

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

Environmental Assessment Number OR-080-07-13

December 14, 2009

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

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**BLM**



Abstract: This revised 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 Matrix (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-10/001+1792**

## FINDING OF NO ADDITIONAL SIGNIFICANT IMPACT

### Introduction

The Bureau of Land Management (BLM) published the *Rickard Creek Timber Sale Environmental Assessment* (EA) (EA# OR080-07-13) in March of 2007. Comments received on the EA were reviewed and as a result, the BLM revised the *Rickard Creek Timber Sale EA*. The *Rickard Creek Timber Sale Revised EA* is attached to and incorporated by reference in this Finding of No Additional Significant Impact determination (FONASI). The analysis in this revised EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS).

The proposed regeneration harvest, commercial thinning, and density management activities have been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (*EA Section 1.3*). Consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service is described in Section 7.1 of the revised EA.

This project is located on BLM-managed lands in Township 13 South, Range 6, Section 29, Willamette Meridian in Benton County, Oregon. The proposed action is to conduct regeneration harvest on approximately 87 acres of stands that are about 77 years old, conduct commercial thinning on approximately 6 acres of 60 year old stands and conduct density management on approximately 21 acres of 60 to 75 year old stands. Approximately 93 of these acres are in the Matrix land use allocation (LUA), and 21 in the Riparian Reserve LUA.

The revised EA and FONASI will be made available for public review from December 16, 2009 to January 8, 2010. The notice for public comment will be published in a legal notice in the *Gazette Times* newspaper. Written comments should be addressed to Trish Wilson, Field Manager, Marys Peak Resource Area, 1717 Fabry Road S., Salem, Oregon 97306. Emailed comments may be sent to [OR\\_Salem\\_Mail@blm.gov](mailto:OR_Salem_Mail@blm.gov). Attention: Trish Wilson.

### Finding of No Additional Significant Impact

Based upon review of the Revised 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 Matrix and RR LUA land, encompassing less than 0.05 percent of the forest cover in the Marys River Watershed within the Marys River Watershed [40 CFR 1508.27(a)].

**Intensity:**

1. The resources potentially affected by the proposed regeneration harvest, density management and commercial thinning activities are: air quality, fire hazard/risk, fish species/habitat (except ESA listed species/habitat), invasive, non-native plant species, migratory birds, other special status species / habitat – wildlife, recreation, soils, threatened or endangered species – northern spotted owl, visual resources, water quality, wildlife habitat components, and carbon sequestration (storage) and climate change. The effects of regeneration harvest, commercial thinning, and density management are unlikely to have significant adverse impacts on these resources [40 CFR 1508.27(b) (1)] for the following reasons:
  - *Project design features* described in (EA section 2.2.2) would reduce the risk of effects to affected resources to be within RMP standards and guidelines within the effects described in the RMP/EIS.
  - *Vegetation and Forest Stand Characteristics* (EA sections 3.2.1 and 4.1): No special status vascular plant species or bryophytes would be affected.

Noxious Weeds - While the number of plants may increase in the short term, any increase that does occur should be short lived because all large areas with ground disturbing activities 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. Sowing disturbed soil areas allows the sown seed to become established and dominant in areas that may otherwise be suitable for noxious weeds to become established thus reducing the physical space of the potential habitat for noxious weeds to become established.

Implementation of the Marys Peak integrated non-native plant management plan (EA # OR080-06-09) allows for early detection of non-native plant species which allows for rapid control and generally these species often persist for several years after timber harvest but soon decline as native vegetation increases within the project areas. In addition, all road construction and road maintenance areas would be monitored for Scot's broom infestations and eradicated under this proposal and as part of MP's non-native plant management plan. Other species would be eradicated as funding allows. No significant increase in populations of the noxious weed (invasive/non-native) species identified during the field surveys is expected to occur because this project would disrupt very few acres of exposed mineral soil which could provide habitat for noxious weed species. All of the proposed timber removal activities are planned and laid out to remain below the cumulative level of 10 percent aerial extent of soil disturbance from the RMP (Timber harvest BMP's, Appendix C-2).

Following completion of this proposed action, the majority of the understory vegetation and root systems would remain, along with surface soil litter and slash from the harvested trees. This amount is considered as not significant when compared to other annual disturbances throughout western Oregon which also provide habitat for noxious weed species. These disturbances include but are not limited to: any forest management activities, road construction (city, highway and logging roads), road maintenance (pulling ditches, mowing), vegetation management, residential and commercial building construction, gardening and any activity which would expose mineral soil.

In addition, the areas in which these plants would be expected to become established within this project would be sown with grass seed which would physically reduce the amount of available habitat for the noxious weeds to become established. Any increase in noxious weeds

would be measured by individual plants. We expect short term increases of species such as bull and Canadian thistle, St. John's wort and tansy ragwort, but these species are usually short lived due to encroaching native vegetation and are known as early successional invaders which are widespread and well distributed throughout western Oregon. Oregon Department of Agriculture lists these species as not feasible to control by methods other than biological control. Thus, we consider the potential for these individual species to have short-term spike in numbers within the project area, 'not significant' because i) we are taking mitigating measures to limit the amount of habitat available for establishment, ii) we are requiring earth moving vehicles to be free of vegetation and soil prior to moving into the area, and iii) the distribution of any anticipated species are widespread throughout the region and infestations in forested regions in western Oregon are generally short lived due to the rapid growth of native species.

Other species of noxious weeds such as Scot's broom can easily be removed by physical methods prior to any long term establishment and are not expected to persist because the project would be monitored for these species and removed if discovered.

Stands proposed for harvest activities are not presently functioning as late-successional old growth habitat.

*Carbon Sequestration (Storage) and Climate Change-* . The Rickard Creek EA (OR-080-07-13) is tiered to the PRMP FEIS (1994), (p. 3&4-50) which concluded that all alternatives analyzed in the FEIS, in their entirety including all timber harvest, would have only slight (context indicates that the effect would be too small to calculate) effect on carbon dioxide levels. The following show quantities of carbon in forest ecosystem vegetation<sup>1</sup> worldwide, in the United States, and in the Rickard Creek project area.

- Total carbon, forest ecosystem vegetation, Worldwide (Matthews et al, 2000, p. 58) = 132-457 Gt<sup>2</sup>
- Total carbon, forest ecosystem vegetation, United States ((US EPA, 2009) = 27 Gt
- Total carbon, forest ecosystem vegetation, Pacific northwest, Coast Range 1.8-2 Gt (Hudiburg, et al. 2009).
- Total carbon, forest ecosystem vegetation, Rickard Creek Project Area = 28,000 tonnes or 0.000028 Gt. This represents .000001 percent of the United States total or .000014 percent of the Coast Range total.
- The annual accumulation of carbon from forest management in the United States is 191 million tonnes. Implementation of current management on BLM-managed lands in western Oregon would result in an average annual accumulation of *1.69 million tonnes over the next 100 years, or 0.9 percent of the current U.S. accumulation. (WOPR, p. 4-537).*

Carbon emissions resulting from the proposed action would total 4,900 tonnes. Current global emissions of carbon dioxide total 25 billion tonnes of carbon dioxide (IPCC 2007, p. 513), and current U.S. emissions of carbon dioxide total 6 billion tonnes (EPA 2007, p 2-3). Therefore, the emissions from the proposed action would constitute .0000002 percent of current global emissions and .0000008 percent of current U.S. emissions.

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<sup>1</sup> Carbon contained in both above ground and below ground parts of trees and forest vegetation, and downed wood, litter and duff. It does not include mineral carbon in soil, nor fossil fuels.

<sup>2</sup> A Giga-tonne (Gt) is one billion tonnes, or metric tons.

Tree growth following harvest would offset greenhouse gases and result in net storage of 3,800 tonnes of carbon. This would contribute an annual average of 40 tonnes, or .0000002 percent to the U.S. annual accumulation of carbon from forest management of 191 million tonnes. The WOPR EIS (p. 4-538), which is incorporated here by reference, states that by 2106, the No Action Alternative (management under the 1995 RMP) would result in a total carbon storage of approximately 628 million tonnes, 9 percent higher than average historic conditions (576 million tonnes, WOPR, 3-224, as reanalyzed in November 6, 2009 memo, on file, Marys Peak Resource Area). The incremental effect of the proposed action, over time, would be net storage of carbon.

- *Hydrology; Beneficial Uses, Fisheries and Aquatic Habitat; and Soils (EA sections 3.2.2 to 3.2.4):*

The creation of temporary roads, yarding corridors and the mechanical removal of trees are unlikely to significantly increase sedimentation into project area streams because harvest generated slash would be maintained in the yarding corridors minimizing the need for machines to travel on bare soil. Slash, limbs and non-merchantable material left following harvest activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burrough and King 1989, Swift 1985). Also, ground-based equipment would only be allowed on slopes less than 35 percent. Ground-based skidding would occur during periods of low soil moisture with little or no rainfall, in order to minimize soil compaction and erosion.

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 harvest activities and mass wasting are unlikely to result from this action. 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 wet areas, ponds, marshes, etc.) in the project area. In addition, SPZs in riparian areas have high surface roughness, which would function to trap any overland flow and sediment before reaching streams. Therefore, increases in sediment delivery to streams due to harvest activities are unlikely to result from this action.

The proposed project would affect less than 0.05 percent of the forest cover in the Marys River Watershed (114 acres treated divided by 193,748 acres in the Marys River) all located below the Transient Snow Zone. The hydrology analysis of the proposed action was considered unlikely to detectably alter stream flows (Wegner, 2007b). No discernable effects to fish and aquatic 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.

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. 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.

The new road being constructed within the riparian reserve would be located outside the drainage area of the stream in a dry draw that does not have a physical connection to the

stream channel so no erosion from the road surface is expected to reach the stream. All of the new construction 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. Approximately 2,800 feet of the 13-6-29.1 road would also be decommissioned and blocked to vehicle traffic following harvest.

- *Soils*: (EA section 3.2.2). Approximately 1.2 acres in landings and 2.6 acres in skid trails would be required. Because the existing skid trails would be reused, this would result in a cumulative detrimental disturbance level of 3.3 percent in the sale area units. The aerial extent and degree of disturbance would remain within accepted district guidelines of less than 10 percent disturbance
- *Special Status Species*: (EA section 3.2.1). This project would not directly affect any Bureau SS (special status) vascular plant, lichen, bryophyte or fungi species since there are no known sites within the project area or adjacent to the project. Although the implementation of this project would be detrimental to any bureau SS mycorrhizal fungal species occurring in the project area, the likelihood of any occurring in the stand is low because the majority of these species have no known sites within the Marys Peak Resource Area or the Northern Oregon Coast Range Mountains.
- *Wildlife* (EA section 3.2.5): No SS wildlife species are known to occur within the planned harvest areas. The retention of green trees within the regeneration harvest area (approximately 9 to 11 trees per acre or about 870 trees clumped and scattered across 87 acres), would meet or exceed RMP requirements and add considerable 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 legacy old-growth trees would be released thereby rejuvenating their live crown structure and reinitiating understory shrub layer diversity which enhances the quality of habitat for numerous wildlife species. 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.

Following the harvest operations in the regeneration harvest unit (87 acres) the resulting habitat conditions would be unfavorable to some bird species, while benefitting those species that prefer open shrubby habitats that have a prominent snag component. The resulting habitat conditions within the thinning and density management units (27 acres) would still provide similar habitat conditions for bird species that might currently nest in those stands.

Of the BCC birds that utilize LSOG habitats, most species (besides the northern spotted owl and marbled murrelet) are also found in other seral stages or utilize structural components (snags, hardwoods, etc) that are found in several seral stages. Because all of the Birds of Conservation Concern are widely distributed throughout the conifer-dominated forests of this Bird Conservation Region (Altman 2008); the potential negative impacts to these bird populations resulting from the proposed action would likely be very minor and localized.

- *Air Quality and Fire Hazard/Risk* (EA section 3.2.6): Fuel loading, risk of a fire start and the resistance to control a fire would all increase at the site in the short term (first year following harvest operations) as a result of the harvest activities. 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. However project design features call for the slash created in the regeneration harvest area to be broadcast and pile burned, which would eliminate any harvest-induced increased fire risk and resistance to control in the long term. Once burned, the risks would be lower than the surrounding timber stands – both thinned and un-thinned. 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.

An estimate for the total amount of slash and road clearing debris expected to be piled for burning is 1,850 tons and an estimate for the total amount of slash expected to be consumed by the broadcast burning is 1,080 tons. Burning approximately 2,930 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. Burning of slash would be coordinated with Oregon Department of Forestry in accordance with the OSMP (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. Guidance under the OSMP would always prevent or severely limit burning anytime the weather forecasts indicate there is a likelihood of a stagnant air or persistent inversion situation developing.

- *Visual Resources and Recreation (EA section 3.2.7)*: The proposed project would comply with VRM Class 4 management objectives. 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. The project would have moderate visual impacts with over 80 percent of the harvest area visible from observation points used in viewshed analysis

Current recreation use (OHV riding, biking, hunting, target shooting, driving for pleasure) 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. Decommissioning this rutted road may shift four-wheel drive OHV use to other areas.

- *Public health or safety [40 CFR 1508.27(b)(2)]*: The project's effects to public health and safety would not be significant because: the project occurs in a forested setting, removed from urban/residential areas, where the primary activities are forest management and timber harvest. Public safety along haul routes would be minimally affected because log truck traffic from forest management activities on both private and public land is common and the majority of the public using these haul routes are aware of the hazards involved in driving on these forest roads. In addition project design features such as speed limits and warning signs near logging activities would provide for public safety (EA section 2.2.2).

2. The proposed thinning and regeneration harvest activities:

a. *Would not affect*

- (1) unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] - There are no parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA Section 3.1, Table 3);
- (2) 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, Table 3*).

- b. *Are not unique or unusual.* The BLM has experience implementing similar actions in similar areas without highly controversial [40 CFR 1508.27(b) (4)], highly uncertain, or unique or unknown risks [40 CFR 1508.27(b) (5)].
- c. *Do not set a precedent* for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration [40 CFR 1508.27(b) (6)].
- d. *Are not expected to adversely affect Endangered or Threatened Species* listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b) (9)].
  - (1) *ESA Wildlife - Northern spotted owl (EA Section 3.2.5.2):* The proposed action would have “no effect” to marbled murrelets, since the harvest area is not considered suitable habitat and survey efforts have indicated a probable absence of murrelets in 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.
  - (1) *ESA Fish – Protection of EFH (Essential Fish Habitat) as described by the Magnuson/Stevens Fisheries Conservation and Management Act and consultation with NMFS (National Marine Fisheries Service) is required for all projects which may adversely affect EFH of Chinook salmon.* The proposed Revised 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 listed fish or critical habitat is over two miles to project activities.

- e. *Do not violate any known Federal, State, or local law or requirement imposed for the protection of the environment* [40 CFR 1508.27(b) (10)] (*EA Section 1.3*).
- (2) The Interdisciplinary Team (IDT) evaluated the project area in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)] and determined that there is not a potential for cumulative effects on the affected resources (*EA Section 4.-0*).

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

\_\_\_\_\_  
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
FONASI	Finding of No Additional 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)
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 system)	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, 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)
Matrix	A NWFP designated land use allocation. These lands are managed primarily for timber production
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
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 legacy 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
Road Improvement	Road work which improves an existing road over 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
Windthrow	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

**REVISED RICKARD CREEK TIMBER SALE  
ENVIRONMENTAL ASSESSMENT**

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## **1.0 INTRODUCTION**

This Environmental Assessment (EA) is a revision of the Rickard Creek Timber Sale EA (original EA) that was published and made available for public review from March 17, 2008 to April 15, 2008. The original Rickard Creek Timber Sale EA is incorporated by reference.

The purpose of the revised EA, hereafter referred to as this EA, is to respond to the comments received on the original EA.

This EA will analyze the impacts of proposed regeneration harvest; commercial thinning and density management operations and connected actions on the human environment in the Marys River fifth field watershed. The EA will provide the decision-maker, the Marys Peak Resource Area Field Manager, with current information to aid in the decision-making process. It will also determine if there are significant impacts not already analyzed in the Environmental Impact Statement for the Salem District's Resource Management Plan and whether a supplement to that Environmental Impact Statement is needed or if a Finding of No Additional Significant Impact is appropriate.

Section 1 of this EA for the proposed Rickard Creek Timber Sale project provides a context for what will be analyzed in the EA, describes the kinds of action we will be considering, defines the project area, describes what the proposed actions need to accomplish, and identifies the criteria that we will use for choosing the alternative that will best meet the purpose and need for this proposal.

This December 2009 revision of the EA addresses Carbon Sequestration (Storage) and Climate Change.

### **1.1 Project Covered in this Revised EA (Environmental Assessment)**

One project will be analyzed in this EA. The Revised 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 Matrix (General Forest Management Area); commercial thinning on approximately six acres of a 60 year old stand within Matrix; and density management on approximately 21 acres of 60 and 75 year old stands within RR (Riparian Reserve) LUAs (Land Use Allocations).

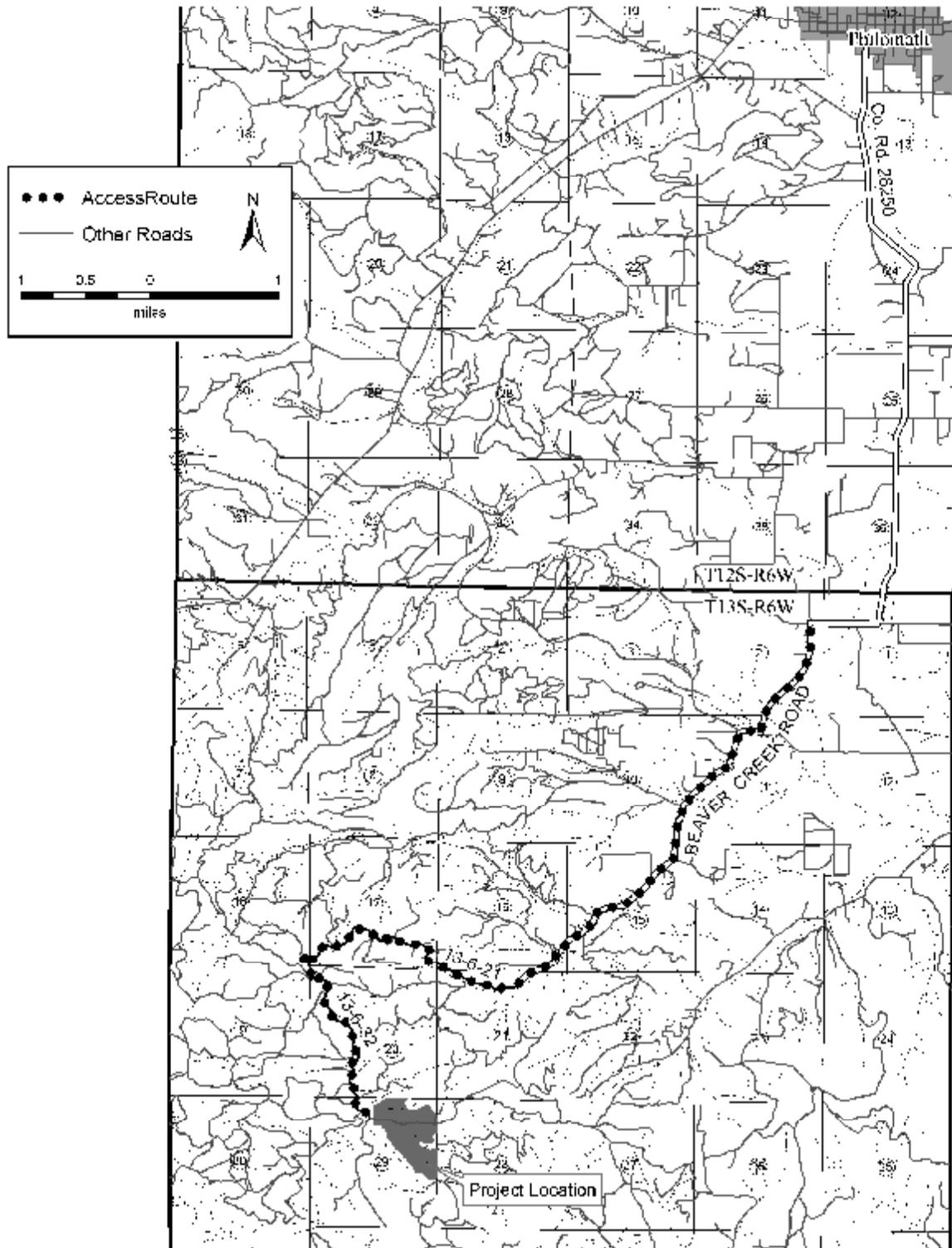
### **1.2 Project Area Location**

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

October 13, 2009

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



### 1.3 Conformance with Land Use Plans, Policies, and Programs

On July 16, 2009 the U.S. Department of the Interior, withdrew the Records of Decision (2008 ROD) for the Western Oregon Plan Revision and directed the BLM to implement actions in conformance with the resource management plans for western Oregon that were in place prior to December 30, 2008.

Since project planning and preparation of National Environmental Policy Act documentation for this project began prior to the effective date of the 2008 ROD, this project had been designed to comply to the land use allocations, management direction, and objectives of the 1995 Salem District resource management plan (1995 RMP), as amended.

The Revised 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 Revised 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 Revised 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 Revised Rickard Creek Timber Sale Project: BFWA (*Benton Foothills Watershed Analysis*), USDI BLM, 1997 and is hereby incorporated by reference. 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.

### 1.3.1 Former 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.

“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. The Revised Rickard Creek Timber Sale Project conforms with the 2007 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*. 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.”

