Section 106 Consultation and Consultation with State Historical Preservation Office	48
7.3	Public Scoping and Notification-Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices.....	48
7.3.1	30-day public comment period	48
8.0	MAJOR SOURCES AND COMMON ACRONYMS	49
8.1	Major Sources	49
8.1.1	Interdisciplinary Team Reports.....	49
8.1.2	Additional References	49
9.0	RESPONSE TO SCOPING COMMENTS	50
9.1	Summary of comments and BLM responses.....	50
9.1.1	<i>Oregon Natural Resource Council (June 26, 2005)</i>	50
10.0	APPENDIX A – MARKING GUIDE FOR COMMERCIAL THINNING.....	51
11.0	APPENDIX B NORTH AND CENTRAL COAST RANGE PHYSIOGRAPHIC PROVINCE MAP	53

1.0 INTRODUCTION

1.1 Project Covered in this EA (Environmental Assessment)

One project will be analyzed in this EA. The Rickard Creek Timber Sale Project is a proposal to perform regeneration harvest on approximately 87 acres of stands which are about 77 years old within GFMA (General Forest Management Area); commercial thinning on approximately six acres of a 60 year old stand within GFMA; and density management on approximately 21 acres of 60 and 75 year old stands within RR (Riparian Reserve) LUAs (Land Use Allocations).

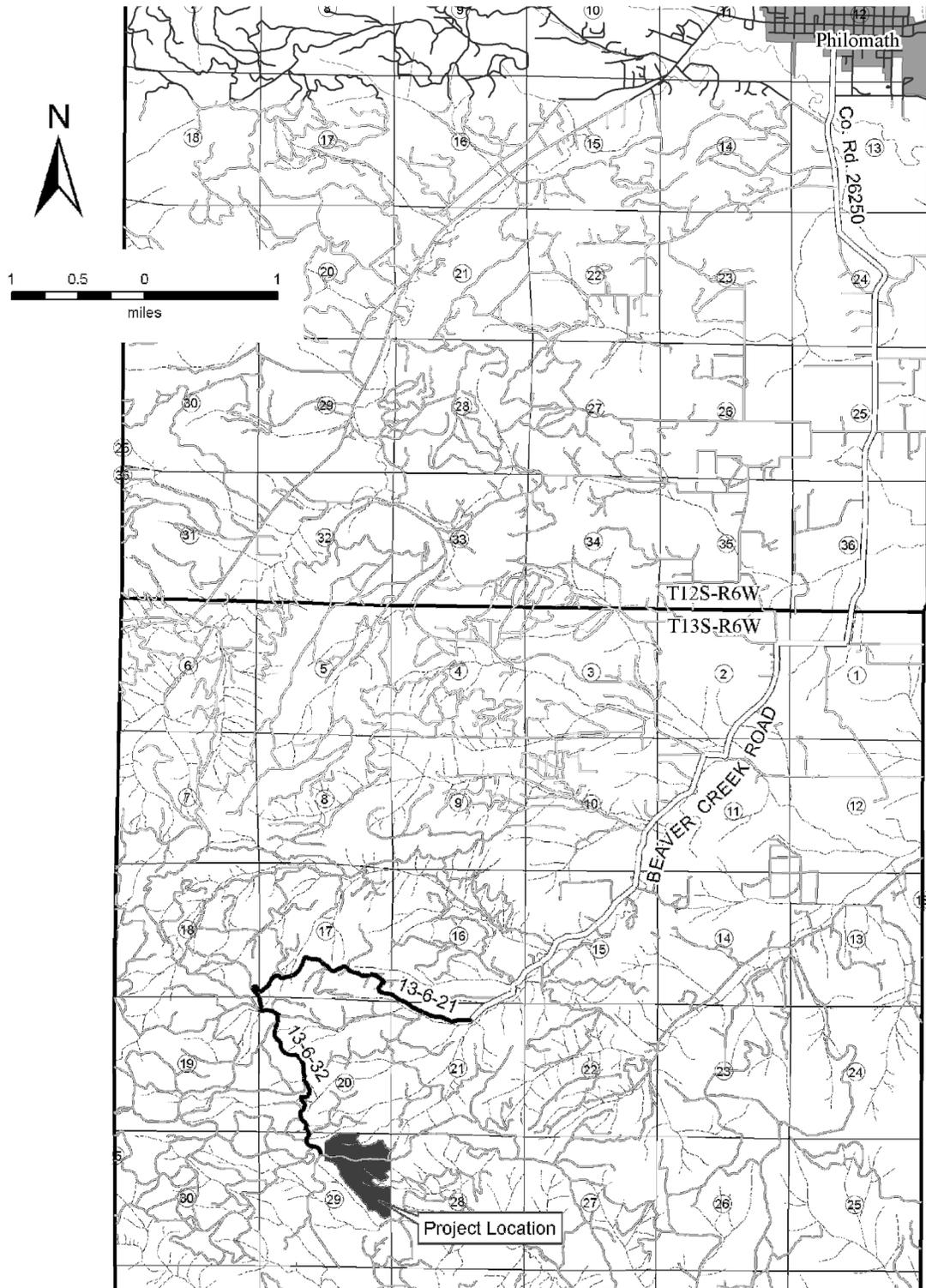
1.2 Project Area Location

The project area is located approximately nine air miles southwest of Philomath, Oregon, in Benton County on forested land managed by the Marys Peak RA (Resource Area), Salem District BLM (Bureau of Land Management). The project area lies within the Marys River Watershed and is within Township 13 South, Range 6 West, Section 29, Willamette Meridian (Map 1).

Map 1: Vicinity Map

5/12/2005

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Rickard Creek Vicinity Map
Section 29, T.13 S., R.6 W., W.M. - Salem District, Oregon



1.3 Conformance with Land Use Plans, Policies, and Programs

The Rickard Creek Timber Sale Project has been designed to conform to the following documents, which direct and provide the legal framework for management of BLM-managed lands within the Salem District:

- *Salem District Record of Decision and Resource Management Plan (RMP)*, May 1995: The RMP has been reviewed and it has been determined that the Rickard Creek Timber Sale Project conforms 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 this project (RMP p.1-3);
- *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.
- *Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl* (July 2007). The decision is consistent with the Northwest Forest Plan, including all plan amendments in effect on the date of the decision. The EA analysis here tiers to that of the Northwest Forest Plan and supporting environmental impact statements in effect on the date of the decision.

The analysis in the Rickard Creek Timber Sale Project EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement (RMP/FEIS)*, September 1994 and the *2007 Final Supplement to the 2004 Final Supplemental Environmental Impact Statement to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines* (June 2007). 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 proposed action is located outside the coastal zone as defined by the Oregon Coastal Management Program.

The following document provided additional direction in the development of the Rickard Creek Timber Sale Project: *Benton Foothills Watershed Analysis (BFWA)*, USDI BLM, 1997. This document is available for review in the Salem District Office. Additional information about the proposed project is available in the Rickard Creek Timber Sale Project EA Analysis File (NEPA file), also available at the Salem District Office.

Survey and Manage Review

The Marys Peak RA 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 EIS (*Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines*, January, 2004) inadequate. The RA is also aware of the recent January 9, 2006, Court order which:

- set aside the 2004 SSSP ROD (*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) and

- reinstate the 2001 S&M ROD (*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), 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.

“On July 25, 2007, the Under Secretary of the Department of Interior signed the Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Forest Service Land and Resource Management Plans Within the Range of the Northern Spotted Owl that removed the survey and manage requirements from all of the BLM resource management plans (RMPs) within the range of the northern spotted owl. In any case, I have designed this project to be consistent with the 2001 Survey and Manage ROD as modified by subsequent annual species reviews as allowed by the modified October 11, 2006 injunction.”

Compliance with the Aquatic Conservation Strategy

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

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

Previously, in *Pacific Coast Fed. Of Fishermen's Assn. v. Natl. Marine Fisheries Service*, 265 F.3d 1028 (9th Cir. 2001)(*PCFFA II*), the United States Court of Appeals for the Ninth Circuit ruled that because the evaluation of a project's consistency with the long-term, watershed level ACS objectives could overlook short-term, site-scale effects that could have serious consequences to a listed species, these short-term, site-scale effects must be considered. Section 5.0 of the EA shows how the Rickard Creek Timber Sale Project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II.

1.4 Decision Criteria/Project Objectives

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

- Meet the purpose and need of the project (EA Section 1.6)
- Comply with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM-managed lands within the Salem District (EA Section 1.3)
- Would not have significant impact on the affected elements of the environment beyond those already anticipated and addressed in the RMP EIS.

1.5 Results of Scoping

A scoping letter, dated May 19, 2005, was sent to 55 potentially affected and/or interested individuals, groups, and agencies. Two responses were received during the scoping period.

Starker Forests Inc. (May 24, 2005)

Starker Forests Inc. provided the following statement:

- *As a nearby landowner, Starker Forests, Inc. is encouraged to see you actively manage the BLM holdings. We have no specific concerns about the proposed sale.*

Oregon Natural Resources Council (June 26, 2005)

Oregon Natural Resources Council provided the following statements or requests:

- *Regen harvest is far worse than thinning in terms of habitat destruction and fragmentation, soil erosion, soil compaction, degraded soil foodweb, risk of degraded water quality, edge effects including blowdown, rain-on-snow effects including peak flows, degraded scenic values, release of sequestered carbon pools, and increased fire hazard.*
- *Are there no other thinning opportunities in the area? Why are the 91 acres of 70-80 year old stands not suitable for thinning?*
- *Obviously, there is discretion in the Northwest Forest Plan to do clearcut logging on GFMA lands. However, the Northwest Forest Plan does not require clearcut logging to meet timber targets.*
- *While we may be willing to accept some short temporary spurs, the reality is that across most tracks of federal forestland in Oregon, road densities are high and out of compliance with guidelines or recommendations designed to reduce harassment of wildlife or protection of water quality.*
- *The ROD clearly states that the 240 linear feet of logs per acre greater than or equal to 20 inches in diameter standard is to be used until better, vegetation-type specific standards are developed. This model is currently available. BLM should use the DecAID decision support tool and consider all the many values of snags and down wood.....*

1.6 Purpose of and Need for Action

General Forest Management

The purpose of this timber harvest is as follows:

- To contribute to both the immediate and long-term sustainable supply of timber and other forest products which would contribute to local and state economic diversity, as described in the RMP (pp. 20 and 46-48) while maintaining future forest management options and protecting other resource values.
- To perform commercial thinning on suitable managed timber stands to promote tree growth and survival (RMP p. 46 and 48).
- To perform regeneration harvest on stands which have reached or are close to reaching Culmination of Mean Annual Increment (CMAI) (typically between 70 and 110 years of age) to produce maximum average annual growth over the lifetime of the timber stand and develop a desired age class distribution across the landscape (RMP p. 48).

The need for regeneration is based on the growth model (SPS) that indicates that the stand which is about 77 years in old in 2008 reached CMAI at about age 76. According to the RMP, a regeneration harvest is appropriate for stands that have reached CMAI in the approximate age of 70 to 110 years. The need for commercially thinning the 60 year-old stand is established through a stand exam indicating a dense stand with slowing growth. Growth modeling (SPS) show the stand can be released for better growth and stand health.

Riparian Reserve Management

The purpose of the density management timber harvest in the RR is as follows:

- To restore large conifers in the RRs (RMP p. 7)
- To improve structural and spatial stand diversity on a site-specific and landscape level in the long-term (RMP D-6).

The 75 year old stand has reached CMAI. The stand exam indicates that both stands are dense and their growth has slowed. The growth modeling (SPS) indicates limited acceleration in growth from density management in the 75 year old stand. There is a need to remove younger stems around dominant and remnant trees to create structural diversity and early seral habitat in small gaps within the density management area.

Road Management

The purpose of the road management as follows:

- To provide an adequate transportation system to manage timber resources and serve other management needs on federal, State and private lands in a safe and environmentally sound manner (RMP pp. 62).

Timber harvesting requires road access for the harvest operations. The current road system has culverts in need of replacement and inadequate road drainage in some places. There is a need to construct roads to access the timber stand and to renovate/improve the current road system.

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 Alternative 1 (No Action) and Alternative 2 (Proposed Action).

2.1 Alternative 1 (No Action)

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.

2.2 Alternative 2 (Proposed Action)

This project consists of:

- Conducting density management on approximately 21 acres of 60 and 75 year old stands within RR LUA. The boundary of Riparian Reserves is a distance of two site potential tree heights (420 feet) from fish bearing streams and one site potential tree height (210 feet) from non fish bearing streams.
- Conducting commercial thinning on approximately six acres of 60 year old stands within GFMA LUA, and
- Conducting regeneration harvest on approximately 87 acres of stands which are about 77 years old within GFMA LUA. Within the regeneration harvest unit, between 9 and 11 trees per acre would be reserved from harvest to meet the following objectives:
 - ✓ minimize the potential deficit of large hard snags and down logs in the post-harvest stand and
 - ✓ provide for structural diversity and wildlife values in the post-harvest stand.

This project would occur through a timber sale (Rickard Creek). Within the density management area, gaps would be created around dominant trees to create structural diversity. Trees within the commercial thinning area would be thinned to an average basal area of 130 square feet per acre. Trees would be skyline yarded on approximately 74 acres and ground based yarded on approximately 40 acres. New road construction, road renovation and road decommissioning on new and some renovated roads are also a part of the proposed action.

2.2.1 Connected Actions

1. Road Work:

Road Construction: Road construction totaling approximately 2,990 feet would occur. Approximately 2,320 feet (P1 spur) would be surfaced with 6 to 8 inches of rock and 670 feet (P2 spur) would receive no surfacing. Following harvest all of the new construction would be decommissioned.

Road Renovation: Road renovation totaling approximately 16,330 feet would occur. Approximately 15,900 feet of existing Roads 13-6-21, 13-6-32 and 13-6-29.1 would be surfaced with 4 to 8 inches of rock. Approximately 430 feet (R1 spur) would receive no surfacing. Three culverts would be replaced on Road 13-6-21 and one culvert would be installed on Road 13-6-32. Following harvest approximately 2,800 feet of Road 13-6-29.1 would be decommissioned.

2.2.2 Project Design Features

The following is a summary of the design features that reduce the risk of effects to the affected elements of the environment described in EA Section 3.1.