### 1.3.2 Northern Spotted Owl (NSO) Status Review

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

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

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

### 1.3.3 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 Revised Rickard Creek Timber Sale Project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II. In addition, project design features (p. 9) would provide protection measures to meet ACS objectives.

### 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. In addition, the original EA and FONSI document was made available for public review between March 17, 2008 and April 15, 2008. Eight (8) comment letters/emails were received during the original EA comment period. The scoping and EA comment letters/emails are available for review at the Salem District BLM Office, 1717 Fabry Rd SE, Salem, Oregon. This Revised Rickard Creek EA includes additional information which addresses EA comments.

## 1.6 Purpose of and Need for Action

### Matrix

The purpose of this timber harvest is as follows:

- To contribute to the 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 SPS (Stand Projection System) growth model that indicates 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 RMP (p. 46) prescribes management direction for timber resources in the Matrix LUA to “Maintain a well-distributed pattern of early, mid-seral and alte-seral; successional forest across the matrix.” There is a need to meet this direction by reducing the mid-seral age class component, which dominates the project vicinity, but contains very few acres of stands less than 15 years old. 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 indicates 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 LUA is as follows:

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

There is a need to release declining older forest legacy and dominant overstory trees that are undergoing encroachment from densely-stocked younger conifer. There is a need to create structural diversity by retaining such legacy and dominant overstory trees and their large limbs, and deep wide crowns. In the RR LUA, there is a need to provide for long-term recruitment of LWD that would eventually result from legacy and dominant overstory trees.

In addition, there is a need to create spatial diversity by maintaining legacy and dominant overstory trees on the landscape and introducing early seral habitat in small gaps within the density management area where understory development vegetation and shade tolerant tree species can establish.

## **Road Management**

The purpose of the road management is 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. There is a need to construct roads to access the timber stand and to renovate/improve the current road system. The current road system has culverts in need of replacement and road drainage improvements including ditches and surface sloping in some places.

## **2.0 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.” The Salem District RMP which describes appropriate conditions and timing of regeneration harvest was developed with extensive public input. 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 No Action Alternative describes the environmental baseline against which the effects of the action alternatives can be compared, i.e. the existing conditions in the project area and the continuing trends in those conditions if the BLM does not implement any of the proposed actions. Consideration of this alternative also answers the question: “What would it mean for the objectives to not be achieved?” The “No Action Alternative” means that no timber management actions or connected actions would occur. If this alternative were to be selected, the following items would not be done in the project area at this time:

- Silviculture treatments
- Timber harvest
- Road construction, renovation, improvement or decommissioning
- Fuel reduction treatments

Only normal administrative activities and other uses (e.g. road use, programmed road maintenance, harvest of special forest products on public land) would continue on BLM managed lands within the project area. On private lands adjacent to the project area, forest management and related activities would continue to occur. Selection of the No Action Alternative would not constitute a decision to change the land use allocations of these lands. Selection of the No Action Alternative would not set a precedent for consideration of future action proposals.

## 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 RR LUA 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 Matrix LUA, and
- Conducting regeneration harvest on approximately 87 acres of stands which are about 77 years old within Matrix LUA. Within the regeneration harvest unit, between 9 and 11 trees per acre would be reserved from harvest to meet the following objectives:
  - ü minimize the potential deficit of large hard snags and down logs in the post-harvest stand and;
  - ü 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 overstory and legacy trees to create structural diversity. Trees within the commercial thinning area would be thinned to an average 52 trees per acre of all conifers greater than seven and less than forty inches DBH.

Trees would be skyline yarded on approximately 74 acres and ground based yarded on approximately 40 acres. New road construction, road renovation, road improvement and road decommissioning on new and some improved roads are also a part of the proposed action.

### 2.2.1 Connected Actions

#### 1. Road Work:

**Road Construction:** Road construction totaling approximately 2,960 feet would occur. Approximately 2,290 feet (P1 spur) would be surfaced with 6 to 8 inches of rock and 670 feet (T1 spur) would receive no surfacing. Following harvest all of the new construction would be decommissioned.

**Road Renovation:** Road renovation totaling approximately 6,758 feet would occur. All of the road renovation would be be surfaced with 4 to 10 inches of rock. Three culverts would be replaced on Road 13-6-21.

**Road Improvement:** Road improvement totaling approximately 4,176 feet would occur. Approximately 430 feet (R2) would receive no surfacing. Approximately 3,738 feet (R1) would be surfaced with 4 to 10 inches of rock. Following harvest approximately 2,800 feet of Road 13-6-29.1 (R1) 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. These design features would be achieved thru enforcement of a timber sale contract.

**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/improvement/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:

- ü All soil disrupting equipment moved into the project area would be required to be clean and free of dirt and vegetation as directed by the contract administrator.
- ü 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 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:

- ü 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).
- ü Ground based yarding would take place generally on slopes less than 35 percent.
- ü Within ground based yarding areas, existing skid trails would be used as much as practical.
- ü 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.
- ü 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.

- ü 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.
- ü Waterbars would be constructed where they are determined to be necessary by the contract administrator.
- ü 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.
- ü 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.

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

- ü 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.
- ü 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.
- ü No yarding would be permitted in or through any SPZs within the harvest area
- ü No regeneration harvest would occur within RR LUA.

**To protect and enhance stand diversity and wildlife habitat components:**

- ü Priorities for tree marking within the commercial thinning areas would be based on Marking Guidelines (see Appendix A).
- ü 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.
- ü 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.
- ü 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. .
- ü 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.
- ü Within the density management areas, trees within 60 to 80 feet of dominant overstory trees would be cut (approximate ¼ to ½ acre gap created). These gaps would average up to one per two acres. The cut trees would be harvested.
- ü 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.

- ü 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.
- ü 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. Any snags felled for these purposes would remain on site within the project area. 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:**

- ü 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.
- ü 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.
- ü 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).
- ü Approximately 9,000 feet of hand fire lines would be constructed along regeneration harvest boundaries where broadcast burning would occur.
- ü Approximately 5,000 feet of 50 foot wide fuel free zones would be created along regeneration harvest boundaries or along adjacent commercial thinning boundaries.
- ü Within the regeneration harvest area following yarding, all remaining brush taller than two feet would be cut (slashed).
- ü Within the regeneration harvest area, pull back of logging debris within five feet from reserved trees would be required.
- ü Within the regeneration harvest area, logging slash and brush would be broadcast burned in the skyline yarding area.

- ü 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.
- ü 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).
- ü 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:**

- ü 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 approximately 500 trees per acre.

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

- ü The resource area biologist and/or botanist would be notified if any Bureau SS botanical, fungal and animal species are found occupying stands proposed for treatment during project activities. If the species is a federal listed ESA species then all of the known sites would be withdrawn from any timber harvesting activity. If the species is other than a federal listed ESA species, then appropriate mitigation action would be taken.
- ü For botanical bureau SS species (includes state and federal threatened and endangered) whose characteristics make locating them with field surveys practical, clearances would generally be done by field surveys using intuitive controlled methods, field clearances, field reconnaissance, inventories, and/or habitat examinations. Clearances for fungi are considered "not practical" and surveys are not required.
- ü Site management of any Bureau SS (special status) botanical and fungal and animal species found as a result of additional inventories would be accomplished in accordance with, BLM Manual 6840- *Special Status Species Management* and 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 public safety during harvest and fuel treatment operations:**

- ü Oregon Occupational Safety and Health Administration (OR OSHA) and the BLM would require the operator to place signs, temporarily block roads with vehicles or moveable barricades, and/or use flaggers to ensure public safety while logging, hauling and fuel treatment operations are active.

**To protect Cultural Resources:**

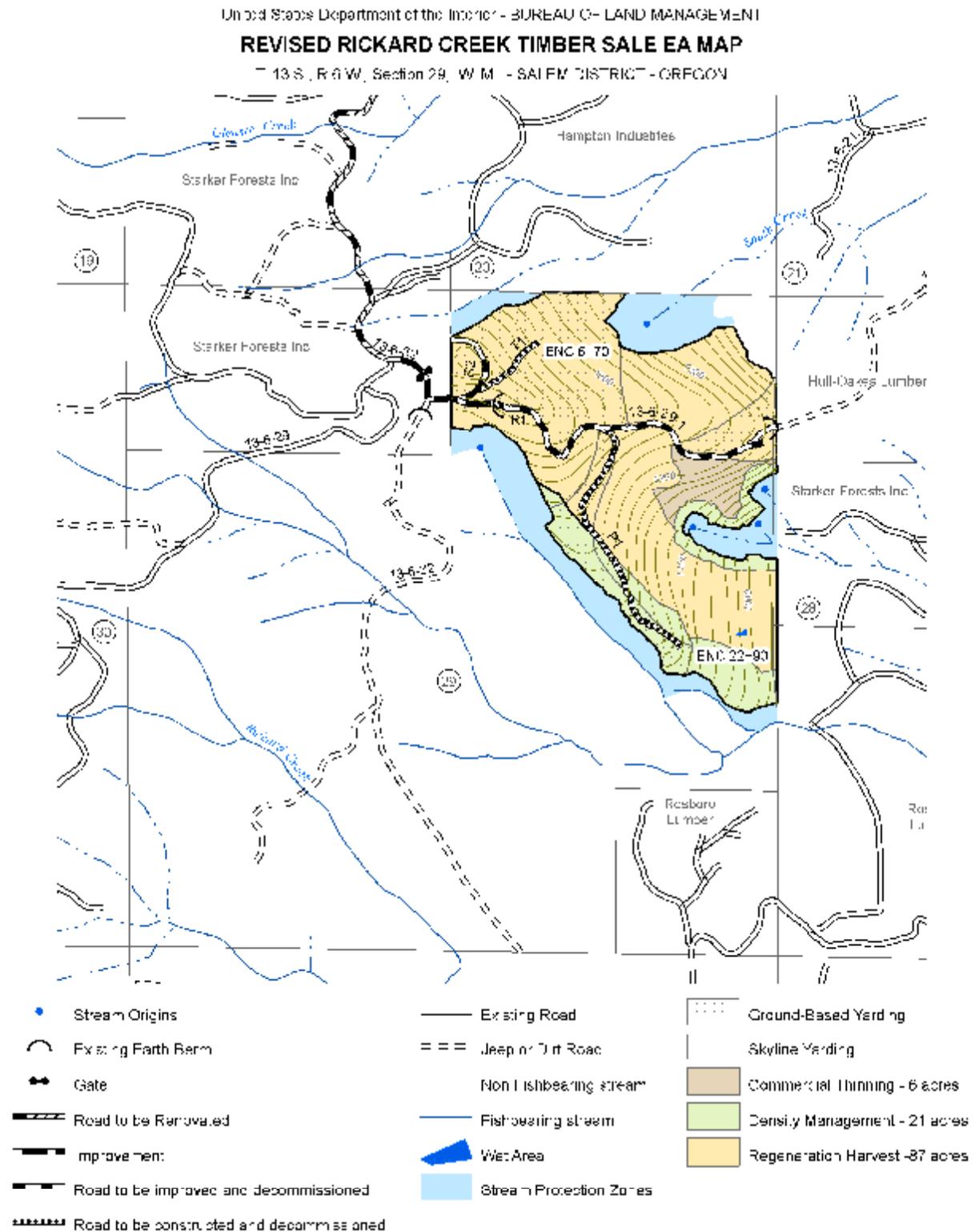
The project area occurs in the Oregon Coast Range. Survey techniques are based on those described in Appendix D of the *Protocol for Managing Cultural Resource on Lands Administered by the Bureau of Land Management in Oregon*. Post-project survey would be conducted according to standards based on slope 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

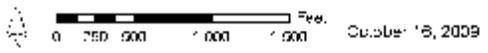
**Commercially thin the stands rather than implement regeneration harvest:** An alternative that would commercially thin the proposed regeneration harvest area was considered. The stands

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 (p.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.



## 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. Trees would remain at high density, resulting in slow growth and greater mortality.	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 the 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.  Harvests 87 acres of mature timber and starts a new vigorous growing stand in the early seral age group. Over time, achieves the maximum mean annual increment for the stand.
To restore large conifers in the RR LUA (RMP p. 7) To improve structural and spatial stand diversity on a site-specific and landscape level in the long-term (RMP D-6).	Does not meet purpose and need. Acceleration of growth on large conifers within RR LUAs 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 legacy and dominant overstory trees in the riparian reserve area.	Creates patch openings with adjacent clumps of trees. Retains existing limbs on open grown and/or legacy 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, renovation and improvement is not needed under No Action Alternative.	Renovates approximately 6,758 feet of road, improves approximately 4,176 feet of road and constructs approximately 2,960 feet of new road providing access to timber.
	Delay maintenance on feeder roads (13-6-32 and 13-6-29.1),	Three culverts would be replaced and rock would be added to the

Purpose and Need (EA Section 1.6)	No Action (Alternative 1)	Proposed Action (Alternative 2)
	the Beaver Creek road (13-6-21) would be maintained.	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 actions (formerly BLM H-1790-1, Appendix 5, BLM Handbook H-1790-1: p. 137), [40 CFR 1508.27(b)(3)], [40 CFR 1508.27(b)(8)]. Table 3 summarizes the results of that review. Affected elements are **bold**. All entries apply to the action alternative, unless otherwise noted.

**Table 3: Review of the Elements of the Environment<sup>3</sup>**

<i>Elements Of The Environment [Statute/Authority/CFR]</i>	<i>Status<sup>3</sup></i>	<i>Cumulative Effects<sup>4</sup></i>	<i>Remarks</i>
<b>Air Quality [Clean Air Act as amended (42 USC 7401 et seq.)]</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.6</b>	<b>Addressed in text (EA Section 3.2.6 and Rickard Creek Timber Sale Report Fuels Report pp. 1 to 7)</b>
Cultural Resources [National Historic Preservation Act (NHPA), as amended (16 USC 470), 40 CFR 1508.27(b)(3)], 40 CFR 1508.27 (b)(8)]	Not Affected	No	Cultural resource sites in the Oregon Coast Range, both historic and prehistoric, occur rarely. The probability of site occurrence is low because the majority of BLM managed Oregon Coast Range land is located on steep upland mountainous terrain that lack concentrated resources humans would use. Post-disturbance inventory would be completed on slopes less than 10 percent.
Ecologically critical areas [40 CFR 1508.27(b)(3)] )	ot Present		

<sup>3</sup> *Not present* = not present within the project area, *Not affected* = not affected by the project, *Affected* = affected by the project yet in compliance with listed authority

<sup>4</sup> Do the action alternatives contribute to cumulative effects to this element? Yes/No

<i>Elements Of The Environment</i> <i>[Statute/Authority/CFR]</i>	<i>Status</i> <sup>3</sup>	<i>Cumulative Effects</i> <sup>4</sup>	<i>Remarks</i>
Energy Policy [Executive Order (E.O.) 13212]	Not Affected	No	There are 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 [E.O. 12898, 2/ 11/1994]	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.
<b>Fire Hazard/Risk (Healthy Forests Restoration Act of 2003 (P.L. 108-148)</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.6</b>	<b>Addressed in text (EA Section 3.2.6 and Rickard Creek Timber Sale Report Fuels Report pp. 1 to 7).</b>
Essential Fish Habitat [Magnuson-Stevens Act Provision: Essential Fish Habitat (EFH): Final Rule (50 CFR Part 600; 67 FR 2376, 2/17/ 2002)]	Not Present		
<b>Fish Species/Habitat (except Endangered Species Act (ESA) listed species/habitat)</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.2</b>	<b>Addressed in text (EA Section 3.2.4 and Rickard Creek Timber Sale Report Fisheries Report pp. 1 to 7).</b>
Floodplains [E.O. 11988, as amended, 5/24/1977)	Not Affected	No	The project is small in scale and would not change the character of the river floodplain, change floodplain elevations, or affect overbank flooding.
Hazardous or Solid Wastes [Resource Conservation and Recovery Act of 1976 (43 USC 6901 et seq.), Comprehensive Environmental Response Compensation, and Liability Act of 1980, as amended (43 USC 9615)]	Not Present		
<b>Invasive, Nonnative Species (plants) (Federal Noxious Weed Control Act and E.O. 13112)</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.1</b>	<b>Addressed in text (EA Section 3.2.1 and Botanical Report Rickard Creek pp. 1 to 8).</b>
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 Stands	Not Present		
<b>Migratory Birds [Migratory Bird Treaty Act of 1918, as amended (16 USC 703 et seq.), E.O. 131186]</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.5</b>	<b>Addressed in text (EA Section 3.2.5 and Biological Evaluation pp. 1 to 13).</b>

<i>Elements Of The Environment [Statute/Authority/CFR]</i>		<i>Status<sup>3</sup></i>	<i>Cumulative Effects<sup>4</sup></i>	<i>Remarks</i>
Native American Religious Concerns [American Indian Religious Freedom Act of 1978 (AIRFA) (42 USC 1996)]		Not Affected	No	This project is in compliance with the AIRFA because there are no known Native American religious sites in the project area and no concerns from any Tribes were received during the scoping period.
Public Health and Safety [40 CFR 1508.27(b)(2)]		Not Affected		Addressed in text (EA sections 2.2.2)
<b>Recreation</b>		<b>Affected</b>	<b>Addressed in text EA Section 4.7</b>	<b>Addressed in text (EA Section 3.2.7 and Recreation/Rural Interface/VRM Report pp. 1 to 5).</b>
Rural Interface Areas		Not Present		
<b>Soils</b>		<b>Affected</b>	<b>Addressed in text EA Section 4.2</b>	<b>Addressed in text (EA Section 3.2.2 and Rickard Creek Timber Sale Soils Report pp. 1 to 8).</b>
Other Special Status Species / Habitat	Plants	Not Present		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.
Threatened or Endangered (T/E) Species or Habitat [Endangered Species Act of 1983, as amended (16 USC 1531) (ESA) ]	Fish	Not Affected	No	Because of the distance to listed fish from project activities there would not be an effect on threatened or endangered fish species.
	Plant	Not Present		
	<b>Wildlife</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.5</b>	<b>Addressed in text (EA Sections 3.2.5 and Biological Evaluation pp. 1 to 13).</b>
<b>Visual Resources</b>		<b>Affected</b>	<b>Addressed in text EA Section 4.7</b>	<b>Addressed in text (EA Section 3.2.7 and Recreation/Rural Interface/VRM Report pp. 1 to 5).</b>
<b>Water Quality [Clean Water Act of 1977 (33 USC 1251 et seq.) (CWA)]</b>		<b>Affected</b>	<b>Addressed in text EA Section 4.3</b>	<b>Addressed in text (EA Section 3.2.3 and Rickard Creek Hydrology Environmental Assessment pp.1 to 9).</b>
<b>Water Resources – Other</b>		<b>Affected</b>	<b>Addressed in text EA Section 4.3</b>	<b>Addressed in text (EA Section 3.2.3 and Rickard Creek Hydrology Environmental Assessment pp. 1 to 9).</b>
Wetlands (E.O. 11990 , 5/24/1977), 40 CFR 1508.27(b)(3)]		Not Affected	No	No effects to wetlands are expected because all proposed activities would occur outside of known wetlands.

<i>Elements Of The Environment [Statute/Authority/CFR]</i>	<i>Status<sup>3</sup></i>	<i>Cumulative Effects<sup>4</sup></i>	<i>Remarks</i>
Wild and Scenic Rivers [Wild and Scenic Rivers Act, as amended (16 USC 1271), 40 CFR 1508.27(b)(3)]	Not Present		
<b>Wildlife Habitat Components (snags, CWD, remnant old growth trees)</b>	<b>Affected</b>	<b>Addressed in text EA Section 4.5</b>	<b>Addressed in text (EA Sections 3.2.5 and Biological Evaluation pp. 1 to 13).</b>
Wilderness (Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.); Wilderness Act of 1964 (16 USC 1131 et seq.))	Not Present		

### 3.2 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

Those elements of the human environment that were determined to be affected are air quality, fire hazard/risk, fish species/habitat (except ESA listed species/habitat), invasive, non-native plant species, migratory birds, other special status species / habitat – wildlife, recreation, public safety, rural interface areas, soils, threatened or endangered species – northern spotted owl, visual resources, water quality, and wildlife habitat components and carbon sequestration (storage) and climate change. 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) Rickard Creek Carbon and climate change*

#### 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 legacy 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.

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-firs are present in this stand. There is very little 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.

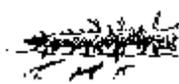
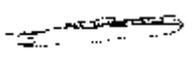
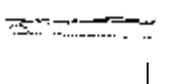
Stand inventory found that CWD, including snags and down logs are present in moderate amounts for a stand of this age (see Table 4).

**Table 4 - Summary of Stand Details**

Stand	Trees per/Acre (All Species)	Relative Density <sup>1</sup> percent	Crown Closure <sup>2</sup> percent	Crown Ratio <sup>3</sup> 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
Commercial 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) wet area within the southern project area that is indicated on the EA map as a wet area. This wet area 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 wet 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 wet area 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 SS 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 SS 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 to 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 Matrix on federal lands without the proposed action would not occur. Mean annual increment would continue to slow which means growth would continue to decrease.

By not conducting the commercial thinning, the growth of individual trees would be slow compared to the proposed action. 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 Matrix objectives now or in the future. 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.

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

#### 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 overstory trees along with some hardwoods and CWD would provide 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.

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 stands through the creation of small gaps (1/4 to 1/2 acre) around dominant overstory and legacy trees would create stand structural diversity. Cutting trees that are adjacent to legacy trees would be designed to restore available light and growing space to the declining live crown of the legacy trees while maintaining existing snags, minor tree species, and shrubs.

If the implementation of the project causes the water feature 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 SS species.