Table 1: 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 to April 15	Yarding outside of road right of ways in commercial thinning and density management areas (cable)	Protecting the bark and cambium of residual trees
During periods of low precipitation, generally May 1 to October 31	Road Construction/renovation/decommissioning	Minimize soil erosion
During periods of low soil moisture, generally July 15 to October 15	Ground based yarding (Tractor)	Minimize soil erosion/compaction
During periods of low soil moisture, generally June 15 to October 31	Ground based yarding (Harvester/Forwarder) and (Hydraulic Loader) and machine chipping and/or piling	Minimize soil erosion/compaction
July 1 to August 31	In-stream work period (culvert installation and/or removal)	Minimize soil erosion/stream sedimentation
June 15 to October 15	Hauling over unsurfaced roads	Minimize stream sedimentation

Project Design Features by RMP Objectives

To contain and/or reduce noxious weed infestations on BLM-managed lands using an integrated pest management approach:

- ✓ All soil disrupting equipment moved into the project area from outside the north and central Oregon Coast Range Physiographic Province (see map in Appendix B) or moved into the project area from known Oregon Department of Agriculture "A" designated weed infestation areas would be required to be clean of dirt and vegetation as directed by the contract administrator.

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:

- ✓ 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).
- ✓ Ground based yarding would take place generally on slopes less than 35 percent.
- ✓ Within ground based yarding areas, existing skid trails would be used as much as practical.
- ✓ Harvester/forwarder use would require that logs 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.
- ✓ Other ground based yarding equipment could be utilized as long as it meets best management practices and results in equivalent or less than the level of impacts analyzed for the project.
- ✓ Waterbars would be constructed where they are determined to be necessary by the contract administrator.
- ✓ 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.
- ✓ During periods of heavy rainfall, the contract administrator may restrict log hauling where the road surface is deeply rutted or covered by a layer of mud and where runoff from that road segment is causing a visible increase in turbidity to adjacent streams. To minimize water quality impacts, the purchaser may also be required to install silt fences, barkbags, or additional road surface rock.
- ✓ All large areas of exposed mineral soil (roads to be constructed, cat/skid roads, landings), as determined by the contract administrator would be grass seeded with Oregon Certified (blue tagged) red fescue (*Festuca rubra*) as a rate equal to 40 pounds per acre or sown/planted with other native species as approved by the resource area botanist.

To meet the objectives of the “Aquatic Conservation Strategy (ACS)” RRs (ACS Component #1):

- ✓ Stream protection zones (SPZs) where no cutting is permitted, would be established along all streams and identified wet areas within the harvest area. These zones would be a minimum of approximately 50 feet from the high water mark.
- ✓ To protect water quality, all trees within one tree height of SPZs would be felled away from streams. Where a cut tree does fall within a SPZ, the portion of the tree within the SPZ would remain in place.
- ✓ No yarding would be permitted in or through any SPZs within the harvest area

To protect and enhance stand diversity and wildlife habitat components:

- ✓ Priorities for tree marking within the commercial thinning areas would be based on Marking Guidelines (see Appendix A).
- ✓ Within density management and commercial thinning areas, (except in yarding corridors/skid trails or where they pose a safety risk), species diversity would be maintained by reserving all trees (merchantable and non merchantable) other than Douglas fir.

- ✓ Within density management and commercial thinning areas, all open grown trees with high wildlife value, existing snags and CWD (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.
- ✓ Within density management areas, inputs of CWD would be achieved by indirect harvest activities (e.g. breakage, limbs and tops). In addition up to two trees per acre that are intended to be part of the residual stand but are incidentally felled or topped (i.e. tailtrees, intermediate supports, guyline anchors, hang-ups) would be left on site to function as CWD. The trees which are intended to be retained as CWD would be stand average diameter breast height outside bark (DBHOB) or larger. .
- ✓ Three to five years after harvest operations have been completed within the density management area, CWD would be evaluated and a decision made as to whether more is needed.
- ✓ Within the density management areas, trees within 60 to 80 feet of dominant overstory trees would be cut (gap created). These gaps would average up to one per two acres. The cut trees would be harvested.
- ✓ Within the regeneration harvest unit, between 9 and 11 trees per acre would be reserved from harvest to meet the following objectives:
 - Green Tree Retention. Six to eight conifer trees per acre, (representative of the co-dominant and dominant trees), would be retained to provide for structural diversity and wildlife values in the post-harvest stand. Preference in green tree selection would be given for those trees located safely away from landings and right-of-ways, and for the oldest trees, or trees with complex structure, crown defects, deeply furrowed bark, or which have visible nest structures.
 - Future snags and down logs. Two conifer trees per acre would be retained to minimize the potential deficit of large hard snags and down logs in the post-harvest stand. Site preparation and post harvest processes (e.g. wind, bugs, disease) would likely convert some or all of this allotment into snags and down logs within the first decade.
 - Habitat Diversity. Up to one hardwood tree per acre (primarily large big-leaf maples) would be retained to provide for post harvest wildlife habitat diversity. All other hardwoods would be felled and could be removed.
- ✓ Within the regeneration harvest unit, all existing down logs in decay class 3 to 5 (see Figure 1) would be retained where possible. Down logs in decay class 1 and 2 that are greater than 20 inches DBHOB on the large end would be retained.
- ✓ Within the regeneration harvest unit, all existing snags greater than 12 inches DBHOB would be retained on site except where they pose a threat to on-site workers or are within rights-of-ways and landings. Within a minimum 50 feet distance on the north, west and east sides of the wet area located in the regeneration harvest area all green trees would be retained. Within a minimum 75 feet distance on the south side of the wet area located in the regeneration harvest area all green trees would be retained.

To reduce fire hazard risk, provide proper site preparation and to protect air quality:

- ✓ Whenever possible, alternative waste recycling of slash material would be encouraged. This may be accomplished by: providing firewood to the public, chipping for co-gen power production, chipping for soil amendments, soil protection, etc.
- ✓ In the regeneration harvest area debris accumulations within the ground based yarding area would be machine piled and/or chipped. For all areas to be piled or chipped, at least 75

percent of the slash in the ¼ inch to 6 inch diameter range would be piled for burning or chipped with the chips being spread out on the site or removed from the site. All piles would be located at least ten 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 contract administrator.

- ✓ For areas that are to be machine piled or chipped, mechanical equipment would remain on slopes averaging 35 percent or less (unless the equipment is specifically designed to operate on steeper slopes and approved by the contract administrator).
- ✓ Approximately 9,000 feet of hand fire lines would be constructed along regeneration harvest boundaries where broadcast burning would occur.
- ✓ Approximately 5,000 feet of 50 foot wide fuel free zones would be created along regeneration harvest boundaries or along adjacent commercial thinning boundaries.
- ✓ Within the regeneration harvest area following yarding, all remaining brush taller than two feet would be cut (slashed).
- ✓ Within the regeneration harvest area, pull back of logging debris within five feet from reserved trees would be required.
- ✓ Within the regeneration harvest area, logging slash and brush would be broadcast burned in the skyline yarding area.
- ✓ During the late summer, before the onset of fall rains, all machine piles to be burned would be covered at least 80 percent with 4 mil (minimum thickness) black polyethylene plastic.
- ✓ Pile burning would occur under favorable smoke dispersal conditions in the fall. Broadcast burning would occur under spring-like conditions. All burning would be in compliance with the Oregon Smoke Management Plan (RMP pp. 22, 65).
- ✓ The areas would be monitored for the need of closing or restricting access during periods of high fire danger. During the closed fire season the first year following harvest activities, while fuels are in the “red needle” stage, the areas may be posted and closed to all off road motor vehicle use.

To provide proper reforestation in regeneration harvest area:

- ✓ Following site preparation, the regeneration harvest area would be planted with a mixture of Douglas-fir, western hemlock, and western red-cedar at a rate of 500 trees per acre.

To protect Threatened and Endangered and Bureau Special Status Plants and Animals:

- ✓ Management of existing known sites of special status species as well as those found as a result of inventories would be accomplished in accordance with the *Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl* (July 2007).
- ✓

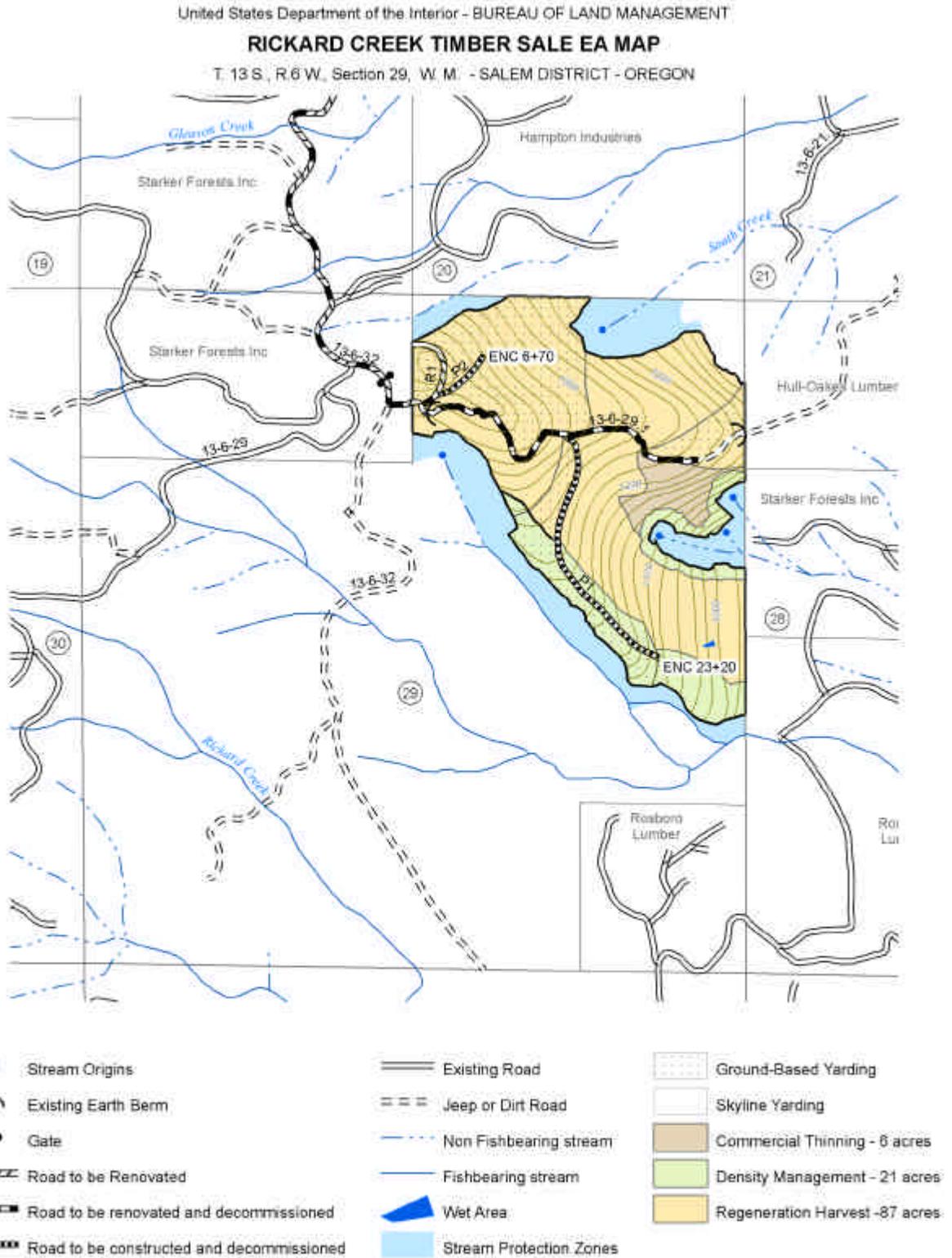
To protect Cultural Resources:

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

2.3 Alternatives Considered but not Analyzed in Detail

Commercially thin the stands rather than implement regeneration harvest: An alternative that would commercially thin the proposed regeneration harvest area was considered. The stands proposed for regeneration harvest have met culmination of mean annual increment (data indicates the stands have produced the maximum average annual growth over the lifetime of a timber stand). Thinning the stands would not meet the purpose and need of the project as the ROD (page 48) states to “schedule regeneration harvests to assure that, over time, harvest will occur in stands at or above the age which produces maximum average annual growth over the lifetime of a timber stand”. Subsequently, this alternative was not analyzed.

Map 2: Map of Alternative 2 (Proposed Action)



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Data was compiled from multiple sources and may not meet U.S. National Mapping Accuracy Standard of the Office of Management and Budget

Feet
 0 350 500 1,000 1,500
 November 19, 2007

2.4 Comparison of Alternatives With Regard To Purpose and Need

Table 2: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA Section 1.6)	No Action (Alternative 1)	Proposed Action (Alternative 2)
Perform commercial thinning on suitable managed timber stands to promote tree growth and survival.	Does not meet this purpose and need. Individual tree growth and survival on suitable managed timber stands would not be achieved.	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.
Contribute to both the immediate and long-term sustainable supply of timber while maintaining future forest management options and protecting other resource values.	Does not meet this purpose and need. No timber harvest would occur under this alternative, thus no contribution to a supply of timber would occur.	Offers approximately 6,100 MBF of timber for sale through six acres of commercial thinning, 21 acres of density management and 87 acres of regeneration harvest.
Perform regeneration harvest on stands which have reached Culmination of Mean Annual Increment to produce maximum average annual growth over the lifetime of the timber stand and develop a desired age class distribution across the landscape.	Does not meet purpose and need. Maximum Mean Annual Increment for the timber stand would not be achieved. This stand would not contribute to the early successional component of the land base.	Creates an 87 acre regeneration harvest area. Achieves maximum mean annual increment for the stand. Harvest 87 acres of mature timber and start a new vigorous growing stand in the early seral age group. Over time, achieve the maximum mean annual increment for the stand.
Accelerate the growth of trees to restore large conifers to RRs, enhance and restore habitat (e.g. CWD, snag habitat) and to improve structural and spatial stand diversity on a site-specific and landscape level in the long-term.	Does not meet purpose and need. Acceleration of growth on large conifers within RRs would not occur. Improved structural and spatial stand diversity would not occur beyond what would occur naturally. A lost opportunity to maintain and improve the structure and vigor of dominant and remnant trees in the riparian reserve area.	Creates patch openings with adjacent clumps of trees. Retains existing limbs on open grown trees through selective cutting of trees. Some larger diameter trees felled for safety or operational reasons would be retained for CWD. Increases the quality and value of wildlife habitat.
Provide an adequate transportation system to manage timber resources and serve other management needs in a safe and environmentally sound manner	Road construction and renovation is not needed under No Action Alternative.	Renovation of approximately 15,900 feet of road and road construction of approximately 3,000 feet of new road would occur providing access to timber.
	Delay maintenance on feeder roads (13-6-32 and 13-6-29.1), the Beaver Creek road (13-6-21) would be maintained.	Four culverts would be replaced and rock would be added to the haul route which leads to less erosion.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 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 3 (“Critical Elements of the Human Environment”) and Table 4 (Other Elements of the Environment) summarize the results of that review. Affected elements are **bold**. All entries apply to the proposed action, unless otherwise noted.