#### Bureau Special Status Botanical and Fungal Species

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

The implementation of this project could result in the loss of individuals or populations of bureau SS species which may occur in the project area, but were not located during inventories of the project area. These species mainly include SS hypogeous fungal species or other fungal species that have been determined by BLM planning documents to be 'not practical to survey for'. The majority of these species are considered mycorrhizal with conifer species and the removal of the 'host' tree (ie. regeneration cut or thinning) would be detrimental to the organisms associated with the conifers identified to be severed in this project. Although the implementation of this project would be detrimental to any bureau SS mycorrhizal fungal species occurring in the project area, the likelihood of any occurring in the stand is low because 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):

Exposed mineral soil often creates environments favorable for the establishment of noxious listed plant species. All road construction areas, road maintenance areas, ground based logging areas, cable yarding corridors and fire trails pose the greatest risk of exposing mineral soil with the implementation of this project. Many common and widespread non-native plant species such as foxglove (*Digitalis*

*purpurea*), burn weed (*Erechtites minima*) and noxious listed species such as Canadian and bull thistles are anticipated to become established throughout the project area post fire treatment. These populations generally persist until the native vegetation out competes them in approximately 1-10 years or until the conifers reach the sapling stage.

All of the known noxious weed species that occur near the project area are classified by the Oregon Department of Agriculture as “B” designated weeds. “B” designated weeds are weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties. Where implementation of a fully integrated statewide management plan is not feasible, biological control shall be the main control approach.

All of the noxious weeds species that are known to occur near the project area are more than regionally abundant and are widespread throughout all of western Washington and Oregon and a fully integrated Oregon statewide management plan has not been implemented. The Marys Peak Resource Area has an integrated non-native plant management plan in place for the control of non-native plant species.

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: Revised 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.

### **3.2.2.2      *Alternative 2 (Proposed Action)***

#### *Compaction and disturbance/displacement of soil*

#### **Roads and Trails:**

Constructing 2,960 feet of new spur 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-forested. The roads to be constructed are on gentle topography so the total width of the clearing would be around 14 feet. This narrow clearing would have a very minimal effect of the overall tree spacing and stocking. The new road being constructed within the riparian reserve would be located outside the drainage area of the stream in a dry draw that does not have a physical connection to the stream channel so no erosion from the road surface is expected to reach the stream. All of the new construction 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. Approximately 2,800 feet of the 13-6-29.1 road would also be decommissioned and blocked to vehicle traffic following harvest.

Based on previous project work, the spot road renovation and improvement of existing roads would not change the existing amount of current non-forest land. Some encroaching vegetation along these older roads would be removed for safety concerns and surface rock would be added where needed. The renovations and improvements would provide better drainage and road surface conditions resulting in less road surface erosion into the surrounding area or streams.

The renovation and improvement 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 replacement of two cross drain and one stream crossing culverts and the road surface reshaping would reduce the volume of water flowing on the road surfaces and should result in less future erosion.

There are existing OHV (off high vehicle) trails in the project area. These trails are allowed under the current RMP and are not having long-term detrimental impacts to the soils resource. There is no effect to water because the ruts do not generate sediment that reaches a water source. There is no effect to soils because the road prism is not considered "timber management ground". The project would block off skid trails and decommission one rutted road that is currently being used by OHV riders. This would result in a net decrease in OHV disturbance in the project area.

**Logging:****Compaction and disturbance/displacement of soil:**

Additional soil compaction can be expected to result in the harvest units associated with this project. A study on the effects of compaction on soil bulk densities by Page-Dumroese (1993) found that intensive timber removal activities using ground based equipment resulted in a 25 percent increase in compaction and was considered “heavy or intense” compaction. Moderate levels of timber removal activities using forwarder-type equipment resulted in an 18 percent increase in bulk density and skyline based timber removal activities resulted in an 11 percent increase in bulk density of the yarding corridors. All of the proposed timber removal activities are planned and layed out to remain below the cumulative level of 10 percent aerial extent of soil disturbance from the RMP (Timber harvest BMP’s, Appendix C-2).

Following completion of this proposed action, the majority of the understory vegetation and root systems would remain, along with surface soil litter and slash from the harvested trees. Expected additional amounts of surface soil displacement, surface erosion and dry ravel resulting from harvest operations beyond those discussed below are not expected.

Approximately 29 landings would be needed to harvest the proposed area. Seventeen landings would be used for skyline yarding, (4 would be used for both skyline 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.

Approximately 1.2 acres in landings and 2.6 acres in skid trails would be utilized. Because the existing skid trails would be reused, this would result in a cumulative detrimental disturbance level of 3.3 percent in the sale area units. The areal extent and degree of disturbance would remain within RMP guidelines of less than 10 percent disturbance (Timber harvest BMP’s, Appendix C-2).

For all of the landings, a portion of the existing haul road or the harvest road is used for equipment to operate on. 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. These areas would not readily support new vegetation or tree growth in the first 10 years after the work was completed.

The estimated reduction in growth rate for trees on moderate to heavy impacted areas is 15-30 percent during the first 10-20 years of growth. As trees age and become established, the negative effect on growth from soil compaction and displacement becomes less pronounced and growth rates may approach that of trees on similar, undisturbed sites. This is especially true where the area of compaction / displacement tends to be in narrow strips (4 to 8 feet wide) as is the case with skyline yarding trails and small landings. Because the proposed amount of skyline yarding corridors in the sale units is well below the allowable limit in the RMP of 10 percent (Timber harvest BMP’s, Appendix C-2), soil disturbance levels are expected to remain at an insignificant level.

Skyline yarding trails usually result in light compaction of a narrow strip less than 4 feet in width. This is especially true for this type of project where logs are relatively small and 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 because the extent of the disturbance to tree roots, soil compaction and soil productivity are so small and the roots of the surrounding vegetation helps to keep the soil in a productive condition (R. Harrison, proceedings of “Best Management Practices for Maintaining Soil Productivity in the Douglas-fir Region”, September 22, 2009, Shelton, WA.).

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 trails are. Impact analysis also included the additional area used for landings. In crawler tractor ground-based skid trails, expect a moderate amount of top soil displacement approximately 8 feet wide and moderate to heavy soil compaction to occur depending on the amount of use. The estimated reduction in growth rate for trees on moderate to heavy impacted areas is 15-30 percent during the first 10-20 years of growth. As trees age and become established, the negative effect on growth from soil compaction and displacement becomes less pronounced and growth rates may approach that of trees on similar, undisturbed sites. In harvester / forwarder skid trails soil displacement is generally light because the equipment travels on top of slash and does not dig into the soil and soil compaction is light to moderate which would result in an unmeasurable level of growth reduction from natural variability.

Some of the potentially impacted acreage listed above, includes already existing, skid trails from previous logging in the late 1930 to 1940 period. Where practical, portions of these existing roads would be reused for skid trails for this project which would reduce the level of new disturbance required to skid the harvested trees to the landings.

### **Site Productivity**

For skyline yarder systems, the suggested design features are proposed: One end log suspension where ever practical, and soil impacts in skid trails are expected to result in light compaction in a narrow strips less than 4 feet in width. Because the trees in the project area have ample crowns, there should be adequate slash on the ground to yard over thus lowering the amount of compaction. The effect on overall site productivity from light compaction is expected to be low (less than 10 percent) and result in no measurable reduction in overall yield for the project area because of the design features.

For harvester / forwarder systems, the suggested design features are proposed: soils are fairly dry (less than 25 percent soil moisture), equipment operates on an adequate layer of slash (80 percent soil coverage), and full suspension of logs. Soil impacts in skid trails are expected to result in light to moderate compaction due to slash covering the trails. Slash, limbs and non-merchantable material left following harvest activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burrough and King 1989, Swift 1985). The trees in the project area have ample crowns, so there should be adequate slash on the ground to protect soils during skidding activities. The harvester/forwarder system is expected to result in light to moderate compaction (10 to 15 percent) with no expected measurable reduction in overall yield for the project area because of the design features.

For tractor skidding plus their landings the suggested design features are proposed: soils are dry (less than 25 percent soil moisture) and equipment operates on harvest activity generated slash. 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. Previous project monitoring has indicated a maximum of 20 percent productivity loss under the most severe circumstances. The overall sale area effect resulting from the impacted acres is expected to be less than 3 percent detrimentally disturbed area for the timber sale units which is well below the 10 percent level allowed in the RMP (Timber harvest BMP's , Appendix C-2).

The estimates in reductions of overall yield are based on studies and observations done in Western OR and WA and are by no means conclusive. Observation and study results vary widely. Studies recently being done by Weyerhaeuser Co. indicate that negative effects from compacted soil on growth of young trees become negligible within 8-12 yrs of planting (R. Harrison, proceedings of "Best

Management Practices for Maintaining Soil Productivity in the Douglas-fir Region”, September 22, 2009, Shelton, WA.). Effects from top soil loss or displacement may have more long term significance than the associated compaction.

In order to avoid damage to existing tree roots, we would not plan on ripping skid roads to mitigate compaction. Mitigation would only be in the form of limiting soil disturbance and compaction by skidding on top of slash as much as possible and doing ground based skidding during periods of low soil moisture (less than 25 percent) with a minimum of skid trails skid trails (less than 10 percent of the unit area) (Timber harvest BMP’s, Appendix C-2).

### **Soil Erosion**

No measurable amounts of surface erosion are expected from the forested lands treated under this proposed alternative. With timber hauling restricted to the dry season on native surfaced roads, the amount of sediment produced from roads and entering streams would be negligible to none. There would be no measurable cumulative impact to the soils resource outside the project area.

The proposal includes broadcast burning of the skyline regeneration harvest units. These burned areas would be expected to reestablish vegetation entirely within one to two growing seasons. No burning from either treatment would occur within SPZs to protect water resources and the remaining vegetated buffer would filter out any sediment delivered from upslope areas. Broadcast burning is 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 forbs and the short-term flush of nutrients from the ash would help to generate a healthier understory component in the treated units.

Observations over 3 decades of burning piled slash in this area of the 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. It is not expected that any additional erosion would occur from these units and 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. With slash and existing undergrowth being left on nearly all of the area no measurable amounts of surface erosion are expected from the forested lands treated under this proposed action.

Placement of water bars in 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 skidding. Eroded soil is not expected to move very far from its source (less than 100 feet) 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 rain droplets on the soil surface further reducing the potential erosion of the skid trails. Existing OHV use in the area would be reduced by the decommissioning of one road and the skid trail blocking work described above.

### 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 5<sup>th</sup>-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 (less than 20 percent) 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). The transient snow zone is that area considered to be capable of accumulating snow for periods during the winter but is not cold enough to develop a snow pack that would remain for the entire winter season. Because of this ability to accumulate snow, the area can also release all the water in the snow pack when the area is subsequently hit by a warmer rain event. The resulting stream flows from a rain-on-snow precipitation event can be extreme and very quickly flood the stream channel. Large flood events are not predicted in the project area because the project location is not located in an area that is prone to this type of rain-on-snow precipitation events.

#### **Project Area Streams**

The project area includes perennial and intermittent 1<sup>st</sup> 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 (Rosgen, 1994). Channels are typically narrow (less than 10 feet wide) 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) water feature, 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 (not experiencing channel changes outside the expected range of natural variability) and functional (the size of stream substrate and woody debris amounts are similar to reference streams in the Coast Range province). Sediment supplies are in the range expected for its stream type (Rosgen , 1994). 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 southern boundary of the project area and the upper portion of this channel has a 300 foot no harvest buffer proposed. The remaining channels are generally shaded by alder, conifer, ferns and brush. Stream shading varies between dense canopy (greater than 80 percent angular canopy density) cover by conifers to open canopy (50 to 60 percent angular canopy density) at flatter reaches (Brazier and Brown 1972). The flatter stream reaches were those that had discontinuous flow where there was no surface flow and so no impacts to water temperature would occur.

Streams in the project area are classified by the BFWA (Map Plate 9, USDI 1997 as having a “low” risk of detrimental changes in water temperature based on stream bank vegetation shading. In addition, there has been no stream side vegetation removal within the project area since the completion of the BFWA in 1997. Instead only streamside vegetation growth has occurred, thus resulting in an increase in vegetation shading.

### **Beneficial Uses of Project Area Stream Flow**

There are no known municipal or domestic water users in the project area. The nearest existing 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 analysis area include resident fish, anadromous fish, recreation, and esthetic value.

### **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. During field review of stream channels in the project area, the perennial channel was observed to be mostly stable (not experiencing channel changes outside the expected range of natural variability) and functional (the size of stream substrate and woody debris amounts are similar to reference streams in the Coast Range province). Sediment supplies are in the range expected for its stream type (Rosgen , 1994). 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. 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 display the above referenced stable conditions.

#### 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). Measurable increases (greater than 10 percent) in water yield would be expected to last approximately 20 to 30 years based on the above cited studies. Vegetation would intercept and evapotranspire precipitation that would 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. Based on the amount of harvest in this proposal the level of water yield increase would be well below 10 percent and

would not be able to be detected from the natural range in variability in flow levels on a year to year basis.

The risk of increases to peak flows based on the proposed management activity falls well below the potential risk of peak flow enhancement from the Oregon Watershed Assessment Manual Analysis., and below the level determined by Grant (2008) to be measurable beyond the range of natural variability in peak flows on a year to year basis. Therefore, based on the cumulative effects analysis report, 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.

The small wet area in the regeneration harvest unit would have a buffer of trees left around it (see design features), and its position on the south-east facing hillside would likely enhance the duration of a higher water table in this area. The south-east facing slope has a low energy input from the sun and it does not experience the most intense solar heating during the growing season, thus the removal of vegetation on this slope would allow the water that the trees would have been using to remain in the soil and help enhance the water table in this part of the unit. However, because the perennial portion of this pond is so small, and accumulates runoff from a relatively small upland area, the perennial portion of the pond would be more susceptible to becoming dry in mid to late summer due to an increase in air temperature than it presently experiences. Anderson et al. (2007), found increased temperatures and evaporation inside harvest units after regeneration harvest activities. Although a buffer would be placed around this wet area, there would be an increased amount of direct sunlight due to the loss of shade from harvested trees outside the wet area. Because the wet area is within the regeneration harvest unit it is likely based on Anderson et al. (2007) that the air temperature within the wet area would increase. Because the pond would have a buffer, it is assumed that the potential temperature increase would be less than those found by Anderson et al., and thus have a lower risk of effecting the functioning of the wet area.

## **Water Quality**

### **Fine sediment and Temperature:**

The creation of temporary roads, skidding corridors and the mechanical removal of trees are unlikely to significantly increase sedimentation into project area streams because all new road construction would be located outside riparian areas and wetlands, harvest generated slash would be maintained in the skidding corridors, minimizing the need for machines to travel on bare soil. Slash, limbs and non-merchantable material left following harvest activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burough and King 1989, Swift 1985). The trees in the project area have ample crowns, so there should be adequate slash on the ground to protect soils during skidding activities. Also, 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 harvest activities and mass wasting are unlikely to result from this action.

Project design features, as described previously would be implemented to eliminate and/or minimize sediment generation and delivery to stream channels from the proposed project activities. The creation of temporary roads, yarding corridors and the mechanical removal of trees are unlikely to significantly increase sedimentation into project area streams because harvest generated slash would be maintained in the yarding corridors minimizing the need for machines to travel on bare soil. Slash, limbs and non-merchantable material left following harvest activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burough and King 1989, Swift 1985). Also, ground-based equipment would only be allowed on slopes less than 35 percent. Ground-based skidding would occur

during periods of low soil moisture with little or no rainfall, in order to minimize soil compaction and erosion.

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 harvest activities and mass wasting are unlikely to result from this action. Because there is no measurable increase to streamflow expected from this activity, there is no expected increase in sediment generation or delivery to streams and no expected effect to existing beneficial uses of the project watershed including the existing water rights users.

In addition, SPZs in riparian areas have high surface roughness, which can function to trap any potential overland flow and sediment before reaching streams. Ground-based skidding would occur during periods of low soil moisture (less than 25 percent) with little or no rainfall, in order 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 wet areas, ponds, marshes, etc.) in the project area. These zones were determined in the field by BLM personnel following the protocol outlined in the *Northwest Forest Plan Temperature Implementation Strategies* (2005).- Stream buffers extend a minimum of 50 feet from stream channels and to the extent of the riparian vegetation around “wet areas”. This zone would be extended upslope during field surveys as far as deemed necessary to protect aquatic resources (the average width of the stream buffer is 200 feet). This determination was based on site features such as floodplains, slope breaks, slope stability, water tables, vegetation heights, etc.

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. Based on field observations (current streamside vegetation that is overhanging the stream and valley topography that blocks the sun in the hottest part of the day appears adequate to shade surface waters during summer base flow), aerial photo reviews of streams completed for the analysis of this EA between 2004 and 2006, and modeling runs for the project area, it is likely that stream temperatures consistently meet the Oregon state standard (18 degrees Celsius) for these waters.

Existing OHV use in the project area is not having a detrimental impact on water quality through sediment introduction to stream channels. The proposed closing of the project skid trails and the decommissioning on one rutted road that is currently used by OHV riders would result in an overall decrease in OHV use in the project area. The existing OHV use is allowed under the current RMP.

### **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 at least a 50-foot SPZ. No yarding would occur across streams. No bank stabilizing vegetation would be removed. This project would remove trees along approximately 1,700 feet of a fish bearing stream. However, density management 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 unharvested stream buffer would remain along the stream.

### **Burning**

The majority of slash associated with this project in the tractor yarding areas would be left on site. Where large amounts of slash are found along roads and landings, it 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 60 acres of the regeneration harvest skyline unit. No broadcast burning would occur within the RR LUA of that harvest unit. Based on previous burning projects, this burned area would be expected to reestablish vegetation entirely within one to two growing seasons. Broadcast burning is completed at a time of the year when soil moistures are higher and the soil is resistant to impacts by low intensity burning. This lower heat type of burn does not kill the shallow roots of shrubs and forbs and the short-term flush of nutrients from the ash helps to generate a healthier understory component in the unit. Based on previous burning projects, it is not expected that any erosion would occur from this unit due to the burning and 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**

Approximately 2,960 feet of new road construction is proposed, on or near ridgetop locations. The proposed new constructions would occur on moderate to low gradient slopes, with no stream crossings. Although the majority of the road construction is located outside the riparian reserve, approximately 1,200 feet is located within the standard riparian reserve width criteria. This portion of new road would be located on the opposite side of a nose ridge from the stream in a dry draw that has no physical connection to the stream. The proposed final 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 and the road locations are on topographic divides where any road generated water or sediment would have no impact on drainages in the project area.

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, such as outsloping, ditch lines, and water-bars on steeper sections of road. These new roads would be decommissioned after their use. Road construction, use, and decommissioning would result in no expected additions of sediment to stream channels in the project area.

Drainage on existing roads would be improved including adding 4 to 10 inches of rock surfacing on 2 miles of project haul roads. Approximately 1,000 feet of spur roads would not receive road surfacing. The 13-6-29.1 road would also see 2,800 feet of road decommissioning activities after the sale is completed. Road maintenance activities (brushing, blading, spot rocking) are unlikely to measurably impact channel morphology over the long term because the activities all take place on established roads that are elevated above stream channels. Proposed road renovation, including ditchline reconstruction and stream crossing replacement, would result in a minor short-term increase in erosion, until reestablishment of vegetation occurs in the following growing season. Drainage improvements would likely improve water quality over existing conditions by reducing road generated sediment.

Timber hauling would be permitted year-round on rock-surfaced roads. Timber hauling during periods when water is flowing on roads and into ditches could potential increase stream turbidity if flows from ditches flowed long enough to enter streams. All hauling would be restricted by the BLM sale administrator at any time of the year necessary to avoid increases in erosion and sedimentation. Based on the road locations and the project design features there is no expected impacts on water quality 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. There are no known barriers to fish migration on project area roads.

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 miles downstream in the Upper Reese Creek treatment area.

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 NMFS (National Marine Fisheries Service) has listed Spring Chinook salmon in the UWR ESU (Evolutionarily Significant Unit) 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.

## **Environmental Effects**

### **3.2.4.1 *Alternative 1 (No Action)***

Expected benefits of density management within RR LUA, (accelerating the growth rates of retained timber subsequently increasing the average diameters of trees available for future LWD recruitment), would not be realized.

The existing road network would remain unchanged, with no new construction. The stream crossing culvert on Roads 13-6-21 and 13-6-28 would continue to degrade. Beneficial actions (culvert replacement), proposed in the Proposed Action Alternative, intended to prevent road prism failure would not occur. The risk of failure would be expected to increase over time as the culvert conditions worsen. Generally, risk of failure is elevated during winter high flows when debris and sediment transport are more likely. 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**

### Flow effects

The proposed project would affect less than 0.05 percent of the forest cover in the Marys River Watershed (114 acres treated divided by 193,748 acres in the Marys River) all located below the Transient Snow Zone. The hydrology analysis of the proposed action was considered unlikely to detectably alter stream flows (Wegner, 2007b). No discernable affects to fish and aquatic 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.

### Temperature effects

Three stream reaches are in proximity to proposed falling on the north side of the treatment area, all adjacent to regeneration harvest treatments. These streams are non-fish bearing and have a full site potential tree buffer applied (210 feet), excluding all of the riparian reserves from treatment. Protection of stream shade is the critical component in protecting stream temperature regimes (Beschta et al 1989, Belt et al 1992, Moore et al 2005). No changes to shade zones associate with these streams are anticipated. As existing stream shade would be unaffected, no changes to stream temperature would be anticipated. As temperature is not expected to be impacted, no impacts to fish habitat would be expected.

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 and intermittent. Riparian reserve width for the fish bearing portion of the streams would be designated at 420 feet, and the non-fish bearing portion would be 210 feet wide. 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 are a minimum of 90 feet wide and typically exceed 200 feet, well away from the primary shade zone. As the proposed SPZ are at least 90 feet in width, only minor vegetation treatment may occur in the secondary shade zone. This is not expected to substantively affect the existing 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 density management. Treatments in the northern areas would be approximately one site potential tree height away from fish bearing streams. 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.