Table 3: Review of “Critical Elements of the Human Environment” (BLM H-1790-1, Appendix 5)

“Critical Elements Of The Human Environment”	Status: (i.e., Not Present, Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Air Quality (Clean Air Act)	Affected	Addressed in text EA Section 4.6	Addressed in text (EA Section 3.2.6 and Rickard Creek Timber Sale Report Fuels Report pp. 1 to 7)
ACEC (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 percent.
Energy (Executive Order 13212)	Not Affected	No	There is no known energy resources located in the project area. 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 adverse human health or environmental effects on minority populations and 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	
Invasive, Nonnative Species (plants) (Executive Order 13112)	Affected	Addressed in text EA Section 4.1	Addressed in text (EA Section 3.2.1 and Botanical Report Rickard Creek pp. 1 to 8).
Native American Religious Concerns	Not Affected	No	No Native American religious concerns were identified during the public scoping period.

“Critical Elements Of The Human Environment”		Status: (i.e., Not Present , Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Threatened or Endangered (T/E) Species or Habitat	Fish	Not Affected	No	Because of the distance to listed fish from project activities there would not be an affect on threatened or endangered fish species.
	Plant	Not Present	No	
	Wildlife (including designated Critical Habitat)	Affected	Addressed in text EA Section 4.5	Addressed in text (EA Sections 3.2.5 and Biological Evaluation pp. 1 to 13).
Water Quality (Surface and Ground)		Affected	Addressed in text EA Section 4.3	Addressed in text (EA Section 3.2.3 and Rickard Creek Hydrology Environmental Assessment pp.1 to 9).
Wetlands(Executive Order 11990)		Not Present	No	
Wild and Scenic Rivers		Not Present	No	
Wilderness		Not Present	No	

Table 4: Other Elements of the Environment

Other Elements of the Environment	Status: (i.e., Not Present , Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Fire Hazard/Risk	Affected	Addressed in text EA Section 4.6	Addressed in text (EA Section 3.2.6 and Rickard Creek Timber Sale Report Fuels Report pp. 1 to 7)
Other Fish Species with Bureau Status and Essential Fish Habitat	Not Affected	No	Because of the distance of EFH from project activities there would not be an affect on Other Fish Species with Bureau Status and Essential Fish Habitat
Land Uses (right-of-ways, permits, etc)	Not Affected	No	Agreements are in place and would not be changed by the proposed project.
Late-Successional and Old-Growth Habitat	Not Present	No	
Mineral Resources	Not Present	No	
Recreation	Affected	Addressed in text EA Section 4.7	Addressed in text (EA Section 3.2.7 and Recreation/Rural Interface/VRM Report pp. 1 to 5).

Other Elements of the Environment		Status: (i.e., Not Present , Not Affected, or Affected)	Does this project contribute to cumulative effects? Yes/No	Remarks
Rural Interface Areas		Not Present	No	
Soils		Affected	Addressed in text EA Section 4.2	Addressed in text (EA Section 3.2.2 and Rickard Creek Timber Sale Soils Report pp. 1 to 8).
Special Areas outside ACECs (Within or Adjacent) (RMP pp. 33 to 35)		Not Present	No	
Other Special Status Species/Habitat	Plants	Not Affected	No	This project would not directly affect any T&E or Bureau special status vascular plant, lichen, bryophyte or fungi species since there are no known sites within the project area or adjacent to the project.
	Wildlife	Not Affected	No	No known SSSP wildlife species are known to occur within the planned harvest areas.
Visual Resources		Affected	Addressed in text EA Section 4.7	Addressed in text (EA Section 3.2.7 and Recreation/Rural Interface/VRM Report pp. 1 to 5).
Water Resources – Other [303d listed streams, DEQ (Department of Environmental Quality) 319 assessment, Downstream Beneficial Uses; water quantity, Key watershed, Municipal and Domestic]		Affected	Addressed in text EA Section 4.3	Addressed in text (EA Section 3.2.3 and Rickard Creek Hydrology Environmental Assessment pp. 1 to 9).
Wildlife Structural or Habitat Components - Other (Snags/CWD/Special Habitats, road densities)		Affected	Addressed in text EA Section 4.5	Addressed in text (EA Section 3.2.5 and Biological Evaluation pp. 1 to 13).

3.2 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, fuels/air quality, and recreation/visual resources*. This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

3.2.1 Vegetation

(IDT Reports incorporated by reference: Rickard Creek Silviculture Riparian abstract pp. 1 to 6, Botanical Report Rickard Creek pp. 1 to 8)

Affected Environment

Structure/Species Composition

A single story stand is present over most of the regeneration harvest area and over the entire density management area along the southwest side of the project area. This stand is about 77 years old in 2008. Douglas-fir is the primary species with scattered hardwoods also present in the stand. Scattered throughout the project area are remnant old-growth (less than 200 years old) and several large Douglas-fir of similar age or slightly older than the majority of the stand. A six acre two-story stand is present within the regeneration harvest area along the western edge. This six acre stand is also about 77 years old but it has a component of these larger diameter mature trees. These stands have not received intensive management and the 2003 updated forest survey indicates slowing growth rates. The SPS growth model indicated these stands reached the culmination of mean annual increment at about age 76. Stand inventory found that coarse woody debris (CWD), including snags and down logs are present in moderate amounts for a stand of this age (see Table 5).

A single story 60 year old stand is present within the commercial thinning area and along the east side of the density management area. Douglas fir is the primary species in this stand although scattered hardwoods are also present. Scattered dominant Douglas-fir are present in this stand. There is very little coarse woody debris (CWD) in this stand, and most of the CWD consist of hardwoods.

Most of the ground cover on the project area is moss with scattered salal and sword fern.

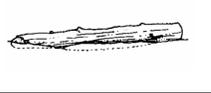
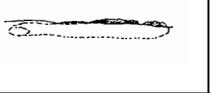
Table 5 - Summary of Stand Details

Stand	Trees per/Acre (All Species)	Relative Density ¹ percent	Crown Closure ² percent	Crown Ratio ³ percent	Snags /Acre (Conifer)	CWD-Ft4./ Acre (Conifer)	CWD-Ft4./ Acre (Hardwoods)
Regeneration Harvest and West portion of Density Management	130	59	78	35	32	4211 DC-1 to 5	526 DC-1 to 5
Commerical Thinning and East Portion of Density Management	226	70	78	25	28	586 DC-1 to 4	586 DC-3

1. Relative Density (RD) is a ratio of trees in a given stand compared with the number of trees a site can support.

2. Canopy Closure is the average percent of the crown blocking light from the stand.
3. Crown ratio is the amount of live crown in relation to total tree height.
4. Course Woody Debris (CWD)- See **Figure 1** for a description of decay classes.

Figure 1: Down Tree and Down Woody Material Decay Class Condition Codes

					
Log Decomposition Class	1	2	3	4	5
Bark	Intact	Intact	Trace	Absent	Absent
Twigs	Present	Absent	Absent	Absent	Absent
Texture	Intact	Intact to soft	Hard, large pieces	Soft, blocky pieces	Soft, powdery
Shape	Round	Round	Round	Round to oval	Oval
Color of wood	Original	Original	Original to faded	Light brown to faded brown	Faded to light yellow or gray
Bole portion on ground	None, elevated on supports	Parts touch, still elevated	Bole on ground	Partially below ground	Mostly below ground

There is a small (less than 35 feet by 50 feet) water feature within the southern project area that is indicated on the project map as a vernal pond. This water feature is dominated by the slough sedge and immediately surrounded by robust salal. The presence of these two species growing closely together indicates a fairly abrupt transition period from wet to dry. Within the center of the area dominated by the slough sedge is a small area, approximately 10 feet by 10 feet dominated by the moss *Fontinalis antipyretica*. This moss generally indicates perennial water or where the soil remains saturated during all portions of the year. In years with below average precipitation, this pond area probably dries up. *Fontinalis antipyretica* is fairly common and widespread in western Oregon in perennial lakes, ponds and rivers and can tolerate short seasonal dry periods. There is nothing unique about this very small water feature and there are no unique habitat areas (caves, cliffs, meadows, waterfalls, ponds, lakes) within the proposed project area.

Bureau Special Status Botanical and Fungal Species

Inventory of the project area for Bureau special status vascular plant, lichen, bryophyte and fungal species were accomplished through intuitive controlled surveys in accordance with survey protocols for the specific groups of species.

There are no known sites of any or Bureau special status vascular plant, lichen, bryophyte or fungi species within the project area nor were any found during subsequent surveys.

Invasive/Non-native Plant Species (including Noxious Weeds):

The following noxious weeds are either within or adjacent the project area, Tansy ragwort, bull and Canadian thistles, St. John’s wort, and Scot’s broom.

Environmental Effects

3.2.1.1 *Alternative 1 (No Action)*

By not conducting regeneration harvest, early seral conditions would not be created. A young vigorous growing stand would not be established and this stands contribution to a well distributed pattern of early, mid and late successional forest across GFMA on federal lands without the proposed action would not occur. Mean annual increment would continue to slow which means growth will continue to decrease.

By not conducting the commercial thinning, the growth of individual trees would be slow compared to the proposed action. The sparse ground-cover and single canopy conditions would remain until the stand becomes stagnant or natural processes (diseases, insects, blowdown etc.) open up the stand. If the stand approached stagnation, the stand would have less vertical structure and poor height to diameter ratio than the managed stand due to the past crowded stand conditions. The residual trees would not be as vigorous as the managed stand with reduced crown size. The stand would likely develop more slowly than in a thinned stand, resulting in slower attainment and possibly not reaching the desired tree diameter, crown and wood quality for GFMA objectives now or in the future.

Deferring the density management treatment would result in the delay in enhancement and maintenance of some dominant and remnant trees (removing nearby trees in 0.25 acre gaps) and the improvement of stand structure in the RR LUA.

The *Fontinalis* moss species that occurs within the water feature within the project area would be unaffected by the proposed project.

Bureau Special Status Botanical and Fungal Species

No difference from the proposed action, since no known sites exist within the project area.

Invasive/Non-native Plant Species (including Noxious Weeds):

Without any new human caused disturbances, the established noxious weed populations would remain low.

3.2.1.2 *Alternative 2 (Proposed Action)*

Regeneration harvest followed by site preparation and planting would provide early seral conditions and establish a new vigorous growing conifer stand. Retention of nine to 11 legacy and dominate trees along with some hardwoods and CWD for structure in the future stand.

Commercial thinning would remove suppressed and some co-dominant trees. This action would open the currently dense canopy allowing more light for tree and shrub growth. This would increase ground cover growth, and allow for development of vertical and horizontal structure in the stand while accelerating individual tree growth. Removal of cut trees would reduce favorable conditions for Douglas-fir bark beetle infestations.

Trees with 25 percent or greater crown ratio can be expected to respond to a thinning treatment. Growth modeling indicates thinning would increase individual tree growth. If thinned, an increase in the average diameter and quality of tree, and the death of fewer trees would occur before regeneration harvest of the stand. Thinned stands are expected to have an average DBHOB of seven inches greater than un-thinned stands at eighty years of age.

Density management in both the 60 and 75 year old stand through the creation of small gaps around dominant and remnant trees would create stand structural diversity. Cutting trees that are adjacent to remnant trees would be designed to restore available light and growing space to the declining live crown of the remnant trees while maintaining existing snags, minor tree species, and shrubs.

If the implementation of the project causes the wet area to become dry for extended periods (see water report), the *Fontinalis* moss species could be replaced by upland moss species or vascular vegetation. *Fontinalis* moss is generally restricted to perennial aquatic systems, however it can withstand dry periods as it is often located stranded adjacent receding lakes and ponds in mid to late summer. It is not known how long this moss species can survive in dry habits. *Fontinalis* moss is a common aquatic moss and the loss of this species in this small area would not lead to its listing as a special status species.

Bureau Special Status Botanical and Fungal Species

This project would not directly affect any Bureau special status vascular plant, lichen, bryophyte or fungi species since there are no known sites within the project area or adjacent to the project.

This project could affect Bureau special status species that were not located during inventories of the project area. These species would mainly include special status fungi species or other species that were determined to be not practical to survey for. However, the majority of these species have no known sites within the Marys Peak Resource Area or the Northern Oregon Coast Range mountains.

Invasive/Non-native Plant Species (including Noxious Weeds):

Any adverse effects from the establishment of Canadian and bull thistles, St. John's wort, tansy ragwort, Himalayan blackberry, and Scot's broom within or near the project area are not anticipated. The risk rating for the long-term establishment of these species and consequences of adverse effects on this project area is low because:

- 1) the implementation of the Marys Peak integrated non-native plant management plan allows for early detection of non-native plant species which allows for rapid control,
- 2) the known noxious weeds species which occur in the project area are regionally abundant throughout the Oregon Coast Range Physiographic Province, and control measures generally consist of biological control,
- 3) generally these species often persist for several years after timber harvest but soon decline as native vegetation increases within the project areas, and
- 4) there are no other Oregon listed noxious weed species that are anticipated to become established with the implementation of this project and design features. In addition, all road construction and road maintenance areas would be monitored for Scot's broom infestations and eradicated. Other species would be eradicated as funding allows. Monitoring newly constructed roads would provide for early detection and allow for a rapid response to remove any non-native species of concern.

3.2.2 Soils

(IDT Reports incorporated by reference: Rickard Creek Timber Sale Soils Report, pp. 1 to 8)

Affected Environment

The predominant soil series on and around the project area are Honeygrove and Hemcross. Slopes on most of the skyline yarding areas vary from 30 percent to 50 percent; a few included areas have slopes up to 60 percent for short distances. Slopes on the ground based yarding areas vary from five percent to 35 percent.

Moderate to heavily 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. Less than three percent of the proposed project area is occupied by distinguishable skid trails. The old skid trails have trees and brush growing in them and have partially recovered. The skid trails and old haul roads are generally less than 12 feet in width so the timber stands are fully occupied by tree canopies.

The existing rocked road surfaces within the proposed project area are stable. A few sections of natural surfaced roads show signs of limited surface erosion where surface water accumulates and runs down the compacted road surface. No areas were found that had a high risk of contributing large amounts of sediment to streams through surface erosion or mass failure.

The major management concern with the soils is their sensitivity to compaction when moist or wet and its subsequent reduction in infiltration rate when compacted. On steeper sites (greater than 25 percent) run off rates and hazard of erosion can be high for bare soil.

Environmental Effects

3.2.2.1 *Alternative 1 (No Action)*

This alternative would result in no change to the affected environment. Short-term impacts to soils would be avoided. Without road renovation (culvert replacements), some project area roads would continue to redirect surface flows, causing soil erosion and potentially resulting in sedimentation into nearby streams.