Ten legacy and dominate overstory treatment sites are proposed for treatment upslope from the southern fish bearing tributary; eight of the treatments sites may remove timber within 1 SPT of the southern fish bearing stream. The other two treatment sites in the southern area would be greater than one site potential tree height away from fish bearing streams. All treatments in the southern area would be at least 90 feet upslope 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. Protection of one site potential tree buffer widths (210 feet) in the RR, CWD and LWD recruitment is not anticipated to be affected by the proposed action.

Generally, treatments less than 1 SPT may remove sources of LWD or CWD to stream channels. Studies have shown that approximately 90 percent of down wood is recruited within 100 feet from the stream edge and virtually 100 percent of wood is recruited within 200 feet of the stream edge (McDade et al 1990, Van Sickle and Gregory 1990, May and Greswell 2003). Assuming each treatment site in proximity to the southern stream is treated at the greatest width from the reserved tree, (80 feet) then approximately 1.7 acres may be affected within 1 SPT. As the nearest treatment site is at least 90 feet from the stream, the majority of source material for woody debris recruitment would be unaffected by proposed legacy treatments. As only a small fraction of the recruitable wood source near the stream

may be affected based on literature, and the scale of the project treatments is limited to 1.7 acres within 1 SPT from the stream, the impacts to large wood in the southern stream channel is anticipated to be undetectable in the adjacent stream both in the short-term and long-term. Undetectable changes to wood and wood recruitment in stream channel is not expected to measurably effect aquatic habitat at the site or downstream.

Proposed density management treatments in the eastside of the project area would not occur closer than 50 feet from stream channels. Tree removal is not proposed on steep, unstable slopes (Wegner 2007). Studies have shown that 70 percent of down wood is recruited within 65 feet of stream edge (McDade et al 1990, Van Sickle and Gregory 1990, May and Greswell 2003). Woody debris would continue to fall from within the untreated SPZ, and short-term recruitment of the existing CWD is expected to be largely maintained. Therefore, the proposed actions are not expected to cause any short term effects to aquatic habitat at the site or downstream.

Proposed density management is anticipated to increase the average size of the remaining trees by up to seven inches (Caldwell 2007). As the treated stands reach heights of 200 feet , the larger diameter wood could be recruited from farther up the slopes to stream channels. In the long-term, beneficial growth in the size of trees in eastside RR LUA could beneficially affect LWD recruitment to the stream channel, thus potentially improving the quality/complexity of aquatic habitat adjacent to the treatment areas.

Fish habitat is approximately ½ mile downstream from the eastside RR LUA treatment area and beneficial effects to fish habitat from wood growth could be realized in the event of wood movement. However, the BFWA (BLM 1997) assessed mass movement risk in the watershed, including the project area. This analysis indicted the risk of movement was low (BLM 1997 see Map #19). Therefore, transport of large wood more than ½ mile downstream where fish reside would be considered highly unlikely, and effects to fish habitat would be highly unlikely.

#### Sediment effects

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). Vegetated buffer widths ranging from 40 to 100 feet are sufficient to prevent sediment from reaching streams (Burroughs and King 1989, Corbett and Lynch 1985, Swift 1985). Buffers of the north streams exceed 200 feet, buffers on the southern stream are at least 90 feet, and buffers on the eastern streams are at least 50 feet. The proposed 50 to 200 foot buffers would be expected to capture sediment prior to reaching stream channels. These buffers combined with residual slash remaining following treatment should obstruct flow paths and keep sediment movement to a minimum. Slash, limbs and non-merchantable material left following harvest activities, within treatment areas can substantially reduce the magnitude of sediment movement (Burrough and King 1989, Swift 1985). 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 downstream from the project area.

#### **Hauling**

The potential for timber hauling to generate road sediment is minimized by project design features such as winter haul would occur on rocked road surfaces only and any native surface roads would be restricted to dry season use only. Also, hauling operations would be suspended if weather or environmental conditions pose an imminent risk of road sediment flowing in road ditches.

The haul route includes three fish bearing stream crossings, including crossing Beaver Creek in two locations and an unnamed tributary once. The lower half of unpaved haul route is used for residential

access as well as private forestry management. The crossings over Beaver Creek are bridges and are paved for short distances on either side of the effected streams. The stream crossing over the unnamed tributary is a culvert, and potentially a fish passage barrier (Streamnet 2007). The Beaver Creek stream crossings are in excellent condition and on nearly flat locations in the valley bottom. The road is well maintained by Benton County in the area of the stream crossings and the ditchlines are covered with vegetation. Low gradient roads with heavily vegetated ditchlines would have limited potential to transport sediment (Luce and Black 1999). Therefore, it is highly unlikely that project hauling would negatively affect fisheries habitat due to the gradient of road at the fish bearings stream crossings on Beaver Creek and a tributary of Beaver Creek, and the vegetated condition of the ditchlines.

### **Road Construction/Renovation/Improvement**

The proposed actions include the construction of approximately 2,960 feet of new road. The proposed new roads are unlikely to increase drainage network in the watershed as the new construction is located on ridgetop away from any stream channels and no new construction would cross any existing stream channels. The proposed road construction, approximately 1,760 feet of which is located outside of the RR LUA, is unlikely to increase sediment or stream flows as no hydraulic connections exist to stream channels. As no changes in flow are anticipated, effects to fish and aquatic habitat would not be expected. Of the 2,960 feet of new road construction proposed, approximately 1,200 feet of new road would be constructed in the outer half of the fish bearing RR LUA of the Upper Reese Creek drainage. Construction would not occur closer than 300 feet from stream channels, and the majority of the new road would drain away from the fish bearing stream. As no hydrologic connection exist, no changes in stream flows would be anticipated, thus no effects to fish or aquatic habitat would be expected.

Construction would be located outside of the primary and secondary shade zones; therefore stream shade would be unaffected. Stream shade is the primary contributor to stream temperature effects (Brazier and Brown 1973, Beschta et al 1989). As no effects to temperature are expected no impacts to aquatic habitat would be anticipated.

Affects to large wood recruitment to the fish bearing portion of Reese Creek Tributary as a result of proposed road construction is highly unlikely. Stand exam data indicates tree heights to be 160 feet in the RR LUA treatment unit where road construction may occur. Relative to the new construction, the tree heights of the treatment area are shorter than the 300 foot buffer of the proposed road location. Trees in the area of new construction would not be recruited to the stream channel due to buffer distance. Transport potential of LWD in the affected streams is extremely low, due to road location and mild channel topography at the project site. The 300 foot buffer would be expected to capture any sediment generated from site level disturbance to soils. Vegetated buffer widths ranging from 40 to 100 feet are sufficient to prevent sediment from reaching streams (Burroughs and King 1989, Corbett and Lynch 1985, Swift 1985). No effects to fisheries and aquatic habitat in Reese Creek tributary is anticipated from the proposed action.

Approximately 6,758 feet of road renovation and 4,176 feet of road improvement would occur as part of the proposed action. Drainage improvement/replacements would occur on two cross-drains and one stream crossing. The improvements would improve drainage and road surface conditions, resulting in less erosion into surrounding streams (Wegner 2007). Proposed road renovation or improvement, including ditchline reconstruction and stream crossing replacement, 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. During renovation, flows are expected to be very minimal or dry channels, and sediment is unlikely to reach fish downstream. Therefore, no direct impacts to fish habitat downstream would be anticipated during implemenation.

In the following winter, sediment from the proposed road renovation may reach fish habitat during rain events in the winter. 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). Therefore, sediment is unlikely to measurably increase where fish reside and no impacts to fish habitat are anticipated.

### **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 are possible at the site of the burn pile resulting in surface runoff (Wegner 2007).— Pile burning would not be allowed within the SPZs. Vegetated buffer areas ranging in width from 40 to 100 feet appear to prevent sediment from reaching streams (Burroughs and King 1989, Corbett and Lynch 1985, Swift 1985). The SPZs, associated with the project, (between 50 and 200 feet) are expected to provide sufficient distance from the streams to capture any surface erosion from pile burning treatments.

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**

No effects are anticipated to UWR Chinook salmon and winter steelhead habitat, primarily due to distance to-occupied habitat (at least 2.9 miles downstream). Due to the “No Effect” determination, no consultation with NMFS is required for this project.

Existing populations of Oregon chub are known to occupy ponds in Finley Wildlife Refuge within the Marys River watershed. These ponds are unconnected to project area streams. The proposed project would have “no effects” to this isolated population and no effects are anticipated to Oregon chub historic habitat. Due to the “no effect” determination, no consultation with USFWS 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 2.9 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 are anticipated. Due to the “no adverse effects” determination, no consultation with NMFS 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, commercial thinning 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 4). Most of this dead wood 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 harvest 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 1/10<sup>th</sup> 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 (p. 21) 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, (larger than the Benton Foothills Watershed Analysis Area), about 37 percent of the federal lands (U. S. 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. These survey results indicate a probable absence of murrelets from this project area, where additional pre-disturbance surveys would not be required until spring 2011 (IM-OR-2003-063). This project area is not within critical habitat designated for this species (USDI-FWS 1996).

### *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 (outside the project area). . 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 (USDI-FWS 1992).

### Other Special Status Wildlife Species.

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. As reviewed in Appendix A, very few SS wildlife species are likely to occur within the project area. Populations of the few SS species that may occur within the project area (amphibians and mollusks) are unlikely to be affected because the proposed project design (e.g. minimal ground disturbance inside Riparian Reserves, no-cut stream protection zones, retention of existing snags and CWD, and retention of greater than 60 percent canopy closure in RR) would protect microclimates and retain functional habitat components for these species.

The red tree vole may likely occur within the proposed harvest units and adjacent older forest patches. This species has been removed from the SS wildlife list 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, where these voles appear to be well distributed within the older forests.

**Birds of Conservation Concern.** All of western Oregon, including this project area, lies within the Northern Pacific Forests Bird Conservation Region. Within this region there are several migratory land birds which are considered Bird of Conservation Concern (BCC) because they appear to be exhibiting downward population trends for several years (Altman 2008; Rich et al. 2004, USDI-FWS 2002). Thirty-three of the 88 landbird species that regularly occur in the Marys Peak Resource Area are considered BCC species (See Table 5). Sixteen of the BCC species have a high likelihood of occurring within the Rickard Creek project area. Incidental observations during marbled murrelet surveys and related field work have confirmed that two of these 16 BCC species have nested within the project units; 8 have been confirmed present during the breeding season and are likely nesting; and 6 have a high likelihood of breeding but have not been confirmed present. See Biological Evaluation (Appendix B) for all currently listed migratory birds and Birds of Conservation Concern that occur in the Marys Peak Resource Area.

**Table 5. Bird Species Likelihood of Occurrence within the Rickard Creek Project Area.**

Bird Species Grouping	Within MPRA	Likelihood of occurrence in Project Area			
		High	Moderate	Low	Not Present
Bird Species of Conservation Concern	33	16	8	8	1
Other Regularly Occurring Landbirds	55	24	11	14	6
Total bird species	88	40	19	22	7

## 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 12 percent in late seral forest, and the combined federal ownership within Marys River 5<sup>th</sup> Field Watershed would remain at about 37 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. Due to 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. 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. Since the proposed regeneration harvest unit is composed of a mid seral stand (77 years old) that is beginning to acquire late seral forest characteristics (primarily due to open-grown and legacy trees which amount to 1.7 trees per acre >36" DBHOB), the removal of this habitat is considered a loss to potential late seral habitat conditions within the project area. 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 9 to 11 TPA (trees per acre) of large live overstory trees that would be retained (both scattered and clumped within the regeneration harvest area).
- The reduction of mid seral 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).
- The reduction of the late-seral forest component within 2 miles of the project area from 12% to 11%.
- The reduction of the late-seral forest component on all federal lands within the 5<sup>th</sup> Field Watershed from 37.0 % to 35.5% (well above the 15% threshold required by the NWFP).
- 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 remaining) and post-harvest loss of green trees due to harvest damage, disease, and windthrow.
- A change in the context of CWD habitat conditions 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 all proposed harvest areas.

The regeneration harvest, commercial thinning and density management harvest would collectively alter 114 acres of forested stands in one aggregate block. Many of the wildlife species that may currently use these forest stands 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 meet or exceed RMP requirements and add considerable 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 dominant overstory trees and declining legacy old-growth trees would be released, thereby rejuvenating their live crown structure and reinitiating understory shrub layer diversity which enhances the quality of habitat for numerous wildlife species. 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 indicated a probable absence of murrelets in 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 (Thomas et al. 1990).

### Other Special Status Wildlife Species

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. As reviewed in Appendix A of the Wildlife Report, very few SS wildlife species are likely to occur within the project area. Populations of the few SS species that may occur within the project area (amphibians and mollusks) are unlikely to be affected because the proposed project design (e.g. minimal ground disturbance inside Riparian Reserves, no-cut stream protection zones, retention of existing snags and CWD, and retention of greater than 60 percent canopy closure in RR) would protect microclimates and retain functional habitat components for these species.

The red tree vole may likely occur within the proposed harvest areas and adjacent older forest patches. This species has been removed from SS wildlife list because it has been found to be common and well distributed within 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 where these voles appear to be well distributed within the older forests (USDA-FS and USDI-BLM 2007).

### Birds of Conservation Concern.

In the central Oregon Coast Range the majority of birds complete their breeding cycle within the April 15 to July 15 time period, while some birds (eagles, owls, hawks, woodpeckers) begin breeding as early as February or March and others (flycatchers, finches) do not finish breeding until August. Due to the ubiquitous nature of breeding birds within their suitable habitat, it is reasonable to expect that soil disturbance (affecting ground-nesting birds) and vegetation manipulation may have a direct negative impact on bird nesting success if it occurs during the breeding season. Felling and yarding trees during the breeding season in the proposed units would likely destroy some nests and disrupt normal breeding behavior of any BCC species that nest or forage in these units.

Following the harvest operations in the regeneration harvest unit (87 acres) the resulting habitat conditions would be unfavorable to some bird species, while benefitting those species that prefer open shrubby habitats that have a prominent snag component. The resulting habitat conditions within the thinning and density management units (27 acres) would still provide similar habitat conditions for species that might currently nest in those stands.

At the local scale (within 2 miles of project units: 10,580 acres), all forest seral stage and habitat conditions would continue to be present in the short-term. But bird species that are associated with

late-seral and old-growth (LSOG) forest conditions are more likely to be negatively affected because LSOG forests would decline slightly, from 12 percent down to 11 percent of the local landscape (across all ownerships). The proposed action represents a very small proportion of the LSOG forests at the watershed scale (Marys River Watershed: 80,650 acres) where the cumulative loss on federal lands has reduced late-seral forests from 37 percent to 35.5 percent over the past 10 years (remaining well above the 15 percent threshold required by the Northwest Forest Plan).

Of the BCC birds that utilize LSOG habitats, most species (besides the northern spotted owl and marbled murrelet) are also found in other seral stages or utilize structural components (snags, hardwoods, etc) that are found in several seral stages. All of these BCC species are widely distributed throughout the conifer-dominated forests of this Bird Conservation Region (Altman 2008). Thus, the potential negative impacts to BCC bird populations resulting from the proposed action would likely be very minor and localized.

### 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 77 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 3 inch fuels range from 2 to 8 tons per acre, 3 to 9 inch fuels range from 7 to 15 tons per acre, larger fuels over 9 inches in diameter range from less than 20 up to 50 tons per acre. Large snags over 20 inches DBHOB are generally less than 1 per acre, smaller snags are more abundant. Based on General Technical Report INT-122 (April 1982) the-fuel model for this area is a combination of model 8 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 immediate change to the affected environment. Short-term impacts to fuels and air quality would be avoided.

Severity and the potential for a crown fire would be higher for dense stands with accumulating surface fuels in the long term (one to several decades) because of suppression mortality. Fuel loading would likely change to TL5 High Load Conifer Litter or TL7 Large Down Logs with similar fire behavior characteristics for rate of spread or flame length as the current conditions.

The major change would be that surface fires would be long duration due to more down wood and the potential for a crown fire to occur would increase due to increased ladder fuels and canopy closure.

If a wildfire were to occur the effects may include: 1) total tree mortality, 2) elimination of the duff and litter layers, 3) reduction of the downed woody component, especially logs in later stages of decay, 4) increased erosion and sedimentation of water courses, and 5) formation of snags.

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. Following treatment (broadcast burning and piling) in the regeneration harvest unit slash loading, fire risk and resistance to control would all be reduced below the levels in the present untreated stand. Slash loading prior to fuels treatment and pre and post fuel models are shown in the tables below.

Following a typical spring burn slash treatment in the regeneration harvest unit, the fuel loading in the targeted high risk fuels would be reduced 50 to 75 percent. The 0 to 3 inch size class fuels would be reduced from 8 to 10 tons per acre pre-burn down to 1.5 to 3 tons per acre post burn. The 3 inch to 9 inch fuels would be reduced from 6 to 10 tons per acre pre-burn down to 3 to 6 tons per acre post burn. The low risk, larger 9 inch+ diameter fuels would be reduced less than 20 percent in order to maintain a desirable level of large down wood on the site.

Table 6 Additional Slash Created

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

Table 7 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

In the stands that would be commercially thinned, 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 as the dead needles and fine twigs break off, fall to the surface, absorb moisture and begin to decay. With the increased sunlight to the ground there would be increased sprouting and germination of shrub and forb vegetation. This new vegetation growth would increase the shading and humidity near the ground level raising the moisture level of the surface fuels thus reducing the risk of ignition. If a fire does start, the increase in green vegetation greatly reduces the fire intensity and spread rate due to heat absorption by the moisture contained in the green vegetation. In addition the stems and leaves of the green vegetation would block or reflect much of the heat generated by the fire and slow down the rate heat transfer and preheating of adjacent fuel which is a critical key component of fire spread. Observations by this author 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 following logging, resistance to control would also decrease over time but more slowly. This longer time horizon is due to the fact that larger material takes longer to decay and thus stays on the site for a longer time period. Since large size class fuels are a key component in resistance to control (i.e. it takes more effort and water to extinguish these fuels) the resistance to control would decline at a slower rate commensurate with the decay rates of the larger size class material left on site. 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 (chance of a fire starting) and resistance to control (difficulty to extinguish a fire) 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 timber stands – both thinned and un-thinned.

The effect of decommissioning and blocking the majority of the roads in the project area would be an increase in the response time and the effort needed by ODF (Oregon Department of Forestry) or BLM 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. By restricting access, the risk of a fire starting in the area should be lower. Fire records for the Salem District over the past 20+ years show that the majority of the non industrial operation, human caused fire starts have occurred alongside roads, on landings at the end of roads or along trails. Subsequently, by restricting access, fire starts within the proposed treatment areas would be less than if roads and access were to remain open. The use of gates during the high fire danger season has been used by private and federal land owners in this region for a number of years with good success in preventing fire starts.

## Air Quality

### *Pile Burning*

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 in the Oregon Coast Range under favorable atmospheric conditions under the guidance of the OSMP (Oregon Smoke Management Plan) administered by the local ODF offices is not expected to result in any long-term negative effects to air quality.

Burning most likely would be done over several days in order to minimize short term impacts to the air shed. 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 (generally the area within 1 mile or less from the burn area). The accumulated smoke generally clears out by mid-morning as the inversion lifts. Due to the location of this project (1,000 feet to 1,400 feet elevation in an area with good exposure and air flow), it is unlikely that inversions would result in

conditions where local smoke would be confined and accumulate under the inversion beyond mid-afternoon. Guidance under the OSMP would always prevent or severely limit burning anytime the weather forecasts indicate there is a likelihood of a stagnant air or persistent inversion situation developing.

### *Broadcast Burning*

An estimate for the total amount of slash expected to be consumed by the broadcast burning is 1,080 tons. Under guidance of the OSMP, 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 accumulation during the early part of the ignition phase from drift smoke. Once a column develops, the smoke would be carried up, diluted and dispersed in the air mass to the point where any effects on visibility or health and safety are not detectable or are within acceptable limits determined by the DEQ. 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 burn out. 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. Historically the Salem district plans work in order to have a broadcast unit extinguished 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/VRM**

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

## **Affected Environment**

### Recreation

The project setting is characterized by a forest 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 may occur in the area include OHV (Off-Highway Vehicle) 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 Flat Mountain area. Many trails interweave the patchwork of landownership. Members of the group self create closures based on fire restrictions and wet conditions before or in conjunction with restrictions posted by landowners. Members post the trails with closures, spreading the word to keep members and the public aware of current restrictions on the trail system. Landowners in turn are less likely to put up gates or close an area to riding altogether. This cooperation and collaboration between landowners and riders allows the continued opportunity for motorcycle riding. Motorcycle and four-wheel drive OHV uses occur in the area.

### Visual Resource Management (VRM)

The project occurs in VRM 4. “Manage visual resource management class 4 lands for moderate levels of change to the characteristic landscape. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements of form, line, color, and texture.” (RMP p. 37)

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 projects are observable from private and public lands and roads.

## **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, the same timber harvest related actions 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 access and use of the project area would be restricted approximately three to five years during timber sale operations. Other BLM lands nearby would remain available for recreational opportunities. Recreational users in the vicinity would hear the noises of the timber sale operations and experience traffic delays of minutes to hours. Use of the project area is expected to return to prior usage with the exception of the decommissioned road segment 13-6-29.1. Closing this rutted road may shift four-wheel drive OHV use to other areas. Designated four-wheel drive OHV riding areas, class 2, is not near the project area and in short supply in western Oregon; the closest designated riding areas include Brown's Camp OHV Area near Wilsonville, Sand Lake Recreation Area OHV on the north coast, and Oregon Dunes National Recreation Area OHV on the south coast, nothing nearby.