3.2.2.2 *Alternative 2 (Proposed Action)*

Compaction and disturbance/displacement of soil

Roads: Constructing 3,000 feet of new roads would result in loss of top soil and compaction of sub-soil on approximately 1.5 acres (about 1.3 percent of the total project area). The area currently is forested land that would be converted to non-forest. The roads to be constructed would be located on gentle topography so the total width of the clearing would be around 20 feet. This narrow clearing would have a very minimal affect on the overall tree spacing and stocking. All of the new construction and approximately 2,700 feet of Road 13-6-29.1 would be decommissioned and blocked to vehicle traffic following harvest, so some recovery back to a forested condition would occur in this area over time. The new road construction within the RR LUA (Road P1) would be located outside the drainage area of a stream so no erosion from the road surface is expected to reach the stream.

Spot road renovation of existing roads would result in no change in amount of current non-forest land. The renovations would provide better drainage and road surface conditions, resulting in less road surface erosion into the surrounding area or streams. The renovation work is expected to result in some minor short-term roadside erosion where established vegetation in the ditch and culvert catchment areas are removed during the cleaning and reshaping or culvert installment operations. Litter fall accumulations and growth of vegetation generally re-establishes within two seasons and erosion rates return to near natural 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 should result in less future erosion.

Logging: Following completion of the proposed action, the majority of understory vegetation and root

systems would remain, along with surface soil litter and slash from harvested trees. Expected amounts of surface soil displacement, surface erosion, and dry ravel resulting from harvest operations would be minimal in the skyline yarding areas. Some additional soil displacement and compaction can be expected in the ground based yarding area. Skyline yarding corridors usually result in light compaction of a narrow strip (less than 4 feet in width) where there would be adequate slash on the ground in the corridors to yard over. Measurable long-term effects on site productivity from this type of disturbance are minimal to none.

Ground based yarding impacts would vary depending on:

- whether a harvester/forwarder system or crawler tractors are used;
- how dry the soils are when heavy equipment operates on them and,
- how deeply covered with slash the soils in the skid roads are.

If yarding is done using crawler tractors for the entire ground based yarding area, expect moderate to heavy degree of soil compaction and a moderate amount of top soil displacement to occur in skid trails and at landings. If a harvester/forwarder system is used for the entire ground based yarding area very little or no top soil loss or displacement would occur and soil compaction is light to moderate.

Additional soil compaction can be expected to result from this project. Approximately 1.2 acres in landings and 2.6 acres in skid trails would be disturbed. Some of the potentially impacted acreage listed above, includes already existing skid roads from previous logging in the late 1930 to 1940 period. As a result, the amount of acreage for new harvest impacts would be less than the totals listed above resulting in a cumulative detrimental disturbance level of 3.3 percent. The aerial extent and degree of disturbance would remain within accepted district guidelines of less than 10 percent.

Landings: Approximately 29 landings would be needed to harvest the project area. Seventeen landings would be used for cable yarding (four would be used for both cable and ground based yarding). Eight landings would be used for ground based yarding. About half of the surface area used for landings would be the existing road surface. Some additional ground adjacent to the road surface is used to turn equipment around on and to sort and deck logs until transport. Areas where equipment turns or backs around on multiple times would experience heavy compaction and disturbance to the top soil layer.

The estimated reduction in growth rate for trees on moderate to severely impacted areas is 15 to 30 percent during the first 10 to 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 skyline yarding trails and small landings. If topsoil loss/displacement/compaction is severe or more broadly based in aerial extent, then the negative effects would be more pronounced and longer lasting.

Site Productivity

Any disturbance of these soils would not be expected to measurably affect long-term productivity of the site but may lead to some short-term effects to vegetation composition and/or water quality.

Skyline Yarding: The trees in the project area have ample crowns, so there should be adequate slash on the ground to yard over. The effect on overall site productivity from light compaction is expected to be low (no measurable reduction in overall yield for the project area).

Ground Based Yarding: For harvester/forwarder systems, soil impacts in skid trails are expected to result in light to moderate compaction. The trees in the project area have ample crowns, so there should be adequate slash on the ground to yard over. The effect on overall site productivity from light to moderate compaction would result in no expected measurable reduction in overall yield for the project area.

For tractor yarding (plus all landings), soil impacts are expected to result in moderate to heavy, fairly continuous compaction within the landing areas and the main skid trails. Impacts would be light to moderate and less continuous on less traveled portions of skid trails. Worst case expected reduction in productivity for the acres of landings and skid trails is a 20 percent reduction in yield. The effect on overall project site productivity resulting from the impacted acres is expected to be less than three percent reduction in overall yield for the project area.

Timber Hauling: No measurable amounts of surface erosion are expected from the forested lands treated under this proposed alternative. With timber hauling restricted to periods when no water is flowing on road surfaces, the amount of sediment produced from roads and entering streams would be negligible to none.

Fuels Reduction: Observations over three decades of burning piled slash in this area of the Oregon Coast Range has resulted in no evidence of surface erosion from areas where piled slash has been burned. Based on this local experience, no increase in surface erosion is expected from this proposed activity.

The proposal includes broadcast burning of the skyline yarding area. This burned area would be expected to reestablish vegetation entirely within one to two growing seasons. No burning would occur within SPZs and the remaining vegetated buffer would filter out any sediment delivered from upslope areas. Broadcast burning would be completed at a time of the year when soil moistures are higher and the soil is not likely to be impacted by the low intensity heat generated from the burning. This lower heat type of burn does not kill the shallow roots of shrubs and forbes and the short-term flush of nutrients from the ash helps to generate a more healthy understory component in the area (Reference: Piatek, K., B., 2003. Site Preparation Effects on 20 Year Survival and Growth of Douglas - Fir and on Selected Soil Properties. Western Journal of American Forestry (WJAF -18), p 44 to 51.). It is not expected that any additional erosion would occur. Thus there would be no impact to sediment generation or nutrient levels available to the remaining vegetation (which would maintain the productivity of the stand).

With slash and existing undergrowth being left on nearly all of the ground based yarding areas no measurable amounts of surface erosion are expected from the forested lands treated under this proposed action.

Skid Road Blocking: Placement of water bars and blocking off skid trails would promote out-slope drainage and prevent water from accumulating and running down the skid trail surfaces in large enough volumes to cause erosion that could reach streams. A small amount of localized erosion can be expected on some of the tractor skid trails the first year or two following yarding. Eroded soil is not expected to move very far from its source and would be diverted by the water bars or out sloping to spread out in the vegetated areas adjacent to the trails and infiltrate into the ground. After several seasons, the accumulated litter fall on the skid trails would reduce the impact of rainfall droplets on the soil surface, further reducing the potential erosion of the skid trails.

3.2.3 Water

(IDT Reports incorporated by reference : Rickard Creek Hydrology Environmental Assessment pp.1 to 9)

Affected Environment

The project area lies in headwaters of the Marys River 5th-field Watershed. Tributaries in the project area discharge into Oliver Creek, and a small portion of the area flows into Beaver Creek (both tributaries of Muddy Creek).

The project area receives approximately 75 to 80 inches of rain annually. Most runoff is associated with winter storm events that result from low pressure fronts moving inland from the southwest off the Pacific Ocean. Peak stream flow events are concentrated in the months of November through March when Pacific storm fronts are strongest. As a result of little or no snow pack accumulation and infrequent rainfall, stream flow in the summer is typically a fraction of winter levels and many headwater channels retreat to subsurface flow. At a distance of over 30 miles from the ocean, and east of the Oregon Coast Range summit, fog and fog drip are not substantial contributors to watershed hydrology in the project area (Soil Service).

Terrain in the project area ranges from approximately 1,000 to 1,320 feet and is generally mountainous to the east and flatter ridge tops in the northwest portion of the project area. The entire project area is located below the 2,000 foot elevation which is considered the transient snow zone in the Oregon Coast Range (U.S.D.I. 1995). Large flood events are not predicted in the project area because the project location is not located in an area that is prone to extreme precipitation events.

Project Area Streams

The project area includes perennial and intermittent 1st order tributaries to Upper Beaver Creek and Upper Reese Creek. These tributaries are Rosgen type A source channels: 4 to 10 percent gradient, low width/depth ratio, and low sinuosity. Channels are typically narrow with low to moderate side slopes, which braid at valley flats creating small marshes which sustain hydric vegetation. The project area also contains one small (less than one acre) wet area, which is surrounded by conifers. This area fluctuates between a wet and dry state depending upon the season and amount of precipitation occurring in the water year.

Project Area Water Quality

Fine sediment and turbidity

During field review of stream channels in the project area, the perennial channel was observed to be mostly stable and functional with sediment supplies in the range expected for its stream type. Channel substrates are typically sand, with some pebbles and gravels. Some channel reaches contain large amounts of CWD. The remaining channels all contained sections of discontinuous flow where water went subsurface.

Stream Temperature

No stream temperature data was available for this analysis. The only channel that displays perennial flow characteristics is located on the southwest boundary of the project area and this channel has a 300 foot no harvest buffer proposed. The remaining channels are generally shaded by red alder, conifer, ferns and brush. Stream shading varies between dense canopy cover by conifers to open canopy at flatter reaches. Streams in the project area are classified by the BFWA as having a low risk of detrimental changes in water temperature based on stream bank vegetation shading. Based on field observations and aerial photo reviews of streams in the project area, current streamside vegetation and valley topography appears adequate to shade surface waters during summer base flow and it is likely that stream temperatures consistently meet the Oregon state standard (18 degrees Celsius) for these waters.

Beneficial Uses of Project Area Stream Flow

There are no known municipal or domestic water users in the project area. The nearest domestic water rights are located approximately 1.1 miles downstream from the project area on Reese Creek and approximately 1.4 miles downstream in Beaver Creek. Additional water rights are listed further downstream on Beaver Creek for power, irrigation, and domestic use (Water Rights Information System 2003). Additional recognized beneficial uses of the stream-flow in the project area include resident fish, anadromous fish, recreation, and esthetic value. Best management practices, as described below under Environmental Effects would be implemented to help eliminate and/or minimize any potential impacts to beneficial uses of the project watersheds.

Environmental Effects

3.2.3.1 *Alternative 1 (No Action)*

The No Action alternative would result in a continuation of the condition and trends of water resources as described under the BFWA and Affected Environment section of this report. No reduction of forest canopy would take place. No additional disturbance to flow paths resulting from timber harvest and road work/use would occur. Streams disturbed from past management would continue to evolve towards a stable condition.

3.2.3.2 *Alternative 2 (Proposed Action)*

Stream Flows

Increases in mean annual water yield following the removal of watershed vegetation have been documented in numerous studies around the world (Bosch et al., 1982). Vegetation intercepts, and evapotranspires precipitation that might otherwise become runoff. Thus, it can be assumed that the action considered under this proposal would likely result in some small increase in water yield (including a small increase in summer base flow) which correlates with the removal of a portion of the conifer overstory in the watershed. Approximately 21 percent of the Upper Beaver Creek Watershed and four percent of the Upper Reese Creek Watershed lies within a potential rain-on-snow zone which equates to a low and very low risk respectively for these events to occur. The small wet area in the harvest unit will have a buffer of trees left around it (see design features). Its position on the south-east facing hillside will likely enhance the duration of a higher water table in this area. However, because the perennial portion of this pond is so small, and accumulates runoff from a relatively small upland area, the perennial portion of this area would be more susceptible to becoming dry in mid to late summer due to an increase in air temperature. This would increase the evaporation rate of this water feature and may cause a slight rise in soil temperature. Anderson et al. (2007), found increased temperatures and evaporation inside harvest units after regeneration harvest activities. Although a buffer will be placed on this wet area, there will be an increased amount of direct sunlight within the pond area. Its proximity within the regeneration cut that could result in an increased temperature within the wet area. Because this wet area will have a buffer, it is assumed that the potential temperature increase in wet area would be less than those found by Anderson et al., and thus have a lower effect on the functioning of the wet area.

Water Quality – *fine sediment and temperature*

The creation of temporary roads, yarding corridors, and the mechanical removal of trees are unlikely to measurably increase sedimentation into project area streams. Harvest generated slash would be maintained in the yarding corridors to minimize the need for machines to travel on bare soil and ground based equipment would only be allowed on slopes less than 35 percent. Tree removal is not proposed on steep, unstable slopes where the potential for mass wasting adjacent to streams is high.

Therefore, increases in sediment delivery to streams due to mass wasting are unlikely to result from this action.

In addition, SPZs in riparian areas have high surface roughness, which can function to trap any overland flow and sediment before reaching streams. Ground based yarding would occur during periods of low soil moisture with little or no rainfall, to minimize soil compaction and erosion.

For the protection of stream channels and aquatic resources, riparian buffers or no-treatment zones were applied to all stream channels and high water table areas (small wetlands, ponds, marshes, etc.) in the project area. Stream shading would exceed the widths recommended to maintain a minimum of 80 percent effective shade resulting in no change to water temperature from the activities proposed in this project.

Channel Morphology

This project is unlikely to affect stream channel stability and function as all field identified streams and wet areas would be protected with SPZs. No yarding would occur across streams. No bank stabilizing vegetation would be removed. This project would remove wood within the RR for approximately 1,700 feet of a fish bearing stream that could potentially become LWD (large woody debris) in the stream. However, thinning is proposed to produce larger trees over time that would fall into the streams adding additional structure and complexity to the channel and a minimum of 150 feet of un-harvested stream buffer would remain along the stream.

Burning

Large amounts of slash found along roads and landings would be piled and burned. Burning piles could produce small areas without soil cover that are more susceptible to erosion. Burning could also produce patches of bare soil with altered properties that restrict infiltration. Burn piles would occupy very small areas surrounded by larger areas that would absorb runoff and trap any sediment that moved from the burn sites.

The proposal includes broadcast burning of the skyline yarding area. This burned area would be expected to reestablish vegetation entirely within one to two growing seasons. No burning from either treatment would occur within SPZs in order to protect water resources. It is not expected that any additional erosion would occur from this unit. Thus there should be no impact to sediment generation or nutrient levels available to the remaining vegetation which would maintain the productivity of the stand.

Road Work and Hauling

The risk of impacts to water quality due to road construction would be limited by restricting work to periods of low rainfall and runoff. Construction would employ techniques to reduce concentration of runoff and sediment to a minimum, such as outsloping, ditch lines, and water-bars on steeper sections of road. These new roads would be decommissioned after their use. The proposed road system is located in a stable geologic landform and there is no risk of road related landslides. The placement of roads on the landscape is an average of more than 300 feet from existing streams. The road locations are on topographic divides where any road generated water or sediment would have no impact on drainages in the project area. Road construction, use, and decommissioning would result in no expected additions of sediment to stream channels in the project area.

Road renovation activities (brushing, blading, spot rocking) are unlikely to measurably impact channel morphology or water quality over the long term (beyond the renovation period). Drainage renovations would likely improve water quality over existing conditions.