Ground based yarding increases the opportunity for additional open OHV riding on skid trails and throughout the harvest unit due to the removing of trees and other vegetation that act as barriers to off road travel. However, the project would decommission one rutted road that is currently being used by OHV riders. This would result in a net decrease in OHV disturbance in the project area. Passing vehicles and OHVs could create a fire ignition source for stumps and logging debris from vehicle sparks (from lack of proper spark arrestor or catalytic converter in the muffler system), heating grasses (fine fuels) from idle vehicles, or tossing out burning materials such as cigarettes.

The haul route is a major access point for the Flat Mountain trail system. Additional log truck traffic on the road is a minor concern since most use of the area occurs on weekends.

#### **VRM**

The proposed project would comply with VRM 4 management objectives. Visual disturbance of the project area would be associated with modifications to vegetation and other ground disturbing activities from timber sale operations. 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 10 to 20 years until the seedlings are well established. Over 80 percent of the project area is observable from observation points based on viewshed analysis in the computer based ArcGIS mapping system, which calculates whether the units are visible from specific points on the earth's surface without vegetation. Vegetation is present between observation points and the harvest area thus reducing the amount of disturbance visible at the posted road speeds. Locations of observation points where the harvest area was visible were the following:

- at Highway 99 near Stow Pit road,
- Bellfountain road and Dawson road,
- Llewellyn road and Bellfountain road, and
- Decker road before you reach Peterson road that is near Beaver Creek road.

There may be a few days where there is a decline in visual quality within the larger landscape viewshed 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.

### 3.2.8 Carbon Sequestration (Storage) and Climate Change

On July 16, 2009, the U.S. Department of the Interior withdrew the Records of Decision (2008 ROD) for the Western Oregon Plan Revision. The information contained in the Final Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management (2008 FEIS) is relevant since it examined recent and applicable science regarding climate change and carbon storage. That analysis concluded that effects of forest management on carbon storage could be analyzed by quantifying the change in carbon storage in live trees, storage in forests other than live trees, and storage in harvested wood. The discussion on Volume I, Pages 220-224; Volume II, Pages 537-543, and Volume III, Appendices, Pages 28-30 are relevant to the effects analysis for this project and are incorporated by reference.

#### *Context –Greenhouse Gases, Climate Change and the Spatial Scale for Analysis*

##### Greenhouse Gases, Climate Change and the Spatial Scale for Analysis

Uncertainty about the nature, effects and magnitude of the greenhouse gases and global climate change interrelationship is evident in a wide range of conclusions and recommendations in the literature reviewed. However, Forster et. al. 2007 (pp. 129-234), which is incorporated here by reference, concluded that human-caused increases in greenhouse gases are extremely likely to have exerted a substantial effect on global climate. The U.S. Geological Survey, in a May 14, 2008 memorandum to the U.S. Fish and Wildlife Service, summarized the latest science on greenhouse gases and concluded that it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate impacts at a specific location. This defines the spatial scale for analysis as global, not local, regional or continental. That memorandum is incorporated here by reference. Based on the BLM's review of statutes, regulations, policy, plans and literature, the BLM accepts the conclusions above as appropriate context for a reasoned choice among alternatives.

#### *Context – Temporal Scale for Analysis*

The BLM has selected eighty years as the analysis period of carbon storage and climate change for this project. This period encompasses the duration of the direct and indirect effects on carbon storage. Because eighty years is the approximate rotation length of the stand in the project and is consistent with the RMP ( p. D-1) it represents the full cycle of carbon storage and release for this project and would likely be similar for future rotations.

### ***Context – Calculations of Carbon Storage, Project Area Scale***

The purpose of the calculation of carbon storage is to provide a basis for determining significance of carbon storage relative to the temporal and spatial scale. The BLM used site specific data from stand exams as input to the ORGANON (v. 8.2, 2006) to determine stand growth to calculate carbon flow on the project area and the direct effects of the alternatives. Calculations from Smith et. al, 2006 were used to calculate carbon in other than live trees.

Greenhouse gas emission from harvest operations were calculated based on equipment production rates from the empirical appraisal for the Rickard Creek timber sale. The estimates of emissions from prescribed fire are based on data from BLM stand exams analyzed with the Forest Vegetation Simulator (FVS) (Crookston, 1997).

The analysis of carbon stored in harvested wood in the 2008 FEIS used a factor for converting board feet of harvest wood to mass of carbon from Smith et al. 2006, p. 35. Based on information developed after the 2008 FEIS, this factor has been refined to better account for regionally-specific conditions and the fraction of harvested volume that is typically milled into solid wood products and into processed wood products. Harvest volumes were converted to cubic feet, converted to pounds of biomass, and then to carbon content, yielding an overall conversion factor of 1,000 board feet = 1.326 tonnes of carbon. Of this total amount of carbon in harvested wood, 63.8 percent of harvest volume is considered as sawlogs and 36.2 percent as pulpwood (GTR RM-199, Table B-6), for evaluation using the storage rates over time from Smith et al. 2006, p. 27. The improved conversion factor is used in this analysis to evaluate the amount of carbon stored in harvested wood. Information on the development of this conversion factor is on file in the BLM office and is available for review upon request and is incorporated here by reference (R. Hardt, personal communication, 11/6/09, on file in the Salem BLM Office). The effect of the 2008 FEIS alternatives on carbon storage has been reanalyzed based on this improved conversion factor. This reanalysis revealed a slight increase in the amount of carbon storage over time for all alternatives and less difference among the alternatives than described in the 2008 FEIS, pp. 537-543. Overall, this reanalysis revealed no change in the magnitude or trend of effects on carbon storage from that described in the 2008 FEIS.

### ***Affected Environment***

The 2008 FEIS described current information on predicted changes in regional climate (pp. 488-490) and is incorporated here by reference. That description concluded that the regional climate has become warmer and wetter with reduced snowpack, and continued change is likely. That description also concluded that changes in resource impacts as a result of climate change would be highly sensitive to specific changes in the amount and timing of precipitation, but specific changes in the amount and timing of precipitation are too uncertain to predict at this time. Because of this uncertainty about changes in precipitation, it is not possible to predict changes in vegetation types and condition, wildfire frequency and intensity, streamflow, and wildlife habitat.

The proposed action is to conduct regeneration harvest on approximately 87 acres of trees aged about 77 years old, commercial thinning on 6 acres of 60 year old tree, and release of wildlife trees on 21 acres. Carbon storage analysis pertains only to the regeneration harvest and commercial thinning (total 93 acres) because regeneration and commercial thinning treatment areas represent nearly all the changes in carbon storage for the project. The release of wildlife trees on 21 acres involves changes to carbon storage that would be immeasurably small.

Under average historic conditions (2008 FEIS, p. 3-211), BLM-managed lands in western Oregon stored 576 million tonnes of carbon, 35 percent more than is currently stored in forests and harvested

wood in these forests today. This is due to the greater proportion of younger stand structural stages in BLM-managed lands in western Oregon today (2008 FEIS, p. 3-224).

### Carbon Storage

The following show quantities of carbon in forest ecosystem vegetation<sup>5</sup> worldwide, in the United States, and in the Rickard Creek project area.

- Total carbon, forest ecosystem vegetation, Worldwide (Matthews et al, 2000, p. 58) = 132-457 Gt<sup>6</sup>
- Total carbon, forest ecosystem vegetation, United States ((US EPA, 2009) = 27 Gt
- Total carbon, forest ecosystem vegetation, Pacific northwest, Coast Range 1.8-2 Gt (Hudiburg, et al. 2009).
- Total carbon, forest ecosystem vegetation, Rickard Creek Project Area = 28,000 tonnes or 0.000028 Gt. This represents .000001 percent of the United States total or .000014 percent of the Coast Range total.
- The annual accumulation of carbon from forest management in the United States is 191 million tonnes. Implementation of current management on BLM-managed lands in western Oregon would result in an average annual accumulation of *1.69 million tonnes over the next 100 years, or 0.9 percent of the current U.S. accumulation.* (WOPR, p. 4-537).

### ***Environmental Effects***

#### 3.2.8.1 ***Alternative 1 (No Action)***

Under the no action alternative, no greenhouse gases would be emitted from harvest operations or fuels treatments. Carbon stored in live trees would not be converted to the harvested wood carbon pool. A portion of the carbon currently stored in live trees would be converted over time to the forest 'carbon other than live trees' pool through ongoing processes of tree mortality.

After 80 years of growth, live tree carbon would increase to 26,500 tonnes, an increase of 6,900 tonnes from the current level of 19,600 tonnes.

The no action alternative would result in greater net carbon storage over the 80 year analysis period than the proposed action by approximately 3,200 tonnes.

#### 3.2.8.1 ***Alternative 2 (Proposed Action)***

Total carbon in forest ecosystem vegetation can be divided into three pools: live trees (foliage, branches, stems, bark and live roots of trees), forest carbon other than live trees (dead wood and roots, non-tree vegetation, litter and soil organic matter) and harvested wood products. The proposed action would cause direct effects on greenhouse gas levels by emitting greenhouse gases (specifically, carbon dioxide) from harvest operations and fuel treatment.

### Short-term Impacts (0-10 years after timber harvest):

#### Harvest Operations

Harvest operations would emit greenhouse gases. Equipment use necessary to harvest and transport the timber to the nearest mill (Philomath, Oregon) was estimated at approximately 5,400 hours (Rickard Creek Timber Sale empirical appraisal, on file, Marys Peak Resource Area). Fuel

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<sup>5</sup> Carbon contained in both above ground and below ground parts of trees and forest vegetation, and downed wood, litter and duff. It does not include mineral carbon in soil, nor fossil fuels.

<sup>6</sup> A Giga-tonne (Gt) is one billion tonnes, or metric tons.

consumption would total an estimated 9,100 gallons, or total emissions of 90 tonnes of greenhouse gases.

#### Live Trees

Live trees would be removed, moving carbon to the other two pools. Harvest and fuel treatment would reduce total forest ecosystem vegetation carbon in the Rickard Creek project area from 28,000 tonnes to 14,000 tonnes. Live tree carbon would decrease from 19,500 to 6,200 tonnes, transferring 13,300 tonnes of live tree carbon storage to other pools.

#### Forest Carbon Other Than Live Trees

Some would be converted to forest carbon other than live trees - dead material that would store carbon and slowly release it through decay. Decay of dead material would result in slow release of carbon under all alternatives, and this analysis assumes that the rate of release would not differ among alternatives, including the No Action alternative. Emissions from decay of dead material are not quantified in this analysis. Broadcast burning (53 acres) and pile burning (34 acres) after harvest would result in 1,600 tonnes of carbon burned and emitted.

#### Harvested wood

Some of the carbon in harvested trees is stored in various forms; some is emitted to provide energy; and some is emitted without energy capture. Harvested saw log gross volume at Rickard Creek of 7,303 Mbf would contain 9,500 tonnes (1 Mbf = 1.3 tonnes carbon). Much of the emissions from harvested wood are shortly after harvest. In the first 10 years after harvest, approximately 2,000 tonnes would be emitted.

#### Long-term Impacts (11-80 years after timber harvest):

##### Live Trees

Following regeneration harvest, approximately 1500 of the largest trees would remain on site, and seedlings would be planted to begin a new stand. These trees would store carbon as they grow. Carbon emissions resulting from the proposed action (4,900 tonnes) would be offset by carbon storage in tree growth approximately 25 years after harvest. Live tree carbon would equal the pre-treatment level after 65 years of growth. After 80 years of growth, carbon stored in live trees would be 22,000 tonnes, an increase of 2,400 tonnes from the current (pre-harvest) level of 19,600 tonnes. In addition, 6,300 tons would remain stored in harvested wood. Total storage is calculated at 8,700 tonnes over the 80 year analysis.

##### Harvested wood

From 11-80 years after harvest approximately 1,200 tonnes of carbon would be emitted from harvested wood, totaling 3,200 tonnes (34 percent) emitted without energy capture in the full 80 year analysis period. The balance, approximately 6,300 tonnes (66 percent) of the carbon would remain stored in products still in use and in landfills, or emitted with energy capture (based on regional averages, Smith, et al, 2006, WOPR, Appendix C:30).

#### Summary of Carbon Storage and Greenhouse Gas Emissions

To summarize, total greenhouse gas emissions resulting from harvest, fuel treatment and harvested wood would be 4,900 tonnes and include the following:

##### Short-term emissions (0-10 years post-harvest)

- Harvest operations emissions totaling about 90 tonnes
- Fuel treatment (burning) emissions totaling 1,600 tonnes

- Emissions from harvested wood 0-10 years after harvest of 2,000 tonnes

Long-term emissions (11-80 years post-harvest)

- Emissions from harvested wood, 11 to 80 years after harvest of 1,200 tonnes.

Long-term Storage (80 year analysis period)

- 6,300 tonnes of storage in harvested wood
- 22,000 tonnes of storage in live trees after 80 years of growth

Greenhouse gas emissions and carbon storage over the 80 year analysis period resulting from the proposed action are displayed in Table 1, below.

**Table 8.** Carbon Emissions and Storage, Rickard Creek Proposed Action

Source	Tonnes	Giga-tonnes	Notes
Emissions, 2010-2090	4,900	.0000049	Logging and fuel treatments (burning) , emissions from harvested wood.
Live tree storage, 2090	22,000	.000022	80 years of stand growth
Live tree storage, 2009 (current condtions)	19,600	.000020	78 year old stand
Net increase, live trees	2,400	.0000024	Tree growth 2010 to 2090
Harvested wood storage, 2090	6,300	.0000063	66% of harvested wood carbon, 80 years
<b>Total storage increase</b>	<b>8,700</b>	<b>.0000087</b>	<b>Storage: live trees and harvested wood</b>
<b>Net Carbon Storage, Proposed Action</b>	<b>3,800</b>	<b>.0000038</b>	<b>Storage minus emissions, 2010-2090</b>

## 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 would advance early seral forest plantations toward mid seral conditions, just as current and expected future harvests of mid seral stands would return these patches to early seral conditions.

Fire history and intensive forest management on both private and public lands over the past several decades has greatly reduced the amount of late seral forests and the quality and quantity of coarse woody debris in western Oregon forests (Moeur, et al. 2005, Hagar 2007). The prevailing management regime on private lands which dominate this watershed would likely involve alternating between mid seral and early seral habitat conditions over time without retaining any late seral forests patches for the foreseeable future. Also, harvest practices on private lands would likely preclude any in-growth of their mid seral stands into late seral stands for the foreseeable future

BLM has conducted regeneration harvest on one unit in this watershed over the past 10 years, totaling 24 acres (0.01 percent of BLM-managed in the Marys River Watershed). All remaining late seral forest habitats occur on federal lands (BLM and Forest Service) within this watershed, where no

foreseeable future regeneration harvest (next 5 years) is anticipated. The proposed action area is largely composed of a 77 years old (mid seral) stand, which along with scattered old-growth and larger overstory trees, is beginning to acquire structural characteristics of a late seral forest stand. Over the next twenty years, approximately 1,150 acres in reserve land-use allocations on BLM-administered lands in Marys River Watershed are projected to grow into late seral forest conditions (currently 60-70 year old conifer stands). This projected in-growth would offset (by more than 13 times) the relatively small loss of late-seral habitat (87 acres).

The proposed regeneration harvest 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). Private forest lands are not expected to contribute to any cumulative loss or any in-growth of late seral forests in this watershed since none occur within the Marys River Watershed. 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), and the loss would be completely offset within 20 years by late-seral in-growth within reserve land-use allocations of BLM-administered lands in this watershed.

#### 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 Marys River Watershed area. Approximately three percent (6,614 acres) of the Marys River Watershed is under the jurisdiction of the Salem BLM and this project occurs on less than two percent of the Salem BLM-managed land. Most of the common perennial vascular plant species would persist within the project areas post treatment and many of the common forbs, herbs, bryophytes and lichen species would become established within approximately 20 to 50 years.

In a recent report by Grant (2008), approximately 30.7 percent of lands in the Upper Mary's River watershed for all land ownerships are in an "open" condition, meaning that the lands were either harvested and currently had less than 30 percent crown cover or were naturally open (meadows, rock slopes, etc). Open areas resulting from regeneration harvesting would generally have a higher proportion of early seral species, annual species and non-native species. However, most of the native species are perennials and would persist on the sites. Studies have shown that native understory species associated with forest cover compose at least 50 percent of the ground vegetation in early seral stages and reach pre-harvest levels of species diversity and species abundance before the forest stand matures (Zamora, 1981), and native plant cover increases with time after clearcutting (Lemkuhl, 2002).

#### Bureau Special Status Botanical and Fungal Species:

This project area currently provides suitable habitat for rare or uncommon botanical and fungal species. However, any coniferous forest over approximately 50 years of age and located in the northern Oregon Coast Range Mountains provides suitable habitat for rare or uncommon botanical or fungal species. Coniferous forests over 50 years of age are common and widespread in northwestern Oregon. If this project is implemented, it would take approximately 50 years for the area to once again provide suitable habitat for bureau SS botanical and fungal species. Although this area is considered as suitable habitat, there are no known bureau SS botanical or fungal species known from this 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 Carbon Sequestration and Climate Change

### *Alternative 1 (No Action)*

#### *Incremental Effects of Project Related Greenhouse Gases and Carbon Storage:*

This increase of 6,900 tonnes of live tree carbon would contribute to an annual average of 86 tonnes, or .000004 percent to the U.S. annual accumulation of carbon from forest management of 191 million tonnes. The 2008 FEIS (p. 4-538), which is incorporated here by reference, states that by 2056, the No Harvest benchmark analysis (no future harvest of BLM-managed lands in the analysis area, as reanalyzed in November 6, 2009 memo, on file, Marys Peak Resource Area) would result in a total carbon storage of approximately 603 million tonnes, 5 percent higher than average historic conditions (576 million tonnes, 2008 FEIS, 3-224).

Greenhouse gas emissions and carbon storage over the 80 year analysis period resulting from the No Action are displayed in Table 9, below.

**Table 9. Carbon Emissions and Storage, Rickard Creek No Action**

<i>Source</i>	<i>Tonnes</i>	<i>Giga-tonnes</i>	<i>Notes</i>
Emissions, 2010-2090	0	.000000	0
Live tree storage, 2090	26,500	.000027	80 years of stand growth
Live tree storage, 2009 (current conditions)	19,600	.000020	78 year old stand
Net increase, live trees	6,900	.000007	Tree growth 2010 to 2090
Harv. wood storage, 2090	0	.000000	68% of C stored, 80 years
<b>Total storage increase</b>	<b>6,900</b>	<b>.000007</b>	
<b>Net Carbon Storage, No Action</b>	<b>6,900</b>	<b>.000007</b>	<b>Storage minus emissions, 2010-2090</b>

### *Alternative 2 (Proposed Action)*

#### *Incremental Effects of Project Related Greenhouse Gases and Carbon Storage:*

Carbon emissions resulting from the proposed action would total 4,900 tonnes. Current global emissions of carbon dioxide total 25 billion tonnes of carbon dioxide (IPCC 2007, p. 513), and current

U.S. emissions of carbon dioxide total 6 billion tonnes (EPA 2007, p 2-3). Therefore, the emissions from the proposed action would constitute .0000002 percent of current global emissions and .0000008 percent of current U.S. emissions.

Tree growth following harvest would offset greenhouse gases and result in net storage of 3,800 tonnes of carbon. This would contribute an annual average of 40 tonnes, or .0000002 percent to the U.S. annual accumulation of carbon from forest management of 191 million tonnes. The WOPR EIS (p. 4-538), which is incorporated here by reference, states that by 2106, the No Action Alternative (management under the 1995 RMP) would result in a total carbon storage of approximately 628 million tonnes, 9 percent higher than average historic conditions (576 million tonnes, WOPR, 3-224, as reanalyzed in November 6, 2009 memo, on file, Marys Peak Resource Area). The incremental effect of the proposed action, over time, would be net storage of carbon.

### *Comparison of Alternatives*

**Table 10.** *Comparison between the Action and No Action Alternatives*

<i>Source</i>	<i>Proposed Action (Tonnes)</i>	<i>No Action Alternative (Tonnes)</i>	<i>Notes</i>
Emissions, 2010-2090	4,900	0	Logging and fuel treatments (burning)
Live tree storage, 2090	22,000	26,500	80 years of stand growth
Live tree storage, 2009 (current condition)	19,600	19,600	78 year old stand
Net increase, live trees	2,400	6,900	Tree growth 2010 to 2090
Harv. wood storage, 2090	6,300	0	68% of carbon stored, 80 years
Net carbon storage increase	8,700	6,900	
<b>Net Carbon Storage</b>	<b>3,800</b>	<b>6,900</b>	

Table 10 shows eighty years after harvest:

- Both the proposed action and no action would result in net carbon storage. The no action alternative has more carbon storage than the proposed action, due primarily to emissions under the proposed action.

### 4.3 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 would be no measurable cumulative impact to the soils resource outside the project area.

### 4.4 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 cumulative effects analysis (Wegner, S. 2007) 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.

Using information based on a recent report by Grant (2008), an analysis was completed that totaled up the existing amount of lands in the Upper Mary's River watershed for all land ownerships. That analysis found that approximately 30.7 percent of the watershed was in an "open" condition, meaning that the lands were either harvested and currently had less than 30 percent crown cover or were naturally open (meadows, rock slopes, etc). Using the envelope curves developed by Grant, the predicted change in peak flow increases for this level of basin harvest in the rain dominated hydroregion falls below the detection level for peak flow changes established by Grant.