Timber hauling during periods when water is flowing on roads and into ditches could potential increase stream turbidity if flows from ditches were large enough to enter streams. All hauling would be restricted at any time of the year if necessary to avoid excessive increases in erosion and sedimentation. Based on the road locations and the project design features, there is no expected impacts on stream turbidity from the project proposal.

3.2.4 Fisheries/Aquatic Habitat

(IDT Reports incorporated by reference Rickard Creek Regeneration Project Environmental Assessment Fisheries pp 1 to 16)

Affected Environment

Barriers to fish passage have altered species presence and distribution in the Marys River Watershed. The Oregon Department of Fish and Wildlife has documented multiple potential barriers to fish migration associated with existing culverts and dams in the Marys River Watershed (Streamnet 2007; Appendix B- Map 1 Fisheries Report). The magnitude of effect fish barriers have had on fish production in the project area is unknown.

No anadromous species are known to reside in or near the project area. Chinook salmon reside over 32 miles downstream in Muddy Creek, over five miles downstream in Beaver Creek, and over two miles from the nearest unpaved haul route crossing (Streamnet 2007; Appendix C, Map, 1 Fisheries Report). Steelhead trout may utilize the Marys River for rearing and spawning (ODFW 1992), nearly 17 miles downstream of the Upper Beaver Creek treatment area and more than 43 downstream in the Upper Reese Creek treatment area. Coho salmon present above the Willamette Falls are part of an introduction effort which occurred during the 1900s (ODFW 1992a). Native cutthroat trout are common within the watershed and are present in the project area (Appendix C, Map 2, Fisheries Report). Other native fish species also reside within the Marys River watershed; however, only sculpin species occur within the project area.

Based on field review, cutthroat trout are known to be present in the project area tributary on the southwest side of the treatment areas (Vann and Liebhardt 2004). Fish presence/absence survey to the east did not locate any fish species in the project area and review of stream crossings nearly ½ mile downstream were also found to be non-fish bearing (Snedaker 2006). To the north, the upper limits of cutthroat trout distribution in South Creek of the Upper Beaver Creek drainage has been documented one mile downstream of the project area (see Appendix C -Map 2, Fisheries Report). Field review of the stream crossings associated with the proposed haul route indicated one fish bearing crossing located on a tributary to Beaver Creek and two fish bearing crossings over Beaver Creek.

No habitat surveys were located for the streams within the project area. During field review of stream channels in the project area, the southwest perennial channel was observed to be functioning within the range expected for this type of forest stream (Wegner 2007). The southwest perennial stream channel is hydrologically connected during high flows to a small headwater channel draining the southeast corner of the proposed treatment area. Due to this connection, the headwater stream is likely to carry migrating fish during some portion of the high flow season and is considered fish bearing.

Threatened, Endangered, and Special Status Species

The (UWR) Upper Willamette River winter steelhead trout is listed as threatened under the Endangered Species Act. There is no designated Critical Habitat for UWR winter steelhead in the Marys River. The nearest designated Critical Habitat for UWR winter steelhead occurs in the

Willamette River 40 miles downstream of the project area and 37 miles downstream from the nearest unpaved haul route.

The National Marine Fisheries Service (NMFS) has listed Spring Chinook salmon in the UWR Evolutionarily Significant Unit (ESU) as threatened under the Endangered Species Act. Designated Critical Habitat for UWR Spring Chinook salmon includes portions of the Marys River and Beaver Creek. Designated Critical Habitat for UWR Spring Chinook salmon in Beaver Creek is over two miles downstream from the haul route and over five miles downstream from the treatment area.

Oregon chub historically resided in the lower portions of the Marys River (Scheerer 1999). Oregon chub is listed as endangered under the Endangered Species Act. Critical Habitat for Oregon chub has not been designated. Currently there are several known chub populations in the Marys River Watershed, most residing in the Finley Wildlife Refuge (Scheerer et al 2005). These populations are at least 19 stream miles from of the project area, and are located in drainages unaffected by project activities.

Coastal cutthroat trout and Pacific lamprey are listed in the Oregon Natural Heritage program as category 4 watch species (ONHIC 2007). This classification results in these species being designated as Bureau Tracking species under BLM Manual 6840. Coastal cutthroat trout are present in the project area. Upper limits of Pacific lamprey are unknown in Muddy Creek though their presence has been verified in this system (BLM 1997).

Environmental Effects

3.2.4.1 *Alternative 1 (No Action)*

Expected benefits of thinning riparian stands would not be realized. The existing road network would remain unchanged, with no new construction. Drainage features on Roads 13-6-21 and 13-6-28 would continue to degrade. Beneficial actions intended to prevent road prism failure on the Beaver Creek Road would not occur. Culvert failure, specifically those within ½ mile of fish bearing habitat, could result in short-term negative impacts to water quality (Foltz and Yanosek 2005) and result in short-term impacts to aquatic habitat (Furnis et al 1991).

3.2.4.2 *Alternative 2 (Proposed Action)*

Yarding/Falling

Stream flow

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. Based on the analysis contained in the Rickard Creek Hydrology Report (Wegner, 2007), no discernable effects to flow would occur. Thus no effects to fish habitat within the treatment area are anticipated from undetectable changes in peak and base flows, and would be even less likely to affect fish habitat downstream.

Water Temperature

Removing trees which provide shade to the stream channel can negatively affect water temperatures. Two stream reaches along the northside of the project area would be protected by SPZs. No changes in primary or secondary shade zones associated with these streams are anticipated, therefore, no effect to stream temperature would occur.

Proposed density management treatments within the RR LUA on the east side of the project area are located near non-fish bearing streams. According to the stream shading sufficiency analysis done for the proposed treatment (Appendix B-Shade Sufficiency Analysis in fisheries report), the proposed SPZ was sufficient to protect critical shade in the primary shade zone. 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 percent. The existing shade adjacent to streams in the project area appears adequate (Wegner 2007). Channels in this portion of the project area are intermittent/ephemeral and not subject to summer solar warming. Retention of the SPZ buffer and the location of treatments primarily adjacent to intermittent channels would be expected to maintain the existing stream temperature regimes. The proposed action is unlikely to increase in-stream temperatures at the site (Wegner 2007). Based on the shade sufficiency analysis, the hydrology report water quality analysis and the project design features, the proposed action is unlikely to affect fish habitat downstream.

Proposed density management treatments in RR to the southwest/southeast are located near two fish bearing streams. The headwater of the primary stream is non-fish bearing; fish bearing begins at the confluence of the two first order streams. According to the stream shading sufficiency analysis done for the proposed treatment, the proposed SPZ of 50 to 55 feet was sufficient to protect critical shade in the primary shade zone. Within the treatment area of these streams, the SPZ width averages approximately 200 feet wide, well away from the primary shade zone. As the proposed SPZ averages 200 feet in width, only minor vegetation treatment may occur in the secondary shade zone. This is not expected to substantively affect the existing in canopy closure. Based on the shade sufficiency analysis, the hydrology report water quality analysis, and the project design features, the proposed action are highly unlikely to affect fish habitat downstream.

CWD and LWD

Loss of CWD and LWD due to harvest can affect the stability and quality of aquatic habitat. Proposed treatments would avoid the RR of the northside streams and proposed treatments in the southside streams would provide for minimal thinning. Treatments in this area would be approximately one site potential tree height away from fish bearing streams. Proposed treatments associated with the fish bearing RR is predominately located on a ridge top, or is draining away from the fish bearing stream to the opposite side of the ridge. With the protection of one site potential tree buffer width in the RR, CWD and LWD recruitment is not anticipated to be affected by the proposed action.

Proposed commercial thinning treatments in the eastside of the project area would not occur closer than 50 feet from stream channels. Proposed commercial thinning is anticipated to increase the average size of the remaining trees by up to seven inches (Caldwell 2007). Tree removal is not proposed on steep, unstable slopes (Wegner 2007). In the short-term, the smaller woody debris would continue to fall from within the untreated SPZ, 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 action is not expected to affect fish habitat downstream. In the long-term, beneficial growth in the size of trees in RR 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.

Sediment and Water Quality

Ground based yarding 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. However, 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 (Wegner 2007). Buffers, 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 action is 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.

Hauling

The potential for timber hauling to generate road sediment is minimized by project design features. It is highly unlikely that project hauling would negatively affect fisheries habitat due to the location and condition of the fish bearing stream crossings on Beaver Creek and a tributary of Beaver Creek, and the vegetated condition of the ditchlines.

Road Construction/Renovation

The proposed new roads are unlikely to increase drainage network in the watershed as the majority of new construction is located on ridgetop away from any stream channels and no new construction would cross any existing stream channels. Approximately 1,200 feet of new road would be constructed in the RR of the Upper Reese Creek drainage. Construction would not occur closer than 300 feet from stream channels, outside of the primary shade zone, and the majority of the new road would drain away from the fish bearing stream. All new construction would be blocked following harvest operations. The proposed road construction is unlikely to increase sediment or stream flows which may affect stream channels and affect fish.

Approximately 16,400 feet of road renovation would occur as part of the proposed action. Drainage renovation/replacements would occur on approximately six cross-drains and/or stream crossings. These renovations would improve drainage and road surface conditions, resulting in less erosion into surrounding streams (Wegner 2007). Proposed road renovation treatments would result in a minor short-term increase in erosion, until reestablishment of vegetation occurs in the following growing season. Treatments are at least 0.6 miles from fish habitat in Duffy Creek, at least 200 feet from fish habitat in Beaver Creek, and at least 750 feet from fish habitat in Upper Reese Creek. Renovation in the stream channels (culvert and cross drain installations) would be limited to the in-stream 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 action 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, Duncan et al 1987).

Broadcast Burning/Pile Burning

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 (Wegner 2007), but not likely to influence fish habitat. Pile burning would not be allowed within the SPZs. The SPZs are expected to provide sufficient distance from the streams to capture any surface erosion from pile burning treatments.

The potential effect caused by the proposed broadcast burning would be increased sedimentation, alteration of stream side shade, and increased nutrients. The Rickard Creek Hydrology Report (Wegner 2007) did not indicate an elevated risk of sediment, shade loss, or nutrients affecting the stream channels. Implementing broadcast burn project design features would further reduce the possibility of sedimentation and nutrients reaching the stream channel and protect shade to the extent

practicable. The project implementation is not expected to result in effects in the short or long-term to any fish bearing streams.

Threatened, Endangered and Special Status Species

Coastal cutthroat trout are considered a special status species by the BLM (ONHIC 2007). Proposed actions are unlikely to negatively affect the productivity and distribution of this species and would not contribute to the need for protection of this species under the ESA.

No effects are anticipated to UWR Chinook salmon and winter steelhead habitat due to distance to occupied habitat. Due to the “No Effect” determination, no consultation with NOAA NMFS is required for this project.

The proposed project would have no effects to Oregon chub and no effects are anticipated to Oregon chub historic habitat. Due to the “no effect” determination, no consultation with U.S. Fish and Wildlife Service is required for this project.

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 downstream from project activities in the affected subwatersheds, between two miles (Beaver Creek) and 32 miles (Muddy Creek). In general, coho salmon are further downstream from the proposed actions than habitat occupied by Chinook salmon. Due to the distance from EFH of project activity, no adverse effects to EFH is anticipated. Due to the “no adverse effects” determination, no consultation with NOAA Fisheries is necessary for MSA-EFH.

3.2.5 Wildlife

(IDT Reports incorporated by reference: Biological Evaluation pp. 1 to 13)

Affected Environment

Wildlife Habitat Conditions. The proposed regeneration harvest and density management areas would occur within mid seral forest stands aged 60 to about 77 years old. Numerous open-grown late seral trees and several old-growth trees are scattered across the combined harvest area. The majority of the harvest area is composed of the stand that is about 77 years old, which along with the scattered old-growth and larger overstory trees, is beginning to acquire structural characteristics of a late seral forest stand.

The abundance of large decaying wood is a defining feature of forest ecosystems, and a key factor in ecosystem diversity and productivity (Rose et al. 2001). Stand inventory data collected in 1996 and 2004 found 4,210 linear feet per acre of downed conifer logs in the proposed regeneration harvest area (including the southwestern portion of the density management area), and 586 linear feet per acre of downed conifer logs in the eastern portion of the proposed density management area (see Table 5). Most of this CWD is composed of small diameter logs (less than 20 inch DBHOB) that are in advanced stages of decay. Wind storms during the winter of 2007 put down additional hard logs with many of these in the larger size class (greater than 20 inch DBHOB). Snags greater than 10 inches DBHOB and 10 feet high averaged 32 per acre on the regeneration area, and 28 per acre in the density management area. All sizes and decay classes of snags are represented; however, the majority of snags are in the smaller size classes (10 to 19 inches DBHOB).

There is a very small wet area (less than 1/10th acre) in the eastern part of the regeneration harvest area but no substantial special habitats exist within the harvest areas. Special habitats (e.g. wetlands and seeps) do exist in the adjacent SPZs and outside of the proposed harvest areas.

The BFWA (BLM 1997) showed that BLM-managed lands make up less than eight percent of this landscape and that lowland and valley agriculture habitat types cover over 35 percent of the analysis area. Upland forest habitats are mostly comprised of early seral (29 percent) and mid seral (25 percent) conifer-dominated plantations managed by private industrial forest land owners. Late seral and old-growth forest stands represent less than five percent of the entire watershed almost all of those stands existing on BLM-managed lands. Within the Marys River Watershed, about 37 percent of the federal lands (Forest Service and BLM) are composed of late seral forest stands.

Within the immediate vicinity of the project area (10,580 acres), early seral and mid seral forests make up over 85 percent of the vegetation cover. Late seral forest (mostly on BLM-managed lands), make up about 12 percent of this vicinity (including the proposed harvest areas). A few old-growth stands (totaling 207 acres) still exist on BLM-managed lands, representing less than two percent of this immediate project vicinity. There is a small patch of old-growth trees (less than four acres) just outside the northeast corner of the regeneration harvest area. Some of the mid seral forest stands in this vicinity have a scattered component of older conifers which includes some individual old-growth trees.

Threatened and Endangered Wildlife Species

Marbled Murrelet

The marbled murrelet and northern spotted owl are two federally threatened wildlife species that are known to occur in the vicinity and utilize forest habitat types that are similar to the proposed harvest areas. The project area is located 32 miles inland from the ocean, in the foothills of the Willamette Valley. Very few occupied murrelet sites are found beyond 30 miles inland in this part of the Oregon Coast Range. The nearest occupied murrelet site is located on BLM-managed lands about 5.9 miles west of the project area. Most of the old-growth forest patches in the vicinity of project area (within two miles) have been surveyed for murrelets over 10 years ago, without having any murrelet detections. The proposed harvest areas are not considered suitable habitat but some of the scattered old-growth trees do possess potential nesting structure. A small cluster of old-growth trees (less than four acres) just outside of the harvest area does meet the definition of a suitable habitat patch. During 2004 and 2005 surveys for marbled murrelets were conducted within the regeneration harvest area and adjacent old-growth patch. Murrelets were not detected on any surveys. This project area is not within critical habitat designated for this species.

Northern Spotted Owls

The nearest known spotted owl site is located about 1.6 miles to the south of the project area, although a vacant spotted owl nest site is located about 1.3 miles southwest. The vicinity of this project area including the proposed harvest areas and adjacent owl sites has been surveyed for spotted owls with nearly complete annual coverage since 1990. No spotted owls were ever detected within the project area. The nearest spotted owl detection was 0.6 miles to the west of the proposed harvest areas in 2003. Incidental owl surveys during the planning process for this action failed to detect any spotted owls, but did locate a nest site of a breeding pair of barred owls within the proposed regeneration harvest area. The recent expansion of barred owls into the range of the spotted owl has been recognized as serious threat to the recovery of spotted owl populations (Courtney et al. 2004). The proposed harvest areas provide foraging and dispersal habitat for spotted owls. About 64 percent of lands in the immediate vicinity (two mile buffer around project areas) meet dispersal habitat conditions for the owl. This is largely due to BLM-managed lands in this vicinity, where currently 84 percent of

BLM-managed land provides dispersal habitat conditions. This project area is not within Critical Habitat that has been designated for this species.

Other Special Status Wildlife Species. A great variety of wildlife species may utilize mid seral habitats that are part of the proposed action area (O'Neil et al. 2001). The red tree vole is the only SS wildlife species that is likely to occur within the proposed harvest areas. The red tree vole is a Bureau Sensitive Species (BSS) and formerly a Survey and Manage Species (USDA-FS and USDI-BLM 2007). The BSS status only applies to the red tree vole populations in the northern Oregon Coast Range, north of Highway 20. Populations south of Highway 20 (including this project area) are believed to be more abundant and well distributed (USDA-FS and USDI-BLM 2007). Surveys for this species are not required in this portion of its range. A review of an interagency database (GeoBOB) and the Oregon Natural Heritage Database found no records of any other SS Species locations within or adjacent to the planned harvest areas.

Environmental Effects

3.2.5.1 *Alternative 1 (No Action)*

This alternative would not conduct any harvest or related actions within the forest stands of the proposed harvest areas. There would be no loss of forest habitat conditions within BLM-managed lands in this watershed. The immediate vicinity of the project area would remain at 10 percent in late seral forest, and the combined federal ownership within Marys River 5th Field Watershed would remain at about 36 percent; which is the well above the 15 percent threshold required for Matrix land-use allocation from the NWFP. A steady incremental increase in snags and down logs would be expected in the smaller size classes due to continuing stem-exclusion processes. Windthrow events, insect damage, and disease processes would contribute irregular pulses of snags and down logs in a wider range of size classes in the short-term (next 10 years). Over the long-term (next 50 years), the proposed harvest areas would be expected to slowly increase their structural complexity as these stands progress from mid seral forest conditions toward late seral forest conditions. Although given the current rate of harvest on adjacent private industrial forest lands, the landscape in the immediate vicinity is expected to remain highly fragmented and dominated by early seral and mid seral forest conditions.

The No Action alternative would allow the forest stands to slowly develop more structural diversity (CWD, large trees, large limbs, etc.), which over time would enhance the suitability of habitat conditions for marbled murrelets and spotted owls. There are no known murrelet sites that would be affected by this alternative. The proposed harvest areas do not currently support any adjacent spotted owl sites. Barred owls currently reside within the project areas, and it is unlikely that spotted owls would make substantial use of this project area unless barred owls were not present (Gutiérrez et al. 2007). Dispersal habitat conditions for spotted owls would remain unchanged on BLM-managed lands in the vicinity of this action. Retention of mid seral habitat and increasing quality and quantity of CWD over the long-term could benefit numerous sensitive wildlife species. Currently no known sites of any SS wildlife species would be affected by this alternative.

3.2.5.2 *Alternative 2 (Proposed Action)*

Wildlife Habitat. The proposed action and associated activities would change the existing forest structure of the planned harvest areas. The primary direct and indirect effects anticipated to occur to wildlife habitat characteristics would include:

- The conversion of 87 acres of a closed canopy mid seral forest to an open early seral habitat patch (shrubs, slash, saplings) with six to 11 TPA (trees per acre) of large live overstory trees

(both scattered and clumped within the regeneration harvest area).

- The reduction of forest canopy conditions on 21 acres of the density management area (while retaining greater than 40 percent closed canopy conditions inclusive of small canopy gaps).
- Disturbance and minor loss of existing coarse woody material (snags and down logs) resulting from felling, yarding, road construction, and fuels reduction.
- Recruitment of new CWD of larger size and higher quality from incidental green tree loss during harvest (at least 240 linear feet per acre) and post-harvest loss of green trees due to harvest damage, disease, and windthrow.
- A change in the functional habitat condition of CWD from moderate amounts within a closed canopy mid seral forest, to moderate amounts within an open early seral habitat patch.
- Retention of hardwood and shrub diversity within the proposed harvest area.

The regeneration harvest and density management harvest would collectively alter 108 acres of forested stands in one aggregate block. Many of the wildlife species that may currently use the mid seral forest stand would be diminished or displaced to adjacent mid seral and late seral forest stands. Wildlife species that prefer open shrubby habitats with scattered and clumped overstory trees and moderate levels of snags and down logs would respond favorably to the short-term availability of this habitat, until a closed conifer stand developed (less than 20 years). The retention of green trees within the regeneration harvest area (approximately 9 to 11 TPA or about 870 trees clumped and scattered across 87 acres), would add substantial structural complexity to the open early seral habitat created by the harvest. Structural complexity would also be enhanced and retained within the 21 acre density management area (compared to no action) where prominent overstory trees and declining remnant old-growth trees would be released. The CWD component would remain at moderate to high levels for this landscape since existing snags and logs are reserved from harvest and since high quality snags and down logs would be recruited from reserved green trees due to post-harvest mortality (Busby et al. 2006, Halpern and Halaj 2005).

Threatened and Endangered Species.

The proposed action would have “no effect” to marbled murrelets, since the harvest area is not considered suitable habitat and survey efforts have not detected murrelets within the areas or anywhere near the proposed action area (nearest murrelet site is 5.9 miles west). This proposed action is considered to be a “may affect, but not likely adverse affect” to northern spotted owls. The planned regeneration harvest would remove 87 acres of suitable foraging habitat for the spotted owl, but this loss would occur beyond the likely home range (1.5 miles) of any known active owl site. Also, the continued presence of breeding barred owls in this vicinity is likely to preclude any substantial use of this area by spotted owls (Gutiérrez et al. 2007). Dispersal habitat conditions for spotted owls on BLM-managed lands within two miles of the proposed project area would incur a negligible drop from 84 percent to 81 percent following harvest, remaining well above 50 percent threshold for concern.

Other Special Status Wildlife Species

Many wildlife species that are closely associated with older forest habitats or special habitat features are known to be vulnerable to the loss of these habitat conditions. The proposed harvest would disrupt and change the current pattern of wildlife use in the project area. The change in habitat conditions over most of the project area would benefit those wildlife species that prefer more open and shrubby habitats in the short-term, and would hamper the retention and recovery of older-forest associated species in this immediate vicinity. However, no known SS wildlife species are known to occur within the planned harvest areas. The red tree vole may likely occur within the proposed harvest areas and adjacent older forest patches. This species has been removed from SS species wildlife lists because it has been found to be common and well distributed within the watershed in this portion of its range (USDA-FS and USDI-BLM 2007). While the loss of individual red tree voles is possible due to

regeneration harvest, the proposed action would not affect the persistence of this species within this watershed.

3.2.6 Fuels/Air Quality

(IDT Reports incorporated by reference: Rickard Creek Fuels Report, pp. 1 to 7)

Affected Environment

The project area is occupied by stands of 60 to 75 year old Douglas fir. Understory vegetation is mostly a moderate to light growth of sword fern, salal, and vine maple on the uplands with heavier brush near the draws and openings in the canopy. Dead fuel loading on the ground varies widely depending on whether the area has large down logs or not. Duff on the benches ranges between ½ to three inches, averaging less than two inches. On the steeper sites the duff depth is generally around one inch. Large (greater than 36 inch DBHOB) decayed stumps are scattered throughout the area. A few large logs are scattered on the site. Smaller down logs are well distributed throughout the stands. Estimates for present fuel loading are: 0 to three inch fuels range from two to eight tons per acre, three to nine inch fuels range from seven to 15 tons per acre, larger fuels over nine inches in diameter range from less than 20 up to 50 tons per acre. Large snags over 20 inches DBHOB are generally less than one per acre, smaller snags are more abundant. The fuel model for this area is a combination of model 8 to closed timber litter and model 10 - timber litter and understory.

Environmental Effects

3.2.6.1 Alternative 1 (No Action)

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

3.2.6.2 Alternative 2 (Proposed Action)

Fuels

Fuel loading, risk of a fire start and the resistance to control a fire would all increase at the site as a result of the proposed action. Slash loading and pre and post fuel models are shown in the tables below

Additional Slash Created

Commercial Thinning	10 to 20 tons per acre
Regeneration Harvest	20 to 30 tons per acre

Fuel Loading Models

	Existing	Post Logging	Post Slash Treatment
Commercial Thinning	Model 8 - Closed timber litter / Model 10 Timber litter and understory	Model 10 - Timber litter and understory and Model 11 - light logging slash	Model 10 - Timber litter and understory and Model 11 - light logging slash
Regeneration Harvest	Model 8 - Closed timber litter / Model 10 Timber litter and understory	Model 11 and Model 12 - Light and medium logging slash	Model 8 Timber litter without the overhead canopy shading

Risk of a fire start in the untreated slash would be greatest during the first season following cutting, the period when needles dry out but remain attached. Within one year the risk of a fire start greatly

diminishes. For the thinned areas, fire risk would continue to diminish as the area greens up with understory vegetation, and as the fine twigs and branches in the slash begin to break off and collect on the soil surface. Past experience, in the geographic area of this proposed action, has shown that, in approximately 15 years, untreated slash would generally decompose to the point where it no longer contributes substantially to increased fire risk.

Depending on the amount of large, down wood left on site from the logging, resistance to control would also decrease over time but more slowly. This is what is expected to occur for the areas considered in this proposed action where the slash created would be left in place, untreated. The resulting total residual dead fuel loading would vary throughout the site ranging from 10 to 45 tons per acre. It is expected that half of the dead fuel tonnage to be left on site following treatment would be in the form of down logs and pieces in the 10 inch and larger size class.

Increasing the spacing between the tree crowns would have the beneficial result of decreasing the potential for crown fire occurrence in the treated stands once the slash breaks down. In the first few years following harvest, if a fire started under dry, summer or early fall conditions, the increased slash loading in the thinned stands would likely result in high mortality from scorch.

For the slash created in the regeneration harvest area, fire risk and resistance to control would be mitigated by prescribed broadcast and pile burning of much of the slash loading. Once burned, the risks would be lower than the surrounding untreated timber stands – both thinned and un-thinned.

The effect of decommissioning the majority of the roads in the project area would be an increase in the response time and the effort needed to control a fire in the area since access is restricted. This negative effect is somewhat offset by the fact that most fires in this area are human caused, so by restricting access, the risk of a fire starting in the area should be lower.

Air Quality

An estimate for the total amount of slash and road clearing debris expected to be piled for burning is 1,850 tons. Burning approximately 1,850 tons of dry, cured, piled fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality. If a temperature inversion develops over the area during the night time hours, smoke may be trapped under the inversion and accumulate resulting in a short-term impact to the local air quality. The accumulated smoke generally clears out by mid-morning as the inversion lifts. Due to the location of this project, it is unlikely that inversions would present a problem.

An estimate for the total amount of slash expected to be consumed by the broadcast burning is 1,080 tons. Burning approximately 1,080 tons of dry fuels under favorable atmospheric conditions in the Oregon Coast Range is not expected to result in any long-term negative effects to air quality. Locally within ¼ to ½ mile of the area, there may be some very short-term smoke impacts during the early part of the ignition phase from drift smoke. Once a column develops, the smoke would be carried up and dispersed in the air mass. Under spring like conditions, the fuel bed generally burns in the flaming stage for 10 to 20 minutes in a given area and then begins to rapidly go out and cool down. Smoke production drops off rapidly during this time and within an hour of ignition the area is cool enough to walk through and smoke production is at a very low level. Scattered areas of concentrated fuels would burn longer but by the following morning there would be very little smoke production. The area is expected to be mopped up with no visible smokes within two days of ignition.

Burning of slash would be coordinated with Oregon Department of Forestry in accordance with the Oregon State Smoke Management Plan which serves to coordinate all forest burning activities on a regional scale to prevent cumulative negative impacts to local and regional air sheds.

3.2.7 Recreation/Rural Interface/VRM

(IDT Reports incorporated by reference: Recreation/Rural Interface/VRM Report pp. 1 to 5)

Affected Environment

Recreation

The project area is characterized by a forest setting and accessed by gravel forest and paved roads. Evidence of man-made modifications (roads, trails, timber harvest) is common on both private and public lands in areas surrounding. Activities that occur in the area include OHV riding, biking, hunting, target shooting, driving for pleasure, and special forest product harvest. The project area lands are open to OHV use. A local motorcycle group (Flat Mountain Riders Association) extensively uses the project area. Many trails interweave the patchwork landscape.

Visual Resource Management (VRM)

The intermixed land ownership pattern between public and private forest land in the vicinity of the proposed project, greatly limits the BLM's ability to manage this area as a contiguous viewshed. Timber harvest activities near or adjacent to the project are observable from private and public lands and roads.

The project occurs in VRM Class 4 land. The level of change to the characteristic landscape can be high. The objective is to allow management activities which require major modification of the existing character of the landscape. Activities may dominate the view and may be the focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements. Tree planting, stream buffers, and spacing of clear cut areas are considered adequate mitigation.

Environmental Effects

3.2.7.1 Alternative 1 (No Action)

With the exception of unexpected changes (i.e. wildfire or disease), the project area would continue to provide a forest setting for recreation users, dispersed recreational activities and local residents. A short-term increase in truck traffic, noise and other inconveniences related to the project would not occur. However, these inconveniences from other lands in the vicinity would most likely continue. No modifications to the landscape character of the project area would be expected to occur. Modifications to the landscape character in the area around the project would still be expected, as a result of activities on other lands.