The peak flow detection level was set at a 10 percent increase based on measurement error in natural stream systems and natural variability in stream systems. Adding in the proposed Rickard Creek harvest acres, the percent of the watershed in an open condition increases to 31.5 percent which would roughly relate to a mean predicted increase of 8 percent in peak flows, which is below the 10 percent detection level. The peak flow range does extend up to 10.9 percent based on the regression line data shown in the envelope curve developed by Grant.

The analysis assumes no recovery of past harvest stands, that the current level of harvest activity on private lands remains the same and that all the acres in the sale are resulting in less than 30 percent crown cover when completed. Based on these side boards, it is still expected that the addition of the proposed Rickard Creek harvest activity in the Upper Mary's River watershed would still fall into the unmeasurable level for peak flow increases on the Grant envelope curve.

#### **4.5 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 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 only road construction proposed in the RR LUA 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 affects 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 and improvement 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. Research has demonstrated that relatively short segments of small ephemeral and intermittent streams (300 to 400 feet) can effectively store coarse sediment washed from roads which would in turn contribute to protection of water quality in fish bearing habitat downstream (Duncan et al, 1987). 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 and would be highly unlikely to contribute to cumulative hydrologic effects(Wegner 2007); therefore, no cumulative effects to aquatic resources are anticipated.

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 density management in the RR LUA would improve the function and complexity within the RR LUA.

#### 4.6 Wildlife

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

The proposed action would result in a small incremental loss of late-seral forest within this watershed (described above for vegetation, Section 4.1) which would reduce key features of wildlife habitat such as snags, down logs, and late seral forest canopy cover. Most of the private forest lands in this watershed appear to be managed on short rotations (less than 60 years between harvests) that provide no late seral forest cover and retain very few snags and down logs after harvest. Small diameter snags and down logs are often abundant in mid seral stands on private lands, but they provide lower quality habitat structure for most wildlife species as compared to the coarse woody debris (less than 20 inches DBHOB) that would be found in late seral forests (Rose et al. 2001). Currently, and for the foreseeable future, private harvest of mid seral stands would contribute very little to loss of higher quality coarse woody debris within this watershed because the higher quality material is generally not created or maintained through private land management regimes.

Project design features for retaining existing coarse woody debris along with post-harvest loss of some reserved green trees would minimize the cumulative impact to snag and down log habitat component within the watershed. The retention of considerable late-seral forest on federal lands in the watershed (35.5 percent) and the projected in-growth of comparable late-seral habitat over the next 20 years (1,150 acres) provide context to the localized impacts of the proposed action (87 acres of late seral forest loss and 27 acres of thinning/density management) which would be considered minor. Therefore, the cumulative effects to populations of wildlife species that may utilize these forest habitats such as cavity nesting species, red tree voles, and some migratory birds, would likely be negligible, and this action would not contribute to the need to list any special status species or other species of concern.

Foreseeable future harvest on private lands is difficult to predict. But due to the current composition of forest age-classes and the anticipated continuation of a short rotation harvest cycle (less than 60 years), the anticipated harvest of mid seral forests on private lands would likely match the amount of in-growth into mid seral stands in this watershed over the next decade. The private harvest of mid seral stands combined with the loss of late seral forest from the proposed action might add to the cumulative loss of dispersal habitat available for spotted owls that may be dispersing through the Marys River Watershed. For the foreseeable future, the remaining federal lands in this watershed would provide over 80 percent of the landscape in dispersal habitat. Because the forested portions of Marys River Watershed represent less than one percent of the Oregon Coast Range Province, and this watershed has not been previously identified as a critical spotted owl dispersal corridor (USDI-FWS 1992, Courtney et al. 2004, USDI-FWS 2008), it is highly unlikely that the loss of dispersal habitat in Marys River Watershed would result in a significant cumulative effect to spotted owl dispersal within this province. Because there are no active spotted owl sites within 1.5 miles, no occupied murrelet sites within the project area, and no modification to critical habitat of either species, there would be no cumulative loss of suitable habitat that would directly affect any federally listed wildlife species. Through the consultation process that addressed potential impacts to federally listed wildlife in accordance with the Endangered Species Act (see EA, part 7.1), the Fish and Wildlife Service concluded that the proposed action (along with combined effects of all proposed actions consulted on), would not likely jeopardize the continued existence of the spotted owl, marbled murrelet and would not adversely modify spotted owl or marbled murrelet critical habitat. The Service reached this conclusion in part because the proposed action is unlikely to diminish the effectiveness of the conservation program established under the NWFP to protect spotted owls and marbled murrelets.

#### **4.7 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. Burning of slash would be guided by the Oregon State Smoke Management Plan which serves to coordinate all forest burning activities on a regional scale to prevent excess accumulation of smoke and protect air quality of local and regional air sheds. Based on past experience with pile and broadcast burning in this and other similar areas, it is expected that burning in accordance with the OSMP would result in no cumulative effects on regional air quality from the planned fuels treatment under this proposal.

The estimated 2,930 tons of fuel planned for disposal under this planned action would be burned over several days in the spring and fall burning seasons when weather conditions are favorable. Under OSMP guidance, generally units would be in the 500 to 750 ton range or less on most burn days and have a 5 to 10 mile spacing between units. This guidance allows for enough volume in the air shed for the smoke to dissipate without accumulating to densities that would produce noticeable negative impacts to visibility or health and safety. The OSMP guidance takes into account other sources of air particulates along with forest smoke in order to keep the combined total of air particulates within acceptable standards. Forest fuel burning at a given site is an infrequent one time event that is spaced and timed to allow for components of the smoke to be washed out of the atmosphere, be chemically broken down, be absorbed by plants, be diluted in the atmosphere, etc. so no long term cumulative effects are expected from this activity.

When looked at from a watershed scale, the thinning/density management of approximately 27 acres of forest habitat would result in a very minor increase in risk of a fire start and resistance to control a fire overall for the watershed during the first 10 years following treatment. Longer term (10 to 50+ years) there would be a reduction in the potential of the treated stand to carry a crown fire.

## 4.8 Recreation/Visual

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

Current recreation access and use of the project area would be restricted approximately three to five years and is expected to return to prior usage with the exception of the decommissioned road segment 13-6-29.1. Other BLM managed lands nearby would remain available for recreational opportunities while this project is occurring. Recreational users in the vicinity would hear the noises of the timber sale operations and experience traffic delays of minutes to hours. This project would have minimal to no impact on recreational uses due to the fact there are other opportunities available. Since there is no rural interface or residential houses within the project area or within the vicinity to the project there would be no effect to them from timber sale operations.

There have been eight timber sales on BLM managed lands in the Flat Mountain area in the past 10 years totaling approximately 855 acres. All had some impact on the Flat Mountain motorcycle trail system such as four to six years of closed trails and some trail obliteration following each timber sale. The Flat Mountain Riders group would re-establish the Rickard Creek project area trail (Road R1). Except for the rutted 13-6-29.1 road (which would be decommissioned), no other trail within the Rickard Creek project area is planned for decommissioning. The Flat Mountain Riders group would need additional workdays to re-establish the closed trail suitable as a motorcycle riding opportunity by putting in additional workdays on the trail system following harvest activities. By closing trails, use shifts from the project area to other locations within the trail system until those trails are re-established. In the case of the decommissioned road, it would be permanently lost as a riding opportunity.

The project would have moderate visual impacts with over 80 percent of the harvest area visible from observation points used in viewshed analysis.—This project would contribute to the amount of timber cut in the watershed, but the amount taken is minimal compared to timber harvest practices on private lands where clear cutting is an often used harvest method. Large scale clear cutting practices from multiple private landowners affect visual resources more than one 87 acre regeneration harvest unit that would leave 8 to 10 scattered standing green trees per acre. 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, which allow for major modifications to visual resources such as those that come from a regeneration harvest.

## 5.0 COMPLIANCE WITH THE AQUATIC CONSERVATION STRATEGY

### Existing Watershed Condition

The Revised 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 LUA activities are intended to enhance riparian condition. Approximately 1,200 feet of temporary new road construction would occur within RMP RR LUA but outside the drainage area of the streams,

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

Component 3 – Watershed Analysis: The BFWA (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 this project:

- ü 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).
- ü 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).
- ü 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).
- ü 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).
- ü 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).
- ü 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).
- ü 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).
- ü 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).

- ü 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 11: Consistency with the Nine Aquatic Conservation Strategy Objectives**

Aquatic Conservation Strategy Objectives (ACSOs)	Revised Rickard Creek Timber Sale and Associated Actions
<p><i>1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted..</i></p>	<p>Does not prevent the attainment of <i>ACSO 1</i>. Addressed in Text (<i>EA sections 3.2.1</i>). In summary:</p> <p><b>No Action Alternative:</b> The No Action alternative would maintain the development of the existing vegetation and associated stand structure at its present rate. The current distribution, diversity and complexity of watershed and landscape-scale features would be maintained. Faster restoration of distribution, diversity, and complexity of watershed and landscape features would not occur.</p> <p><b>Action Alternative:</b> Density management in both the 60 and 75 year old stands through the creation of small gaps around dominant overstory and legacy trees would create stand structural diversity. Cutting trees that are adjacent to legacy trees would be designed to restore available light and growing space to the declining live crown of the legacy trees while maintaining existing snags, minor tree species, and shrubs sooner than would result from the No Action Alternative (EA p. 22).</p> <p>Woody debris would continue to fall from within the untreated SPZ, and short-term recruitment of the existing CWD is expected to be largely maintained. Therefore, the proposed actions are not expected to cause any short term effects to aquatic habitat at the site or downstream EA p. 36).</p> <p>Proposed density management is anticipated to increase the average size of the remaining trees by up to seven inches (Caldwell 2007). As the treated stands reach heights of 200 feet , the larger diameter wood could be recruited from farther up the slopes to stream channels. In the long-term, beneficial growth in the size of trees in eastside RR LUA could beneficially affect LWD recruitment to the stream channel, thus potentially improving the quality/complexity of aquatic habitat adjacent to the treatment areas (EA p. 36).</p> <p>Since Riparian Reserve provides travel corridors and resources for aquatic, riparian dependant and other late-successional associated plants and animals, the increased structural and plant diversity would ensure protection of aquatic systems by maintaining and restoring the distribution, diversity and complexity of watershed and landscape features.</p>

Aquatic Conservation Strategy Objectives (ACSOs)	Revised Rickard Creek Timber Sale and Associated Actions
<p>2. Maintain and restore spatial and temporal connectivity within and between watersheds.</p>	<p>Does not prevent the attainment of <b>ACSO 2</b>. Addressed in Text (<i>EA sections 3.2.1</i>). In summary:</p> <p><b>No Action Alternative:</b> The No Action alternative would have little effect on connectivity except in the long term within the affected watershed.</p> <p><b>Action Alternative:</b> Long term connectivity of terrestrial watershed features would be improved by enhancing conditions for stand structure development. In time, the Riparian Reserve LUA would improve in functioning as refugia for late successional, aquatic and riparian associated and dependent species. Both terrestrial and aquatic connectivity would be maintained, and over the long-term, as the Riparian Reserve LUA develops late successional characteristics, lateral, longitudinal and drainage connectivity would be restored.</p>
<p>3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.</p>	<p>Does not prevent the attainment of <b>ACSO 3</b>. Addressed in Text (<i>EA section 3.2.3</i>). In summary:</p> <p><b>No Action Alternative:</b> It is assumed that the current condition of physical integrity would be maintained.</p> <p><b>Action Alternative:</b> 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 wet areas, ponds, marshes, etc.) in the project area. These zones were determined in the field by BLM personnel following the protocol outlined in the <i>Northwest Forest Plan Temperature Implementation Strategies</i> (2005).- Stream buffers extend a minimum of 50 feet from stream channels and to the extent of the riparian vegetation around “wet areas”. This zone would be extended upslope during field surveys as far as deemed necessary to protect aquatic resources (the average width of the stream buffer is 200 feet). This determination was based on site features such as floodplains, slope breaks, slope stability, water tables, vegetation heights, etc (EA p. 31).</p> <p>Road maintenance activities (brushing, blading, spot rocking) are unlikely to measurably impact channel morphology or water quality over the long term because the activities all take place on established roads that are elevated above stream channels.</p>
<p>4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.</p>	<p>Does not prevent the attainment of <b>ACSO 4</b>. Addressed in Text (<i>EA section 3.2.3 and Section 3.2.4</i>). In summary:</p> <p><b>No Action Alternative:</b> It is assumed that the current condition of the water quality would be maintained.</p> <p><b>Action Alternative:</b> Stream temperature: 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. Based on field observations (current streamside vegetation that is overhanging the stream and valley topography that blocks the sun in the hottest part of the day appears adequate to shade surface waters during summer base flow), aerial photo reviews of streams completed for the analysis of this EA between 2004 and 2006, and modeling runs for the project area, it is likely that stream temperatures consistently meet the Oregon state standard (18 degrees Celsius) for these waters (p. 31).</p>

Aquatic Conservation Strategy Objectives (ACSOs)	Revised Rickard Creek Timber Sale and Associated Actions
<p>5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.</p>	<p>Does not prevent the attainment of <i>ACSO 5</i>. Addressed in Text (<i>EA section 3.2.3</i>). In summary:</p> <p><b>No Action Alternative:</b> It is assumed that the current levels of sediment into streams would be maintained.</p> <p><b>Action Alternative:</b> The creation of temporary roads, yarding corridors and the mechanical removal of trees are unlikely to significantly increase sedimentation into project area streams because harvest generated slash would be maintained in the yarding corridors, minimizing the need for machines to travel on bare soil. Also, 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 harvest activities and mass wasting are unlikely to result from this action (<i>EA p. 30</i>).</p> <p>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 skidding would occur during periods of low soil moisture with little or no rainfall, in order to minimize soil compaction and erosion (<i>EA p. 31</i>).</p> <p>Existing OHV use in the project area is not having a detrimental impact on water quality through sediment introduction to stream channels. The proposed closing of the project skid trails and the decommissioning on one rutted road that is currently used by OHV riders would result in an overall decrease in OHV use in the project area (<i>EA p. 31</i>).</p> <p>The proposed buffers combined with residual slash, and use of existing skid trails should keep sediment movement to a minimum. 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 downstream from the project area (<i>p. 36</i>).</p> <p>The potential for timber hauling to generate road sediment is minimized by project design features such as winter haul would occur on rocked road surfaces only and any native surface roads would be restricted to dry season use only. Also, hauling operations would be suspended if weather or environmental conditions pose an imminent risk of road sediment flowing in road ditches (<i>EA p. 36</i>).</p>
<p>6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.</p>	<p>Does not prevent the attainment of <i>ACSO 6</i>. Addressed in Text (<i>EA section 3.2.3</i>). In summary:</p> <p><b>No Action Alternative:</b> No change in in-streams flows would be anticipated.</p> <p><b>Action Alternative:</b> The risk of increases to peak flows based on the proposed management activity falls well below the potential risk of peak flow enhancement from the Oregon Watershed Assessment Manual Analysis. Therefore, based on the cumulative effects analysis report, 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 (<i>p. 30</i>).</p> <p>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”. Stream buffers extend a minimum of 50 feet from stream channels and to the extent of the riparian vegetation around “wet areas”. This zone would be extended upslope during field surveys as far as deemed necessary to protect aquatic resources (<i>EA p. 31</i>).</p>

Aquatic Conservation Strategy Objectives (ACSOs)	Revised Rickard Creek Timber Sale and Associated Actions
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	<p>Does not prevent the attainment of <i>ACSO 7</i>. Addressed in Text (<i>EA section 3.2.3</i>). In summary:</p> <p><b>No Action Alternative:</b> No change in in-streams flows would be anticipated.</p> <p><b>Action Alternative:</b> 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 wet areas, ponds, marshes, etc.) in the project area. These zones were determined in the field by BLM personnel following the protocol outlined in the <i>Northwest Forest Plan Temperature Implementation Strategies</i> (2005).- Stream buffers extend a minimum of 50 feet from stream channels and to the extent of the riparian vegetation around "wet areas". This zone would be extended upslope during field surveys as far as deemed necessary to protect aquatic resources (the average width of the stream buffer is 200 feet). This determination was based on site features such as floodplains, slope breaks, slope stability, water tables, vegetation heights, etc (<i>EA p. 31</i>). .</p>
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>. Addressed in Text (<i>EA section 3.2.1</i>). In summary:</p> <p><b>No Action Alternative:</b> The current species composition and structural diversity of plant communities would continue along the current trajectory. Diversification would occur over a longer period of time.</p> <p><b>Action Alternative:</b> The actual riparian areas along streams would be excluded from treatment during the project by designating SPZs, and only the upslope portions of the RR LUA would be included in the density management treatment. Riparian Reserves would be excluded from the regeneration harvest and commercial thinning management treatment (<i>EA. 10</i>).</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>. Addressed in Text (<i>EA section 3.2.5</i>). In summary:</p> <p><b>No Action Alternative:</b> Habitats would be maintained over the short-term and continue to develop over the long-term with no known impacts on species currently present.</p> <p><b>Action Alternative:</b> 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>

## 6.0 LIST OF PREPARERS

Table 12 List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Dave Calver		
Botany TES and SS Plant Species	Ron Exeter	RE	12/14/2009
Fisheries	Scott Snedaker	SUS	12/14/2009
Fuels/Air Quality	Tom Tomczyk		
Hydrology/Water Quality/Soils	Steve Wegner	SWW	12/11/09!
Recreation/Visuals	Traci Meredith	TMM	12/14/09
Silviculture/Riparian Ecology	Hugh Snook	HUS	12/11/09
Wildlife TES and SS Animal Species	Scott Hopkins	SHA	12/14/09

## **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 northern spotted owls, the proposed action was consulted upon with the USFWS, as required under Section 7 of the ESA. Consultation for this proposed action was facilitated by its inclusion within a batched Biological Assessment (BA) that analyzed 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. The resulting Biological Opinion (issued 4/2/2009; Reference #13420-2009-F-0012; USDI-FWS 2009), concluded that this action would not result in jeopardy to listed species and would not adversely modify critical habitat for any species. This proposed action has been designed to incorporate all appropriate design standards set forth in the Biological Assessment and is in compliance with the Terms and Conditions included in the Biological Opinion.

#### **National Marine Fisheries Service**

Consultation with 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 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 would 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**

For information on project scoping and the original EA comment period, see *EA section 1.5*.

The revised EA and FONASI will be made available for public review from December 16, 2009 to January 8, 2010 and posted at the Salem District website at <http://www.blm.gov/or/districts/salem/plans/index.php>. The notice for public comment will be published in a legal notice in the *Gazette Times* newspaper. Written comments should be addressed to

Trish Wilson, Field Manager, Marys Peak Resource Area, 1717 Fabry Road S., Salem, Oregon 97306. Emailed comments may be sent to [OR\\_Salem\\_Mail@blm.gov](mailto:OR_Salem_Mail@blm.gov).

## **8.0 MAJOR SOURCES AND COMMON ACRONYMS**

### **8.1 Major Sources**

#### **8.1.1 Interdisciplinary Team Reports**

Exeter, R. 2009. Revised Botanical Report Rickard Creek Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Hopkins, D. 2009. Revised Biological Evaluation. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Wegner, S. 2009. Updated 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 Revised 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. 2009. Revised Recreation/Rural Interface/VRM Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snedaker, S. 2009. Revised 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. 2009. Revised Rickard Creek Timber Sale Report Fuels Report. Marys Peak Resource Area, Salem District, Bureau of Land Management. Salem, OR.

Snook, H. 2009. Carbon Sequestration (Storage) and Climate Change. 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.

USDA Forest Service and USDI Bureau of Land Management. 2009. Biological Opinion, 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.

USDI Bureau of Land Management. 2008. Final Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management. Salem, OR.

Crookston, Nicholas L. 1997. Suppose: An Interface to the Forest Vegetation Simulator. In: Teck, Richard; Moeur, Melinda; Adams, Judy. 1997. Proceedings: Forest Vegetation Simulator Conference. 1997. February 3-7, Fort Collins, CO. Gen. Tech. Rep. INT-GTR-373. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station.

(was IPCC 2007) Denman, K.L., et al. 2007: Couplings Between Changes in the Climate System and Biogeochemistry. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter7.pdf>

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Smith, J.E. Heath L.S. Skog, K.E., and Birdsey, R.A. 2006. Methods for calculating forest ecosystem and harvested carbon with standard estimates for forest types in the United States. Gen. Tech. Rep. NE-343. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 216 p. <http://www.treesearch.fs.fed.us/pubs/22954>

(was U.S. EPA 2007) U.S. EPA Environmental Protection Agency. 2009. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2007. U.S. EPA, Washington, D.C. <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>

Lehmkuhl, John F, 2002, The effects of spring burning and grass seeding in forest clearcuts on native plants and conifer seedlings in coastal Washington. Northwest science 2002, vol. 76, no.1, pp. 46-60 [15 page(s) Washington State University, Pullman, WA

Zamora, Benjamin A., 1981. In: Proceedings, forest succession and stand development research in the Northwest, Means, Joseph E., Editor. Proceedings of symposium, March 26, 1981, Corvallis, OR. Forest Research Laboratory, Oregon State University.

## 9.0 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 : Response to Public Comments Received on the Rickard Creek Timber Sale (EA#OR080-07-13)

Eight letters were received commenting on the Rickard Creek Timber Sale Environmental Assessment. Although the letters communicated a number of issues and opinions on forest management in general, the response to comments below only discusses those specifically directed to the Environmental Analysis which was made available for public review from March 17, 2008 to April 15, 2008. Comments are in *italics*. The BLM response follows each comment.

### Oregon Wild, Doug Heiken Received April 15, 2008

1. **Comment:** *Given the sub-prime mortgage crisis which is expanding into a broader credit crisis, plus declining residential real estate values in most US markets, and a looming recession, the market for timber is very bad. There is no “immediate” need (EA p 6) for the federal government to put wood on the market when demand is so low.*

**Response:** The Rickard Creek Timber Sale is scheduled to be sold in June 2009 with a three year contract length. The project is included in the Fiscal Year 2009 Salem District Sale Plan to help meet the annual allowable sale quantity within the Matrix LUA as required by the RMP (p. 46). The deferral of the project would not meet the following purpose and need of the project (EA Section 1.6):

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 to 48) while maintaining future forest management options and protecting other resource values.

In addition, the BLM timber sale planning process is scheduled according to quarterly sale dates on a yearly basis. Market fluctuations (high or low) have not historically influenced the marketability of timber sales within the BLM Salem District. Considering the project will be offered for sale with a three year contract period and that BLM Salem District timber sales have a historical high rate of being sold and awarded, we believe the Rickard Creek Timber Sale will be successfully sold in June of 2009 and implemented within a three year contract period.

2. **Comment:** *BLM considered only one action alternative and the no action alternative. NEPA requires consideration of all reasonable alternatives.*

**Response:** The purpose and need statement dictates the range of alternatives, because action alternatives are not “reasonable” if they do not respond to the purpose and need for the action. The range of alternatives explores alternative means of meeting the purpose and need for the action. As stated in the NEPA Handbook (p. 36), the purpose and need statement helps define the range of alternatives. The decision maker must analyze those alternatives necessary to permit a reasoned choice (40 CFR 1502.14).

3. **Comment:** *The EA (p. 7) says that “no unresolved conflicts were identified” concerning alternative uses of resources. This is a very surprising conclusion given all the ongoing social controversy and scientific attention focused on how to protect spotted owls, and how to store more carbon in forests and/or reduce carbon emissions from forests, etc.*

**Response:** We agree that the issue of how to protect and manage northern spotted owls has received a substantial amount of interest in the Pacific Northwest for the last 15 to 20 years. The adoption of the 1995 RMP was the culmination for meeting the need to protect and enhance habitat for species that inhabit late successional forest. Late Successional Reserves and RR LUAs were developed in the 1995 RMP to meet the objectives of protecting existing habitat and enhancing and developing future habitat for late successional species.

The area where Rickard Creek Timber Sale Project is located consists of the Matrix and Riparian Reserve LUAs. The Matrix LUA objectives are to contribute to both the immediate and long-term sustainable supply of timber and other forest products which will contribute to local and state economic diversity while maintaining future forest management options and protecting other resource values.

As stated in the EA (p. 35) “This proposed action is considered to be a “may affect, but not likely adverse affect” to northern spotted owls. The planned regeneration harvest will remove 87 acres of suitable foraging habitat for the northern spotted owl, but this loss will occur beyond the likely home range (1.5 miles) of any known active northern spotted owl site. Also, the continued presence of breeding barred owls in this vicinity is likely to preclude any substantial use of this area by northern spotted owls (Gutiérrez et al. 2007). Dispersal habitat conditions for northern spotted owls on BLM-managed lands within two miles of the proposed project area will incur a negligible drop from 84 percent to 81 percent following harvest, remaining well above 50 percent threshold for concern.

The following is new information since release of the Rickard Creek Timber Sale EA. As stated in the 2008 FEIS (pp. 537 to 539) Under the Proposed Resource Management Plan (PRMP) and all alternatives, total carbon storage would increase over time from current levels. The annual increase in carbon storage under all alternatives over the next 100 years would represent less than 1 percent of the current increase in carbon storage in forests and harvested wood nationally. The PRMP would average an annual accumulation of 0.96 million tonnes of carbon over the next 100 years. All alternatives would result in an increase in total carbon storage, in large part because all alternatives would increase the abundance of mature and structurally complex forest, which store more carbon than young or stand establishment forests. All of the alternatives would continue to constitute 1 percent of the total carbon currently stored in forests and harvested wood in the United States and 0.02 percent of total carbon currently stored in vegetation, soil, and detritus globally.

- 4. Comment:** *BLM has misread the RMP, which discourages BLM from cutting before culmination, but does not prevent BLM from cutting later than culmination.*

**Response:** It is true that CMAI could very likely be extended by thinning this stand. By thinning, individual trees will respond to the additional growing space with increased growth. Thinning extends the period of maximum growth, and growth does not slow until competition again increases or the trees get so old their growth slows as vigor declines. However, the direction in the RMP for timber resources in Matrix LUA (p. 48) is not to extend CMAI indefinitely, but to manage using regeneration harvests timed at CMAI of a well-stocked stand. Regeneration harvest maximizes mean annual growth.

- 5. This project violates the spirit (if not the letter) of the Northwest Forest Plan requirement that 15 percent of each 5<sup>th</sup> field watershed be retained as late successional forest. Page 32 of the EA admits that this stand is beginning to exhibit late successional forest characteristics, yet only 3 percent of the Mary’s River Watershed and only 12 percent of the “vicinity” is late successional**

*forest.*

**Response:** You have misinterpreted the 15 percent rule. The 15 percent rule is specific to percentage of late successional forest on Forest Service and BLM lands within a 5<sup>th</sup> field watershed. The 3 percent figure includes total lands within the watershed and is not specific to Forest Service and BLM. We clearly understand the importance of late successional forest on the landscape. As stated on page 39 of the EA, “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 1995 RMP). 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).”

6. *A new programmatic EIS is needed to address the significant new threat that barred owls pose to spotted owls, to address the fact that barred owls displacement means that spotted owl populations are now partially decoupled from suitable habitat, and to consider alternatives such as protecting additional suitable habitat (such as this stand) which will increase the likelihood that spotted owls and barred owls can co-exist and decrease the likelihood of competitive exclusion. The EA implies that the stand would not provide benefits to spotted owls because the stand is occupied by barred owls, but this conclusion fails to recognize that barred owls may not continuously occupy this stand due to natural population dynamics and/or population control efforts which are being actively discussed*

**Response:** About 90 percent of the BLM managed lands within the Marys Peak Resource Area are managed as Late-Successional Reserves or RR LUA. Late-Successional Reserves are managed for the benefit of late-successional species including northern spotted owls. Protecting more habitats to benefit northern spotted owls is beyond the scope of this project. We agree that barred owls may not continuously occupy this stand, but their current presence diminishes the immediate direct effects of this action to northern spotted owls, especially since there are no active northern spotted owl sites within 1.5 miles of this project area.

We have stated that this action “may affect” northern spotted owls and therefore it was subject to Section 7 Consultation as prescribed by the Endangered Species Act (ESA). Consultation for this proposed action was facilitated by its inclusion within a batched Biological Assessment (BA) that analyzed 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 consultation was completed when the U.S. Fish and Wildlife Service provided a Biological Opinion (FWS Reference Number 13420-2009-F-0012), that issued incidental take and concluded that the collective actions would not jeopardize the spotted owl or any other listed wildlife species. Their opinion was reached after the Service published a Final Northern Spotted Owl Recovery Plan in June, 2008 and a Final Rule for Northern Spotted Owl Critical Habitat in July, 2008. These two documents have addressed the concern regarding the effects barred owls, and the recent Biological Opinion has not required any new design features to be incorporated into this project.

7. *Climate change and the carbon consequences of logging and forest conservation represent significant new information that was not adequately considered in any programmatic NEPA analysis. Regeneration logging of this site will result in a relatively large net pulse of carbon to the atmosphere at a time when we should be taking every necessary step to reduce carbon emissions. This logging project needs both programmatic and site-specific carbon/climate analysis.*

**Response:** In accordance with (40 CFR 1508.9), EA's are prepared in order to "briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact." As documented in the FONSI dated, March 11, 2008, a finding was made by the Field Manager that "Based upon review of the EA and supporting documents, I have determined that the project is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, an environmental impact statement is not needed."

In addition as stated in 40 CFR Part 1500.1 (b), "...Most important, NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail." And (c), "...NEPA's purpose is not to generate paperwork-even excellent paperwork-but foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment."

The following is new information since release of the Rickard Creek Timber Sale EA. As stated in the 2008 FEIS (pp. 537 to 539) Under the Proposed Resource Management Plan (PRMP) and all alternatives, total carbon storage would increase over time from current levels. The annual increase in carbon storage under all alternatives over the next 100 years would represent less than 1 percent of the current increase in carbon storage in forests and harvested wood nationally. The PRMP would average an annual accumulation of 0.96 million tonnes of carbon over the next 100 years. All alternatives would result in an increase in total carbon storage, in large part because all alternatives would increase the abundance of mature and structurally complex forest, which store more carbon than young or stand establishment forests. All of the alternatives would continue to constitute 1 percent of the total carbon currently stored in forests and harvested wood in the United States and 0.02 percent of total carbon currently stored in vegetation, soil, and detritus globally.

- 8. Comment:** *The EA says that this project has no effect on environmental justice, but this assertion conflicts with the reality that logging this mature forest will exacerbate climate change and climate change is expected to have disproportionate impacts on low income and less developed communities. IPCC says "Adverse health impacts will be greatest in low-income countries. Those at greater risk include, in all countries, the urban poor, the elderly and children, traditional societies, subsistence farmers, and coastal populations.*

**Response:** The potential environmental affects the Rickard Creek Timber Sale Project will have on climate change (if any), and its disproportionate impacts on income and communities is beyond the scope of this project (see response #7).

- 9. Comment:** *The snag habitat standards in the current Salem RMP are based on biological potential but this method is scientifically discredited. BLM needs to prepare a new programmatic EIS to consider the impacts of its outdated snag standards and to consider alternatives that will do a better job of providing the ecosystem services offered by snags and dead 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. Several up-to-date references for CWD have been reviewed and are cited in the Biological Evaluation of wildlife resources for the Rickard Creek Timber Sale project. As noted in the EA, the post-harvest 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).

**10. Comment:** *The EA (p. 14) says that one of the objectives of this project is to accelerate the development of CWD and snag habitat, but this ignores the fact that thinning will capture mortality and increase vigor and result in a significant reduction and delay of recruitment of CWD and snags.*

**Response:** The statement on page 14 that you are referring to is specific to RR LUA, in which thinning will not occur. Another statement on page 14 which is specific to commercial thinning is “Perform commercial thinning on suitable managed timber stands to promote tree growth and survival.” The design features for commercial thinning and density management are appropriate for the LUA’s in which they occur.

**11. Comment:** *The EA (p. 35) describes the effects of the proposed action as “recruitment of new CWD of larger size and higher quality” but the EA fails to disclose and consider the effects of “captured mortality” from thinning, and the “snag gap” from regen harvest. The EA gives great credit to CWD recruitment from reserved trees but fails to disclose the long-term consequences of reduced CWD recruitment from a pool of 9 to 11 trees per acre after regen harvest vs. a pool of 70 to 100 tpa after no action or thinning.*

**Response:** The BLM has considered the many values of snags and down wood, and the EA discusses both snag and down log retention on Pages 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 (p. 33) states that “the CWD component would remain at moderate to high levels for this landscape since existing snags and down 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”.

**12. Comment:** *Removing trees from riparian reserves will reduce the recruitment of large wood to streams and nearby forests thereby retarding attainment of ACS objectives in violation of the Salem RMP. The riparian reserves were intended to serve two purposes, aquatic and terrestrial. The new road in the riparian reserve would violate the purpose of the ACS to maintain natural conditions in riparian reserves, especially ACSO #8 (structural diversity of plant communities).*

**Response** The proposed riparian treatments are intended to directly benefit the riparian stands. The proposed action within the RR LUA was specifically described on pp. 9 to 10 to be limited to the following “Within the density management areas, trees within 60 to 80 feet of dominant overstory trees will be cut (gap created). These gaps will average up to one per two acres. The cut trees will be harvested”. These treatments were intended to enhance a limited number of trees to increase crown ratio and diameter. In the development of the proposed action, thinning of the RR LUA was considered and several supporting documents included commercial thinning treatments in the RR LUA (eg. fisheries). However, the final project proposal did not include commercial thinning in the RR LUA, actions will be limited to gap and individual tree enhancements consistent with the design features.

The fisheries analysis indicated that no impacts to riparian LWD or CWD recruitment will be anticipated (p. 30). The fisheries analysis identified several tributaries in the project area, where no treatments will occur within 1 site potential tree height of the stream. Actions within one site

potential distance from stream channels were not anticipated to affect woody debris recruitment due to distance of treatments and terrain to which treatments are located.

The fisheries analysis also included discussion of thinning treatments in the riparian of an eastern draining tributary. The commercial thinning aspects of the project have been dropped, with only gaps and individual tree treatments proposed, hence lesser impacts may occur in this portion of the project area than analyzed. Treatments in the eastside of the project area will not occur closer than 50 feet from stream channels and actions were not on steep slopes. The fisheries analysis did not anticipate any short-term or long-term negative impacts. The existing stand within the SPZs will continue to recruit small woody debris. In the long-term, beneficial growth in the size of individually released trees in RR LUA 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.

The new road within RR LUA is temporary, and is purposely located on the opposite side of a ridge and stream so as to not affect the maintenance and restoration of species composition and structural diversity of plant communities in riparian areas and wetlands.

**13. Comment:** *With the Western Oregon Plan Revision (WOPR), BLM plans to throw the Northwest Forest Plan out the window. This represents significant new information and dramatically increases the value of all remaining mature and old-growth forest in the Coast Range. BLM should defer all regeneration harvest until the Western Oregon Plan Revision is resolved.*

**Response:** The LUAs adopted in the 2008 ROD/RMP where the Rickard Creek Timber Sale Project is located did not substantially change from the 1995 RMP (see Table 2). To defer regeneration harvest would not meet the purpose and need of the 2008 ROD/RMP. The amount of remaining old growth forest in the coast range is not expect to change under the 2008 ROD/RMP. No harvest of 160 year or older forest will occur for the next 15 years. The amount of LSMA doesn't substantially change in the coast range under the 2008 RMP vs LSR under the 1995 RMP.

**14. Comment:** *The EA says that this stand is being regenerated because it has reached the CMAI. First of all BLM could extend CMAI by thinning this stand and should have considered such an alternative. Second, Congressman Peter DeFazio is considering new legislation (posted on his website but not yet introduced) that would prohibit logging of trees and stands that have reach CMAI. This new approach should be considered as a reasonable alternative.*

**Response:** The need for regeneration harvest is based on the Stand Projection System (SPS) growth model that indicates that the 77 year old stand reached CMAI at about age 76. According to the RMP (p. Appendix D-1), a regeneration harvest is appropriate for stands that have reached CMAI in the approximate age of 70 to 110 years.

As the EA states (P. 12) "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)". It is true that CMAI could very likely be extended by thinning this stand. By thinning, individual trees would respond to the additional growing space with increased growth. Wider spacing progressively delays maximum growth, because growth does not slow until competition again increases, or when trees began to senesce from age. However, the direction in the RMP for timber resources in Matrix LUA (p. 48) is not to extend CMAI indefinitely, but to manage using regeneration harvests timed at CMAI of a well-stocked stand.

Thinning the stands would not meet the purpose and need of the project as the RMP(p. 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. anal

According to your information, Congressman Peter DeFazio is “considering” legislation to prohibit logging within stands that have reached CMAI on federal lands. Since the bill has not yet been introduced nor signed into law, the BLM cannot legally implement this approach at this time.

**15. Comment:** *The project area has numerous trails created by off-road vehicles. These trails are harmful to soils and water and wildlife. BLM should be enforcing rules to limit their damage. This logging project will adversely affect the recreation experience and the combination of logging and “dirt bikes” will cause cumulative adverse impacts on soil, water, and wildlife.*

**Response:** The EA (p. 38) states, “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”. The BLM anticipates that OHV use in the project area may be reduced. Further analysis as discussed on pages 1 and 2 of this document found no change in cumulative effects on soils and water as a result of OHV. In view of the fact that there are no special status species in the project area, there would be no cumulative effects to wildlife as a result of this project.

**16. Comment:** *The EA fails to specify what a well-distributed pattern of early, mid and late seral forests would be and how this logging would contribute to it”.*

**Response:** The RMP (p. 46) prescribes management direction for timber resources in the Matrix LUA to “Maintain a well-distributed pattern of early, mid- and late-successional forest across the matrix.” The direction applies to spatial distribution, as no direction is given for relative proportion. “Well-distributed” is not further defined in the RMP. It is considered a guideline to avoid aggregations of any one seral stage and was applied at the project level by examining spatial adjacency of the three forest age classes. The stands in the Rickard Creek project are currently mid-seral forest (40 to 79 years), are approaching late-seral (80+ years), and a portion will become early seral forest (0 to 39 years) after harvest, so a look at all three classes was involved (EA p. 33).

The spatial adjacency or pattern of late-successional habitat is currently determined by existing late-successional habitat maintained to meet 15 percent of the watershed on federal lands(EA p. 39). The pattern of late-successional forest will also be determined by the network of Riparian Reserve LUA adjacent to the Matrix. That portion of the 77-year old stands within the project area that are in the RR LUA will remain and become late-successional forest.

The Rickard Creek project lies within a 520-acre parcel (Township 13 South, Range 6 West, Section 29) of BLM-managed land bounded by private lands. Section 29 contains 32 acres of late-successional stands and another 45 acres occur about a half-mile from the project area on BLM-managed land in Section 21. The IDT concluded that adequate late-successional forest exists in the project area to meet a well-distributed pattern, without the potential addition of the Rickard Creek stands.

Mid-seral habitat which includes the Rickard Creek stands, are very abundant in the vicinity of the project area, making up 488 acres of the 520 acres of BLM-managed lands in Section 29, and a

majority of BLM-managed lands in the nearest sections to the south, west and northwest. The IDT also considered the adjacency of existing early seral forest to the project area. As noted (EA p. 39), the BLM has conducted regeneration harvest on five units in the Marys River Watershed over the past 10 years, totaling 145 acres (two percent of BLM-managed land in the Marys River Watershed). Nine acres of that occurs within the sections nearest the project area, or within approximately 2 miles. Within the last 15 years about 115 acres of regeneration harvest occurred within the nearest sections. The pattern of seral stage distribution led to the conclusion that within the vicinity of the project area, the RMP direction would not be best met through the no-action alternative.

**17. Comment:** *The EA says that failure to conduct density management would forgo “improvement of stand structure” in the riparian reserves. What’s the definition of “improvement”? Riparian areas are supposed to be managed for aquatic objectives which are primarily benefited from shade and large wood inputs. Density management may improve some aspects of terrestrial ecology (large trees) but it will decrease both shade and large wood inputs to both aquatic and terrestrial systems. By reducing shade and capturing mortality density management therefore degrades rather than improves stand structure.*

**Response:** The improvement refers to the discussion in the EA, p. 44: “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.” Similarly, on page 20: “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.”

Specifically, the effects to shade are addressed in the EA (p. 27): “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.” Two stream reaches along the north side 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.”

Specifically, large wood inputs are addressed in the EA (p. 30): “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” With density management: “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 LUA 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.”

**18. Comment:** *The EA says that regen harvest will result in a vigorous young stand of trees, but the EA skips a step. Before a young stand is established, regen harvest results in a soil and vegetation wasteland.*

**Response:** The EA addressed effects to soils and associated vegetation. As stated in the EA (p. 24), “The proposal includes broadcast burning of the skyline yarding area. This burned area would be expected to re-establish 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).” In addition, planting will occur soon after logging and slash treatment occurs.

**19. Comment:** *The description of effects on vegetation fails to note that the construction of a spur road in the riparian reserve will greatly reduce recruitment of large trees and snags in that area. This is a violation of the ACS (objective #8) which requires that growing large trees in riparian reserves not be retarded.*

**Response:** The EA analysis (p. 31) indicates the proposed new road construction will not impact aquatic habitats. The new road that will be constructed in the RR LUA will be located so as to drain away from the nearby fish bearing stream. Construction will not occur closer than 300 feet from stream channels, and is outside of the primary and secondary shade zones. In addition, this spur road is temporary and that the spur road affects a very small area and that snag management guidelines are not intended to be evaluated on each and every acre, but rather are assessed over larger portions of the project area.

**20. Comment:** *The EA states there’s no evidence that surface soil erosion occurs where slash is burned (it’s easily observable at most logging sites after burning)*

**Response:** The EA (p. 24) and some clarifying information describes effects on surface soil erosion as a result of burning as follows:

“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 during the spring or early summer season, a time of the year when soil moistures are high and the soil is not likely to be impacted by the low intensity heat generated from the burning. Fuel conditions during “spring broadcast burns” are such that only the finer fuels are available to burn (generally only the 1” diameter and smaller fuels are consumed to any great extent. Only a small fraction of the fuels larger then 1” diameter are burned). This low consumption of fuel results in a lower fire intensity and more importantly a very short fire duration. The flaming phase of the fire will generally be less then 10 minutes for most areas of the burn. The smoldering phase will last longer but generally within 20 to 30 minutes the fire will be out over the majority of the area within a burn strip. Research and

past experience both have shown that short duration of the burning phase and high soil moisture content result in very minimal soil heating. (Barnett, Dwight., 1989 Fire Effects on Coast Range Soils of Washington and Oregon and Management Implications. USDA R-6 Soils Technical Report). Much of the compacted duff and litter will remain as do the shallow roots of shrubs and forbes. 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.”

**21. Comment:** *The EA states the project is not located in areas prone to extreme precipitation events (it's in the Oregon Coast Range!)*

**Response:** The hydrology analysis describes in the EA (p. 25) that the project area is located in the Oregon Coast Range and receives between 75 and 80 inches of rain annually. The project area description also includes the fact that the area is located 30 miles from the coast and is situated on the east side of the Oregon Coast Range summit. These 2 factors along with the areas elevation (below 1300 feet) leave it less prone to the effects of extreme precipitation driven flood events (rain-on snow type events).