3.2.7.2 Alternative 2 (Proposed Action)

Recreation

Current recreation use of the project area would be restricted in the short-term during operations. Use of the project area is expected to remain constant upon completion with the exception of the decommissioned road segment 13-6-29.1. Closing this road may shift use to other areas that may have sensitive resources. This type (motorcycle riding) of OHV use is lacking in western Oregon. Ground based yarding could increase opportunities for additional OHV riding on skid trails. Regeneration of the stand would make it easier to walk through and hunt. OHV and passing vehicles could be an ignition source for stumps and logging debris/ slash. The haul route is a major access point for the Flat Mountain trail system. This additional traffic on the road is a minor concern, although it is wide enough in most locations to accommodate two passing vehicles.

VRM

The proposed project would comply with VRM Class 4 management objectives. Most of the disturbance would be associated with modifications to vegetation and ground disturbance. A forest setting and most of the canopy would remain in the density management and thinned areas, but few trees would remain in the regeneration harvest area. Evidence of the density management and thinning portions of the project would not be observable within five years as understory vegetation returns to a more natural appearance and the remaining stand continues to mature. The regeneration portion would remain observable for decades until the seedlings are well established. No portion of the project is observable from major roads or observation points (the forest and terrain blocks the project view from surrounding observation points).

There may be some short-term decline in visual quality as a result of the smoke created while burning of debris/slash piles occur. Any burning would be done in compliance with state smoke management regulations.

4.0 CUMULATIVE EFFECTS

4.1 Vegetation

(IDT Reports incorporated by reference: Rickard Creek Silviculture Riparian abstract pp. 1 to 6, Botanical Report Rickard Creek 1 to 8)

Age Class:

Due to ecological succession and forest management (mostly private land harvests), the amount of habitat in each seral stage within this watershed is not stagnant, but rather it is in constant transition. Ecological succession, will advance early seral forest plantations toward mid seral conditions, just as current and expected future harvests of mid seral stands will return these patches to early seral conditions. Fire history and intensive forest management on both private and public lands over the past several decades has greatly reduced the amount of late seral forests and the quality and quantity of coarse woody debris in western Oregon forests (Moeur, et al. 2005, Hagar 2007). The prevailing management regime on private lands which dominate this watershed will likely involve alternating between mid seral and early seral habitat conditions over time without retaining any late seral forests patches for the foreseeable future. BLM has conducted regeneration harvest on five units in this watershed over the past 10 years, totaling 145 acres (two percent of BLM-managed in the 5th Field Watershed). The proposed action area is largely composed of the stand that is about 77 years old (mid seral), which along with the scattered old-growth and larger overstory trees, is beginning to acquire structural characteristics of a late seral forest stand. The harvest of this stand represents a loss of potential late seral forest conditions within this watershed, where the cumulative loss on federal lands has reduced late seral forest conditions from 37 percent to 35.5 percent over the past 10 years (remaining well above the 15 percent threshold required by the NWFP). While this proposed action does add to the incremental loss of late seral forest recruitment, it does not exceed the cumulative effects analyzed within the Salem District RMP (USDI-BLM 1994).

Native vegetation:

The proposed action consists of regeneration harvesting 87 acres and commercially thinning/density management of 27 acres located on the eastern slopes of the Oregon Coast Range mountains and within the BFWA area. Approximately eight percent (6,149 acres) of the Benton Foothills Watershed Analysis Area is under the jurisdiction of the BLM and this project occurs on less than two percent of the BLM-managed land. Most of the common perennial vascular plant species would persist on site

post treatment and many of the common forbs, herbs, bryophytes and lichen species would become established within approximately 20 to 50 years. Effects of the proposed action on native vegetation are expected to be localized within the project area.

Bureau Special Status Botanical and Fungal Species:

The 87 acres of regeneration harvest would not provide any suitable habitat for rare or uncommon botanical or fungal species for an estimated 50 + years. Commercial thinning/density management of dense stands could provide habitat for uncommon botanical and fungal species (known from forests with larger diameter trees) since thinning dense stands can allow for increased secondary conifer growth and for the development of understory and shrub species. There are no known Bureau special status species within or adjacent to the project area.

Invasive/Non-native Plant Species (including Noxious Weeds):

Examples of forest management activities and natural events within the Benton Foothills Watershed that would create soil disturbance, increase available light, and increase soil temperatures, all of which would influence the spread of NNPs are:

- commercial and pre-commercial timber density management projects;
- young stand maintenance;
- road construction, maintenance, renovation, decommissioning and culvert replacements;
- landslide, high flow sedimentation deposits; and off highway vehicle (OHV) activities.

Activities that do not necessarily create disturbance but influence the spread of weed seeds are recreational hiking, biking, horseback riding, fishing and hunting.

Other sources of seed dispersal are from wildlife movement, water movement, natural dispersal and wind. Many past and present management and non-management activities tend to open dense forest settings and disturb soils, therefore providing opportunities for widespread NNP infestations to occur. Most NNPs are not shade tolerant and would not persist in a forest setting as they become out-competed for light as tree and/or shrub canopies close and light to the understory is reduced. The implementation of this project would likely increase the number of common and widespread non-native plant species that are known to occur within the Benton Foothills Watershed. However, as discussed above the risk rating for any adverse cumulative effects to the Benton Foothills Watershed or any adjacent watersheds would remain low.

4.2 Soils

(IDT Reports incorporated by reference: Rickard Creek Timber Sale Soils Report, pp. 1 to 8)

The analysis indicates that the proposed project is considered unlikely to have detectable effects on soil erosion, or soil productivity. There will be no measurable cumulative impact to the soils resource outside the project area.

4.3 Water

(IDT Reports incorporated by reference: Rickard Creek Hydrology Environmental Assessment pp.1 to 9)

The risk of increases to peak flows based on the proposed management activity falls well below the line indicating a potential risk of peak flow enhancement. Therefore, based on this analysis and the analysis described above, the risk of peak flow enhancement based on the proposed management activity was determined to be low to very low and cumulative impacts are not expected to be measurable either in the project watershed or downstream of the project watershed.

4.4 Fisheries/Aquatic Habitat

(IDT Reports incorporated by reference : Rickard Creek Regeneration Project Environmental Assessment Fisheries pp 1 to 16)

With the implementation of SPZs, the proposed stand treatments (regeneration harvest and commercial thinning harvest) are not expected to alter LWD recruitment, stream bank stability, and sediment supply to channels at the 5th field watershed scale in the short-term or long-term. The proposed density management project, (primarily conifer release), would be unlikely to affect fish habitat directly and would not be expected to have any cumulative impacts to aquatic habitat.

The only road construction proposed in the RR is near the affected fish bearing stream to the southwest of the density management treatment area. Project design criteria would limit proposed road construction to ridge tops at least 300 feet from stream channels. Stand exam data indicates tree heights to be 160 feet in the treatment area where road construction may occur. Relative to the new construction, tree heights of the treatment area are less than the 300 foot distance from the proposed road location to the stream. Trees in the area of new construction would not be recruited to the stream channel due to buffer distance. Therefore the removal of trees from proposed road construction is not anticipated to affect LWD recruitment to stream channels at the site level and no cumulative effects are anticipated to instream structure. The ridgetop road is highly unlikely to cause sediment transport to streams at the site level. No cumulative effects are anticipated to sediment regimes in the Marys River Watershed. Proposed road renovation activities associated with the project may result in localized sediment transmission to intermittent streams. These effects were not anticipated to reach fish habitat downstream and would not be expected to contribute to any cumulative effects.

Proposed timber hauling on unpaved roads would cross three fish bearing stream channels. Hauling may contribute a minor amount of sediment to the one unnamed fish bearing stream in Beaver Creek. The other two crossings (Beaver Creek), are highly unlikely to contribute fine sediment due to the paved approaches over the crossings and the high filtration rate anticipated in the vegetated ditch lines. The small magnitude of sediment anticipated from the one unpaved crossing would be limited to a short distance downstream of the crossing. The small scale local effects which may occur due to proposed hauling is not anticipated to contribute to cumulative effects at the fifth field level as these impacts aren't anticipated to result in increase sediment transport rates downstream which could combine with other sediment source areas and create additive impacts.

Cumulative impacts to fishery resources could occur if proposed actions result in alterations in runoff contributing to changes in flows where fish reside. The probability of the proposed action altering peak flows in the project area was considered low to very low (Wegner 2007), and would be highly unlikely to contribute to cumulative hydrologic effects, subsequently no cumulative effects are anticipated on aquatic resources.

The hydrology report indicated that the proposed project was considered unlikely to have detectable effects on stream temperatures and not expected to result in any cumulative effects to temperature (Wegner 2007). 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.

Overall the proposed action is highly unlikely to have any impacts outside the action area; therefore no cumulative impact on fish or fish habitat would occur. No cumulative impacts are anticipated due to the small size of the project, all new roads are located on ridge tops, and thinning the RRs would improve the function and complexity within the RRs.

4.5 Wildlife

(IDT Reports incorporated by reference: Biological Evaluation pp. 1 to 13)

The available habitat for late seral forest associated wildlife species would be reduced to 35.5 percent for this watershed, which is well above the 15 percent required by the RMP and NWFP. This action would not contribute to need for listing any Special status wildlife species. Dispersal habitat for spotted owls would be negligibly affected (reduced to 81percent), but would remain well above the threshold of 50 percent for this landscape.

Fuels/Air Quality

(IDT Reports incorporated by reference: Rickard Creek Fuels Report, pp. 1 to 7)

There would be no cumulative effects to these resources as the effects from the project would be local and/or short lived, and there would be no other uses affecting this resource.

When looked at from a watershed scale, the thinning of approximately 27 acres of forest habitat would have very little effect overall but would reduce the long-term potential of the treated stand to carry a crown fire.

4.6 Recreation

(IDT Reports incorporated by reference: Recreation/Rural Interface/NRM Report pp. 1 to 5)

Current recreation use of the project area would be restricted in the short-term and is expected to remain constant upon completion of operations. There are alternative areas in the vicinity to do recreational activities while this project is occurring. This project would have minimal to no impact on recreational uses, but have major visual impacts to those who use the project area.

This project would contribute to the amount of timber cut in the watershed, but the amount taken is minimal compared to what is happening on private lands. Timber harvest activities near or adjacent to the project are observable from private and public lands and roads. The project is in VRM 4 class and would comply with management objectives.

There have been many timber sales on BLM-managed lands on Flat Mountain in the past 10 years. All had some type of impact on the motorcycle trail system.

5.0 COMPLIANCE WITH THE AQUATIC CONSERVATION STRATEGY

Existing Watershed Condition

The Rickard Creek Timber Sale Project area is in the Marys River Watershed which drains into the Willamette River. Three percent of the Marys River Watershed is managed by BLM, four percent is managed by the U.S. Forest Service, two percent of the watershed is managed by the U.S. Fish and Wildlife Service and ninety-one percent is managed by private land owners. Approximately 12 percent of the total BLM-managed lands consist of stands greater than 80 years old and approximately 22 percent of BLM-managed lands are located in riparian areas (within 100 feet of a stream).

Review of Aquatic Conservation Strategy Compliance

Review of this analysis indicates that the project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II [complies with the ACS on the project (site) scale]. The

following is an update of how this project complies with the four components of the Aquatic Conservation Strategy. The project would comply with:

Component 1 – Riparian Reserves: by maintaining canopy cover along all streams and wetlands would protect stream bank stability and water temperature. Riparian Reserve boundaries would be established consistent with direction from the Salem District Resource Management Plan. Proposed RR activities are intended to enhance riparian condition. Approximately 1,200 feet of temporary new road construction would occur within RMP RRs but outside the drainage area of the stream;

Component 2 – Key Watershed: by establishing that the Rickard Creek timber sale is not within a key watershed;

Component 3 – Watershed Analysis: The Benton Foothills Watershed Analysis (1997) describes the events that contributed to the current condition such as early hunting/gathering by aboriginal inhabitants, road building, agriculture, wildfire, and timber harvest. The following are watershed analysis findings that apply to or are components of these projects:

- ✓ Historically, landslide frequency has been low. Although harvest activities are expected to increase due to the LUA, substantial increases in land sliding rates are not expected (p 4).
- ✓ Surface erosion is accelerated when low growing ground cover and/or duff layer are removed. Thinning, regeneration harvest, and spring burning for site preparation leave the majority of the soil surface protected or undisturbed (p.4).
- ✓ BLM RRs in the analysis area lack older forest characteristics. Approximately 1,636 acres (78 percent) of the RRs are in early and mid seral age stands. Many of these stands tend to be overstocked, and lack vertical structure. Density management thru the creation of gaps would benefit structural diversity (p.7).
- ✓ Management activities in the RRs can be used to promote older forest characteristics, attain ACS objectives and move the RRs on a trajectory toward older forest characteristics. Desired riparian characteristics include: Diverse vegetation appropriate to the water table, diverse age classes (multi-layered canopy); mature conifers where they have occurred in the past; and dead standing/down wood (p.9).
- ✓ Water quality conditions in the forested uplands appear to be generally good, but there is little data to verify this. The parameter of greatest concern is turbidity and suspended sediment, particularly chronic inputs of fine sediments from road and trail surfaces (p. 12).
- ✓ Dispersal by highly mobile wildlife species and habitat to allow dispersal to adjacent areas is not a significant issue within the analysis area (p. 13).
- ✓ Watershed Analysis identified regeneration harvest as a tool for forest management in this watershed. A high amount of acreage currently in the 60 year age class is moving into the 70 year age class next decade and would be potentially available for regeneration harvest. More than a decade has passed since completion of the watershed analysis and the stand age for the regeneration harvest has moved into the 70 year age class (p.14).
- ✓ Drainage structures on many of the BLM controlled roads are deteriorating and/or are inadequately sized for 100-year flood events. Replacement of failing culverts is included in the Rickard Creek timber sale project (p. 16).

- ✓ In general, avoid new road construction in RRs to meet Aquatic Conservation Strategy objectives. The current planning process for new road construction requires the involvement of affected resource specialists, including the hydrologist, soils scientist, botanist, wildlife biologist and/or aquatic biologist, and road engineer. At the present time, the Best Management Practices are being used to help determine the road location, general road design features, design of cross drains and stream crossings, as well as the actual road construction (p. 17).

Use of public lands by off-highway vehicles is extensive and virtually unmanaged (p. 18).

Component 4 – Watershed Restoration: The project would improve habitat conditions for coho salmon, steelhead and cutthroat trout and assist in restoring and improving ecological health of watersheds and aquatic systems by replacing failing culverts and reducing road related adverse effects for the long-term restoration of the aquatic system

Density management would restore watershed conditions by providing a gradual transition in structural characteristics of the treated stands that would more closely resemble late seral forest and promote stand diversity, provide more light to accelerate growth of selected conifers and promote species diversity.

Table 6: Consistency with the Nine Aquatic Conservation Strategy Objectives

Aquatic Conservation Strategy Objectives (ACSOs)	Rickard Creek Timber Sale and Associated Actions
<p><i>1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features.</i></p>	<p>Does not prevent the attainment of ACSO 1. The watershed where this project occurs lacks structural diversity and CWD. The project would enhance late-successional forest conditions and speed up attainment of these conditions across the landscape. The regeneration harvest would add to the number of early seral stage acres in the basin and leaving 9 to 11 trees per acre will add structure to the early seral stage</p> <p>Replacing failing culverts with structures designed for 100 year flood events would maintain watershed and landscape features to ensure protection of aquatic systems. The proposed action is unlikely to have detrimental cumulative effects on the hydrologic regime. Road renovation practices help to prevent fill failures, slides, washouts, and other disturbances which can alter landscape features and complexity and add sediment to adjacent streams.</p>
<p><i>2. Maintain and restore spatial and temporal connectivity within and between watersheds.</i></p>	<p>Does not prevent the attainment of ACSO 2. 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 RRs develop late successional characteristics, lateral, longitudinal and drainage connectivity would be restored.</p> <p>Aquatic connectivity would be enhanced by the replacement of failing culverts. Renovation of the transportation system would not affect spatial connectivity.</p>
<p><i>3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.</i></p>	<p>Does not prevent the attainment of ACSO 3. A minimum 50 foot SPZs would maintain the integrity of shorelines, banks and bottom configurations in the project area. 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.</p> <p>Culvert replacement necessitates operating machinery in the stream channel, which can compact stream bed substrates, alter bed form and increase sedimentation in the stream system. However, any disturbance is likely to be short-term and design features would be implemented to minimize potential impacts to the hydrologic system. In the long-term, the replaced culvert is expected to perform better than the existing worn culverts and improve hydrologic function. Because the new culverts would be sized to pass the 100 year flow, it is not expected to greatly impede channel function. Roadside ditch and culvert installation and placement of surfacing material and surface blading are all intended to reduce the risk of road embankment failures and sediment input into aquatic systems.</p>

Aquatic Conservation Strategy Objectives (ACSOs)	Rickard Creek Timber Sale and Associated Actions
<p>4. <i>Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.</i></p>	<p>Does not prevent the attainment of ACSO 4. Stream temperature: According to the stream shading sufficiency analysis, the proposed SPZs (minimum of 50 feet) was sufficient to protect critical shade in the primary shade zones, based on topography and average tree height. Much of the SPZ is greater than 50 feet from stream channels, averaging nearly 200 feet in the northern and southern parts of the treatment areas. Stream shade would be protected.</p> <p>Sedimentation and stream turbidity: see No. 5 below</p> <p>The project is likely to cause some short-term direct disturbance to water quality, but in the long-term, the replaced culverts are expected to perform better than the existing worn culverts and improve hydrologic function. Road renovation practices are intended to reduce the likely deposition of road fill material into adjacent streams.</p>
<p>5. <i>Maintain and restore the sediment regime under which aquatic ecosystems evolved.</i></p>	<p>Does not prevent the attainment of ACSO 5. The project 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 on existing roads would help to restore the sediment regime to streams in the area.</p> <p>Culvert replacements would increase short-term sedimentation in the stream system. However, design features would be implemented to minimize potential effects to the hydrologic system. Road renovation practices reduce the amount of sediment that enters streams by installing culverts and minimizing road surface and ditch scouring which would be expected to provide beneficial effects to sediment regimes over the long-term.</p>
<p>6. <i>Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.</i></p>	<p>Does not prevent the attainment of ACSO 6. The proposed project would not measurably alter instream flows. The project would affect less than 0.8 percent of the forest cover in the Marys River Watershed.</p> <p>Proposed thinning would entail removing as few trees as necessary to achieve the purpose and need of the project. Therefore, direct effects from this project on cumulative effects to streamflow are too small to be measured with reasonable accuracy. Culvert installations would improve road drainage and infrastructure, reducing erosion run-off and improving water quality.</p>
<p>7. <i>Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.</i></p>	<p>Does not prevent the attainment of ACSO 7. Design features for the project, such as SPZs, 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.</p> <p>The proposed action would not alter existing patterns of floodplain inundation or water table elevation as it would have no effects or only negligible short-term negative effects on existing flow patterns and stream channel conditions.</p> <p>Proper drainage of roads would maintain water tables and flood plain functions. Additional culvert installation sites would help restore flow dispersion on slopes downhill of the roadway, more accurately mimicking the original runoff patterns.</p>

Aquatic Conservation Strategy Objectives (ACSOs)	Rickard Creek Timber Sale and Associated Actions
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	<p>Does not prevent the attainment of <i>ACSO 8</i>.</p> <p>The actual riparian areas along streams would be excluded from treatment during the project by designating SPZs, and only the upslope portions of the RRs would be included in the density management treatment. Riparian Reserves would be excluded from the regeneration harvest management treatment. There would be little or no change to riparian vegetation on banks or within the riparian zones along streams resulting from the proposed project.</p> <p>The project would require removal of localized vegetation, including removal of trees within the RRs. In the long-term where small openings are created the riparian area would benefit from increased structural diversity. Culvert installations would require removal of small amount of roadside vegetation. Overall diversity of riparian vegetation would not be affected.</p>
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	<p>Does not prevent the attainment of <i>ACSO 9</i>.</p> <p>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 CWD conditions.</p> <p>There are no negative effects expected to occur to any habitats as a result of culvert replacement activities. To the extent that the new culvert may facilitate better dispersal of stream and riparian associated wildlife species, the populations of some of these wildlife species should improve. Proper drainage of road surfaces and ditches would improve water quality which would benefit riparian dependent species.</p>

6.0 LIST OF PREPARERS

Table 7: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Dave Calver	DHC	2008-03-10
Botany TES and Special Status Plant Species	Ron Exeter	RE	MAR 10 2008
Fisheries	Scott Snedaker	SSS	3/11/08
Fuels/Air Quality/Soils	Tom Tomczyk	TST	3/10/2008
Hydrology/Water Quality	Steve Wegner		
Recreation/Rural Interface/Visuals	Traci Meredith		
Silviculture/Riparian Ecology	Hugh Snook	HWS	3/10/08
Wildlife TES and Special Status Animal Species	Scott Hopkins	SH	3/10/08

7.0 CONTACTS AND CONSULTATION

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

United States Fish and Wildlife Service (USFWS)

To address concerns for potential effects to spotted owls, 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 will be accomplished 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 2009 and 2010. This proposed action has been designed to incorporate all appropriate design standards likely to be included in the pending BA. Upon completion of consultation, if any additional design standards are set forth in a Biological

Opinion or Letter of Concurrence, then these standards would be incorporated into the design of this project prior to issuance of a decision record for this EA

National Marine Fisheries Service

Consultation with NOAA NMFS is required for projects that ‘may affect’ listed species. Protection of EFH (Essential Fish Habitat) as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NOAA NMFS (US Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service) is required for all projects which may adversely affect EFH of Chinook salmon. The proposed Rickard Creek Timber Sale Project is not expected to affect EFH due to distance of all activities associated with the project from occupied habitat.

A determination has been made that the proposed project would have ‘no effect’ on UWR steelhead trout, Chinook salmon and Oregon chub. Generally, the ‘no effect’ determination is based on the distance of a project to ESA listed fish habitat. The distance from ESA habitat is approximately 2 miles to project activities. Due to the “no effect” determination this project will not be consulted upon with the NMFS.

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

The project area occurs in the Oregon 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.

7.3 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.

- ✓ To solicit comments on the proposed project, a description of the project was included in all project updates since June 2005.

7.3.1 30-day public comment period

- ✓ The EA and FONSI would be made available for public review March 17, 2008 to April 15, 2008. The notice for public comment would be published in a legal notice by the *Gazette Times* newspaper. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before April 15, 2008 will be considered in making the final decisions for this project.

8.0 MAJOR SOURCES AND COMMON ACRONYMS

8.1 Major Sources

8.1.1 Interdisciplinary Team Reports

Exeter, R. 2007. Botanical Report Rickard Creek Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Hopkins, D. 2007. Biological Evaluation. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Wegner, S. 2007. Cumulative Effects Analysis for the Rickard Creek Timber Sale. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Wegner, S. 2007. Rickard Creek Soil/Water updated Report Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Haynes, A. 2007. Rickard Creek Timber Sale Proposal Riparian Reserves Report Report Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Meredith, T. 2007. Recreation/Rural Interface/VRM Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snedaker, S. 2007. Rickard Creek Regeneration Project Environmental Assessment Fisheries. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Caldwell, B. 2006. Rickard Creek Silvicultural Prescription. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Caldwell, B. 2007. Rickard Creek – Silviculture\RR EA Abstract. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Tomczyk, T. 2007. Rickard Creek Timber Sale Report Fuels Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

8.1.2 Additional References

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

USDA Forest Service, USDI. Bureau of Land Management. 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR. Note: The ROD and Standard and Guidelines are collectively referred to herein as the Northwest Forest Plan (NFP)

Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl (July 2007).

Final Supplement to the 2004 Final Supplemental Environmental Impact Statement to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines (June 2007).

USDA Forest Service and USDI Bureau of Land Management. 2007. Biological Assessment, Fiscal year 2009/2010 habitat modification activities in the North Coast Province which might affect bald eagles, northern spotted owls or marbled murrelets.

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

USDI Bureau of Land Management. 1995. Salem District Record of Decision and Resource Management Plan (RMP). Salem District BLM, Salem, OR. 81 pp. + Appendices.

USDI Bureau of Land Management. 1997. Benton Foothills Watershed Analysis. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR. 107pp.

RESPONSE TO SCOPING COMMENTS

A scoping letter, dated June 29, 2006, was sent to 42 potentially affected and/or interested individuals, groups, and agencies. Two responses were received during the scoping period.

9.1 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. The comments, (in italics type), may have been paraphrased for clarity or conciseness, but the complete text of the comment was available to the Interdisciplinary Team (IDT) making the response. The full text of the comment letter is available in the Rickard Creek NEPA/ EA file.

9.1.1 Oregon Natural Resource Council (June 26, 2005)

- 1. Comment:** *“Regen harvest is far worse than thinning in terms of habitat destruction and fragmentation, soil erosion, soil compaction, degraded soil foodweb, risk of degraded water quality, edge effects including blowdown, rain-on-snow effects including peak flows, degraded scenic values, release of sequestered carbon pools, and increased fire hazard”*

Response: Although we agree that regeneration harvests have greater impacts than thinning, an affects analysis was completed during preparation of the RMP that included some regeneration harvest. This proposed regeneration harvest would be implemented in accordance with RMP direction and therefore is within the scope of the RMP affects analysis. A site-specific affects analysis by resource is discussed in detail under Affected Environment and Environmental Effects (EA Section 4.0).

- 2. Comment:** *“Are there no other thinning opportunities in the area? Why are the 91 acres of 70 to 80 year old stands not suitable for thinning?”*

Response: As discussed under the Purpose and Need (EA Section 1.6) and under Alternatives Considered but not Analyzed in Detail (EA Section 2.3) the stand proposed for regeneration harvest has reached culmination of mean annual increment and is better suited for regeneration harvest.

3. **Comment:** *“Obviously, there is discretion in the Northwest Forest Plan to do clearcut logging on GFMA lands. However, the Northwest Forest Plan does not require clearcut logging to meet timber targets.”*

Response: The Rickard Creek timber sale does not include clearcut logging. The project design features do include density management, commercial thinning and regeneration harvest. Although the Northwest Forest Plan does not require regeneration harvests, the RMP (p.48) which is tiered to the Northwest Forest Plan recommends that we “Schedule regeneration harvests to assure that, over time, harvest would occur in stands at or above the age which produces maximum average annual growth over the lifetime of a timber stand. In the planning area, this culmination occurs between approximately 70 and 110 years of age. During the first decade, regeneration harvests may be scheduled in stands as young as 60 years, to develop a desired age class distribution across the landscape.” As discussed in the Purpose and Need (EA Section 1.6) the stand proposed for regeneration harvest fits the characteristics that the RMP recommends for regeneration harvest

4. **Comment:** *“While we may be willing to accept some short temporary spurs, the reality is that across most tracks of federal forestland in Oregon, road densities are high and out of compliance with guidelines or recommendations designed to reduce harassment of wildlife or protection of water quality”*

Response: The project design features (EA Section 2.2.1) calls for decommissioning all of the new construction and 2800 feet of existing roads. This would result in a net reduction of road densities.

5. **Comment:** *“The ROD clearly states that the 240 linear feet of logs per acre greater than or equal to 20 inches in diameter standard is to be used until better, vegetation-type specific standards are developed. This model is currently available. BLM should use the DecAID decision support tool and consider all the many values of snags and down wood.....”*

Response: Setting a new standard for management of CWD is beyond the scope of this EA. However, the BLM is not relying on out-dated science concerning management of snags and down logs. The Dec AID tool and other references are cited in the Biological Evaluation of wildlife resources for the Rickard Creek timber sale. The BLM has considered the many values of snags and down wood, and the EA discusses both snag and down log retention on Page 10 and 33. Stand inventories found over 4,210 linear feet of down logs and 32 snags per acre in the regeneration harvest area. While some of this material may be damaged or lost during harvest, the EA states that “the CWD component would remain at moderate to high levels for this landscape since existing snags and logs are reserved from harvest, and since high quality snags and down logs would be recruited from reserved green trees due to post-harvest mortality.” (EA page 33).

10.0 APPENDIX A – MARKING GUIDE FOR COMMERCIAL THINNING

- a) Maintain on an average of 130 of square feet basal area (BA) or approximately 52 trees per acre of all conifers greater than seven and less than forty inches DBHOB with a range of 120 to

140 BA per acre for upland areas. Wildlife and other reserved trees may be in addition to the leave basal area per acre.

b) Leave dominant and co-dominant trees with consideration for spacing (Low Thinning). Approximately 80 percent of the trees to be cut should be from trees below the average leave tree diameter of 21 inches. Reserve all trees over 40 inches DBHOB where possible. Cut suppressed trees unless the tree is located in an opening and has > 35 percent crown. Cut Douglas-fir trees on the edge of *phellinus* pockets if the tree shows signs of infection.

c) Spacing between trees maybe as low as 5 feet to maintain the desirable BA near openings.

d) Maintain species diversity by reserving hardwoods and low density conifers which are not safety hazards or located in haul or logging roads.

e) Reserve snags, trees with high wildlife value, and (CWD) where possible.

11.0 APPENDIX B NORTH AND CENTRAL COAST RANGE PHYSIOGRAPHIC PROVINCE MAP

Rickard Creek Timber Sale EA Appendix B - North and Central Coast Range Physiographic Province Map