**22. Comment:** *Short-term recruitment of LWD would be maintained and in the long-term thinning would beneficially affect LWD recruitment in riparian reserves; (Models show otherwise. Thinning captures mortality and increases vigor, thereby reducing and delaying recruitment of LWD.)*

**Response:** There will be no thinning in riparian reserves. The proposed action within the RR LUA was described in the EA (pp. 9, 10) to be limited to the following:

- 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. These treatments were intended to enhance a limited number of trees to increase crown ratio and diameter.
- 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.
- There would be no gaps within 50 feet of streams.

In the development of the proposed action thinning of the RR LUA was considered and several supporting documents included commercial thinning treatments in the RR LUA (e.g. fisheries). However, the final project proposal did not include commercial thinning in the RR LUA, (actions will be limited to gap and individual tree enhancements consistent with the design features from pp. 9 and 10). Large wood inputs are addressed in EA (p. 30): “With the protection of one site potential tree buffer width in the RR LUA, CWD and LWD recruitment is not anticipated to be affected by the proposed action.”

**23. Comment:** *The EA asserts that this project would not likely affect the persistence of the red tree vole in this watershed (This ignores the fact that late successional forests (most suitable for red tree voles) make up less than 3 percent of the Mary's River watershed).*

**Response:** As stated in the EA (pp. 35 to 36) “No known special status 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 special status 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”.

Though not a special status species, the following design features will protect potential red tree vole habitat:

- ü Within density management and commercial thinning areas, all open grown trees with high wildlife value, existing snags and CWD (coarse woody debris) will be reserved, except where they pose a safety risk or affect access and operability. Any snags or logs felled or moved for these purposes will remain on site within the project area.
  
- ü Within the regeneration harvest unit, between 9 and 11 trees per acre will 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), will be retained to provide for structural diversity and wildlife values in the post-harvest stand. Preference in green tree selection will 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 will 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) will 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) will be retained to provide for post harvest wildlife habitat diversity. All other hardwoods will be felled and could be removed.
  
- ü Reserve snags, trees with high wildlife value, and coarse woody debris (CWD) where possible.
  
- ü Reserve all trees over 40 inches DBHOB where possible.

It should also be noted that as stated on page 39 of the EA, “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 1995 RMP).

**24. Comment:** *Regen logging will make it easier to walk through and hunt. (Recent clearcuts full of mud and slash and dense young plantations are among the least walkable forest types. Mature forest with a dense canopy and patchy understory is much better in that regard.)*

**Response:** We agree that walking may be easier now than after harvest.

**25. Comment:** *In case nearby Hull-Oakes Lumber Company bids on this sale, BLM must consider the consequences of this timber sale perpetuating the Hull-Oakes Lumber Company mill and their in-stream log pond that causes an ongoing blockage of passage for native cutthroat trout, as well as in-stream temperature increases due to boiler discharge. BLM needs to analyze this effect because this is a connected-action directly related to BLM's stated purpose and need to produce wood products.*

**Response:** As stated in the National Environmental Policy Act Handbook H-1790-1 (p. 45) "Connected actions are those actions that are "closely related" and "should be discussed" in the same NEPA document (40 CFR 1508.25 (a)(1)). Actions are connected if they automatically trigger other actions that may require an EIS; cannot or will not proceed unless other actions are taken previously or simultaneously; or if the actions are interdependent parts of a larger action and depend upon the larger action for their justification (40 CFR 1508.25 (a)(i, ii, iii)). Connected actions are limited to actions that are currently proposed (ripe for decision). Actions that are not yet proposed are not connected actions, but may need to be analyzed in cumulative effects analysis if they are reasonably foreseeable".

Since the purchaser of the Rickard Creek Timber Sale Project cannot be pre-determined, project actions do not automatically trigger other actions or are not interdependent parts of perpetuating Hull Oakes Lumber Company's Mill operations. The sale of the Rickard Creek Timber Sale Project to Hull Oaks Lumber Company is not a part of the proposed action of the project and thus is not a connected action. Since the purchaser of the project is not reasonably foreseeable, cumulative effects analyses concerning Hull Oakes Lumber Company's Mill operations were not within the scope of the project.

**26. Comment:** *The EA discusses water quality and aquatic impacts from the perspective of fish, but they are just one of the many values that the Northwest Forest Plan intended to protect and restore with the Aquatic Conservation Strategy. The EA needs to conduct a more thorough analysis that considers impacts to non-fish aquatic organisms like amphibians and insects.*

**Response:** The EA considered impacts to non-fish aquatic organisms like amphibians and insects. From Table 6, ACSO #9, "Maintain and restore habitat to support well distributed populations of native plant, invertebrates, and vertebrate riparian-dependent species. The EA (p. 47) concluded the proposed action affects on riparian dependent and riparian associated species will be restorative by reducing overstocked stands, moderating tree species diversity, altering forest structural characteristics and amending CWD conditions.

Aquatic habitat condition in the project area streams were assessed in the fisheries/aquatic habitat analysis (pp. 28 to 32). Aquatic insects are dependent on aquatic habitat and are interrelated to the fishery/aquatic habitat needs. The fisheries analysis indicated that impacts to aquatic habitat were not anticipated (EA pp. 30 to 31); therefore, impacts to aquatic insects and amphibians will similarly not be anticipated. The wildlife analysis (EA, page 35) noted that there are no Special Status wildlife species (including amphibians and insects) known to occur within the harvest areas. The EA on page 35 concludes that "Many of the wildlife species that may currently use the late-seral forest stand would be diminished or displaced to adjacent mid-

seral and late-seral forest stands” This would include terrestrial amphibians that may occur outside of riparian reserves.

**27. Comment:** *The EA notes the beneficial effect of logging in terms of increasing the spacing between tree crowns, but fails to acknowledge the equally significant adverse fire/fuel effects of logging, e.g., increased solar exposure and wind makes the resulting stand, and the extra slash, hotter, dryer and windier.*

**Response:** As noted in the EA (pp. 36 and 37) “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”.

The EA (p. 37) acknowledges that “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”.

The EA (p. 37) also acknowledges that “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”.

**28. Comment:** *The EA fails to discuss the polluting effects of logging and fuel reduction which cause a net increase in atmospheric carbon which is causing profound and dangerous climate change.*

**Response:** The EA (p. 37) states “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 will 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.

See response # 7 for potential effects to climate change.

**29. Comment:** *The EA admits that logging might increase OHV use on skid trails, but the EA fails to disclose the effects of this activity on soil and water quality Nor does the EA describe and consider the hazards of fire ignition when motorcycles ride through logged lands with lots of slash other than merely mentioning the risk.*

**Response:** The affects of off-highway-vehicle (OHV) use on soil and water quality was addressed in Response #15. Fire ignition hazards following logging are addressed by the following design feature (EA p. 11) “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.” Also, the EA on pages 36-37 states “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.”

**30. Comment:** *BLM should continue to fulfill the promise of the Northwest Forest Plan to survey and protect sites for rare and uncommon wildlife associated with late-successional old-growth forests.*

**Response:** As stated in the EA (p. 4) “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. The decision is consistent with the Northwest Forest Plan, including all plan amendments in effect on the date of the decision. The Rickard Creek Timber Sale project conforms with the *2007 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*. There are no Bureau Special Status species located within or adjacent to the harvest area. The red tree vole does not have Bureau Special Status in this area.

**31. Comment:** *The 2007 survey and manage FEIS/ROD is invalid because among other things it completely failed to address several important issues such as the WOPR plan to eliminate reserves, spotted owls’ reliance of protection buffers established for survey and manage species, and failed to evaluate whether the proposal would in fact cause trends toward ESA listing for vulnerable species.*

**Response:** 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* protects sensitive species so as to not elevate their risk toward listing to threatened and endangered. This Record of Decision is valid.

As stated in the EA (p. 34) “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 northern spotted owls with nearly complete annual coverage since 1990. No northern 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 northern 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 northern spotted owl has been recognized as serious threat to the recovery of northern spotted owl populations (Courtney et al. 2004). The proposed harvest areas provide foraging and dispersal habitat for northern spotted owls. About 64 percent of lands in the immediate vicinity (two mile buffer around project areas) meet dispersal habitat conditions for the northern spotted 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.

**32. Comment:** *The FONSI erroneously concludes that the project would not affect health and safety (ignoring the fact that logging will exacerbate climate change which threatens the health and safety of a huge fraction of all humanity).*

**Response:** See Response # 7

**33. Comment:** *The FONSI erroneously concludes that the project would not affect “ecologically critical areas” (ignoring that in areas with such a severe shortage of late successional forests, the last 3 percent late-successional forests left in the watershed it should be considered*

*“ecologically critical”*

**Response:** As stated in the EA (p. 39) 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 1995 RMP).”

**34. Comment:** *The FONSI erroneously concludes that the project would not be controversial (ignoring that BLM has not found it easy or uncontroversial to conduct regen harvest in over a decade).*

**Response:** As stated in the National Environmental Policy Act Handbook H-1790-1 (p. 84) (40 CFR 1508.27(b)(4) the decision maker must consider the degree to which the effects are likely to be highly controversial. Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives.

There will always be some disagreement about the nature of the effects for land management actions, and the decision-maker must exercise some judgment in evaluating the degree to which the effects are likely to be highly controversial.

This decision is in conformance with the Salem District’s 2008 Record of Decision and Resource Management Plan (2008 ROD/RMP).

Revision of a resource management plan necessarily involves a transition from the application of the old resource management plan to the application of the new resource management plan. A transition from the old resource management plan to the new resource management plan avoids disruption of the management of BLM-administered lands and allows the BLM to utilize work already begun on the planning and analysis of projects.

The 2008 ROD allowed for such projects to be implemented consistent with the management direction of either the 1995 resource management plan (1995 RMP) or the 2008 RMP, at the discretion of the decision maker.

Since the planning and design for this project was initiated prior to the 2008 ROD, it contains certain project design features that are not consistent with the management direction contained in the 2008 RMP.

The design features for this project that are consistent with the 1995 RMP but not consistent with the 2008 RMP include:

Design Feature	Rickard Creek Project	2008 ROD
Width of the Riparian Reserve Land use allocation on fish bearing streams	two site potential trees or 420 feet	One site-potential tree height or 210 feet
Width of the Riparian Reserve Land use allocation on non-fish bearing perennial streams	One site-potential tree height or 210 feet	One site-potential tree height or 210 feet
Width of the Riparian Reserve Land use allocation on intermittent streams	One site-potential tree height or 210 feet	Half of one site-potential tree height or 105 feet
Stream protection zone on non fish-bearing intermittent streams	50 feet (EA p. 9)	35 feet (ROD p 38)
Green tree retention	Six to eight conifer trees per acre and all existing CWD will be	No conifer trees or CWD will be retained

	retained to provide for structural diversity and wildlife values in the post-harvest stand.	
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The Rickard Creek Timber Sale Project has been designed to be in compliance with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA pp. 3 to 4).

**35. Comment:** *The FONSI erroneously concludes that the project would use “design features” to minimize the “intensity” of impacts (ignoring that those design features mainly apply to the thinning portions of this sale, while most of the project is regen harvest which represents a very intense and unmitigated removal of virtually everything of ecological value from the site).*

**Response:** Design features were incorporated into the EA (pp. 8 to 11) to reduce the risk of effects of regeneration harvest as well as commercial thinning, density management and connected actions. The following design features were specifically targeted to reduce the risk of effects of regeneration harvest.

- ü Within the regeneration harvest unit, between 9 and 11 trees per acre will 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), will be retained to provide for structural diversity and wildlife values in the post-harvest stand. Preference in green tree selection will 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 will 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) will 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) will be retained to provide for post harvest wildlife habitat diversity. All other hardwoods will be felled and could be removed.
  
- ü Within the regeneration harvest unit, all existing down logs in decay class 3 to 5 (see Figure 1) will be retained where possible. Down logs in decay class 1 and 2 that are greater than 20 inches DBHOB on the large end will be retained.
- ü Within the regeneration harvest unit, all existing snags greater than 12 inches DBHOB will 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 will 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 will be retained.
- ü In the regeneration harvest area debris accumulations within the ground based yarding area will 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 will be piled for burning or chipped with the chips being spread out on the site or removed from the site. At least 75 percent of the slash in the ¼” to 6” diameter range will be piled for burning. All piles will be located at least ten feet away from reserve trees and snags. Larger piles will be preferable over small piles.

Wind rows will be avoided unless approved in advance by the Authorized Officer contract administrator.

- ü Approximately 9,000 feet of hand fire lines will be constructed along regeneration harvest boundaries where broadcast burning will occur.
- ü Approximately 5,000 feet of 50 foot wide fuel free zones will be created along regeneration harvest boundaries or along adjacent commercial thinning boundaries.
- ü Within the regeneration harvest area, following yarding, all remaining brush taller than two feet will be cut (slashed).
- ü Within the regeneration harvest area, pull back of logging debris within five feet from reserved trees will be required.
- ü Within the regeneration harvest area, logging slash and brush will be broadcast burned in the skyline yarding area.
- ü Broadcast burning will occur under spring-like conditions. All burning will be in compliance with the Oregon Smoke Management Plan (RMP pp. 22, 65).
- ü The areas will 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.
- ü Following site preparation, the regeneration harvest area will be planted with a mixture of Douglas-fir, western hemlock, and western red-cedar at a rate of 500 trees per acre.

**36. Comment:** *The FONSI says that the duration of effects will be only 4 to 6 years (ignoring that regen harvest will remove virtually all the large trees and will take at least 80 years to return. This represents long-term impacts on spotted owls and other species associated with late successional forest.);*

**Response:** The FONSI states (p. iii) that “direct effects would occur over a maximum period of four to-six years”.

**37. Comment:** *The FONSI erroneously concludes that the project would not cause significant cumulative impacts (ignoring that the significant impacts of past logging are still with us (lag effects) and the resulting deficit of old forests will not be fixed until many more decades of forest regrowth, so any further loss of mature forest today, exacerbates those significant cumulative impacts)*

**Response:** No significant cumulative effects have been identified. As stated in the EA (pp. 40 to 42) the available habitat for late seral forest associated wildlife species will be reduced to 35.5 percent on federal lands for this watershed, which is well above the 15 percent required by the 1995 RMP. This action will not contribute to need for listing any special status wildlife species. Dispersal habitat for northern spotted owls will be negligibly affected (reduced to 81 percent), but will remain well above the threshold of 50 percent for this landscape.

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.

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.

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.

As stated on page one of this document, “Existing OHV use in the area would be reduced by the decommissioning of one road and the skid trail closing work described above”

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.

**38. Comment:** *The FONSI erroneously concludes that the project would not violate any laws imposed for the protection of the environment (ignoring that the BLM lacks adequate programmatic NEPA documentations for climate change, carbon storage/emissions, barred owls, outdated snags standards, young plantations as fire hazards, etc. and ignoring that BLM intends to rely on the “annual species reviews” which have been found by the courts to violate NEPA.)*

**Response:** The decision is consistent with the Northwest Forest Plan, including all plan amendments in effect on the date of the decision. The Rickard Creek Timber Sale EA conforms with the *2007 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 and Instruction Memorandum No. OR-2007-072 (Update to the State Director's Special Status Species List, July 2007)*.

See Response # 7 in relation to climate change.

See Response # 6 in relation to barred owls.

See Response # 9 in relation to snag standards.

See Response #27 and #29 in relation to young plantations as fire hazards.

**39. Comment:** *BLM should not approve FONSI without first considering public comment. Making a finding without considering public input implies that BLM is “all knowing” and violates the public involvement requirements of NEPA.*

**Response:** With the National Environmental Policy Act Handbook H-1790-1 (p. 45) the CEQ regulations direct agencies to encourage and facilitate public involvement in the NEPA process to the fullest extent possible (40 CFR 1500.2(d), 40 CFR 1506.6). This means that while some public involvement is required in the preparation of an EA, the decision maker has the discretion to determine how much, and what kind of involvement works best for each individual EA. For preparation of an EA, public involvement may include any of the following: external scoping, public notification before or during preparation of an EA, public meetings, or public review and comment of the completed EA and FONSI. The type of public involvement is at the discretion of the decision-maker.

For the Rickard Creek Timber Sale Project, a scoping letter, dated May 19, 2005, was sent to 55

potentially affected and/or interested individuals, groups, and agencies. In addition, a description of the project was included in all project updates since June 2005. The EA and FONSI was made available for public review March 17, 2008 to April 15, 2008. The notice for public comment was published in a legal notice by the *Gazette Times* newspaper

When the Marys Peak Resource Area releases future EA's and FONSI's for public comment, the FONSI will be un-signed. The FONSI will be signed after public review and any necessary changes are made to the EA.

### **American Forest Resource Council**

**1. Comment:** *"The AFRC would like to see all timber sales be economically viable."*

**Response:** Economic feasibility is one of the many factors taken into account when offering a timber sale. Road work costs, yarding costs and other incidental costs versus the acreage and volume taken are calculated and an Interdisciplinary Team of specialists including those in EA Section 6.0, Table 11, come to a consensus on what alternative to pursue for analysis.  
Alternatives

**2. Comment:** *"For this reason AFRC supports the Alternative 2 (the proposed alternative ) as it best meets the purpose and need of the project while maximizing revenues to the government, all while protecting natural resource values. AFRC supports the regeneration harvest of stands that have reached Culmination of Mean Annual Increment(CMAI) on lands that are designated General Forest Management in the RMP"*

**Response:** We concur. See response to comments #2 and #14 on pages 11 and 16.

**3. Comment:** *"Seasonal, recreational, and wildlife restrictions often make timber sales extremely difficult to complete within contract timelines"*

**Response:** The Ability of our purchasers to complete sales within contract timelines is considered by our Interdisciplinary Team of specialists.

**4. Comment:** *"AFRC also would like to voice support for thinning treatments in the riparian areas of the Rickard Creek Timber Sale"*

**Response:** We are not conducting traditional thinning in the riparian reserves. The EA design features on page on 10 state "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."

**Reed M. Wilson**  
**April 15, 2008**

**1. Comment:** *"Why clearcut? After implementing several effective thinning projects within ten miles of Rickard Creek, I don't understand why the BLM made the decision to revert to the ecologically damaging practice of clearcutting mature forests"*

**Response:** This timber sale is in matrix which allows for both thinning and regeneration harvest. The EA on page 6 under **Purpose of and Need for Action** says "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).”We are not proposing clearcutting. The EA design features on page 13 state “

ü 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.

ü 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.

ü 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.

**2. Comment :** *“In a clearcut, loggers have a way of labeling legacy trees as “hazard trees” and cutting them down, or using them for boom anchors, which also requires falling them”*

**Response:** We recognize that cutting some legacy trees may be necessary to prevent safety hazards during harvest. For this reason as stated on page 13 of the EA, “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.” Also as stated on page 13 of the EA, “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.” By locating trees safely away from landings and right-of-ways we are reducing the probability that they may need to be cut for safety reasons.

**3. Comment:** *“Isn’t the BLM required by NEPA to provide the public with a “reasonable range of alternatives”? Since the No Action alternative is rarely if ever adopted, the EA presents only one option, clearcutting. That makes this project EA both inadequate from a conservation standpoint, and illegal. Where is the thinning alternative?”*

**Response:** See our response to comment #2 on page 11 of this document.

**4. Comment:** *“Both Congressman DeFazio, and Senator Wyden are developing legislation to protect old growth and mature forests, and promote the thinning of younger plantations on the west side of the state.”*

**Response:** See our response to comment #14, starting on page 15 of this document.

**5. Comment:** *“Climate change and the necessity for carbon retention are no myth. The BLM should thoroughly analyze the cumulative impact of all its harvest projects, and scale back accordingly.”*

**Response:** See our response to comment #7, starting on page 25 of this document.

**6. Comment:** *“If we gradually destroy the soil in the Coast Range, and can’t maintain healthy forest ecosystems on our public lands, how will we ensure clean air and water for future generations”.*

**Response:** We have analyzed the cumulative effects that this project may have on the soils resource. The EA states on page 40 “The analysis indicates that the proposed project is considered unlikely to have detectable affects on soil erosion, or soil productivity. There will be no measurable cumulative impact to the soils resource outside the project area.”

**Rana Foster**

**Received April 15,2008**

**1. Comment:** *“The NEPA process is violated in the Rickard Creek Timber Sale EA which offers only two alternatives”*

**Response:** See our response to comment #2 on page 11 of this document.

**2. Comment:** *“hopefully the sale will be clearly marked to provide protections to the ancient age class which exists here”*

**Response:** The stand where sale is located is 77 years old with scattered old growth which are less than 200 years old. The EA (page 10), lists a design feature that targets the types of trees which you may be describing:

- 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.

In addition, retained trees would in fact be clearly marked with orange paint to insure that they are reserved from cutting.

**3. Comment:** *“I disagree with cutting of any of the trees over 90-200 years. This age class is very important to retain for NSO, RTV use. I noted in the lower orange blaze, flag and signed*

*Southern ROW is flagged a tree over 200 years is marked inside the south edge of this yet to be bulldozed in ROW”*

**Response:** The specific tree you are talking about would be tagged to exclude from the ROW.

**4. Comment:** *“RTV, are possibly present in this complex emerging ancient forest, due to the stand variability, structural habitat areas, open forest floor and bounded by more native forest to the west and south.”*

**Response:** See comment response #23 on page 19.

**5. Comment:** *“If the WOPR Alternative #2 is implemented the Rickard Creek Timber Sale EA alternative discussion and analysis should take this into consideration as a problem as the entire drainage will be removed of perhaps all O and C native forest here in the Rickard, Oliver and Greasy Creek watersheds”*

**Response:** Table 2 on page 8 shows acreages of 1995 RMP land use allocations and 2008 RMP land use allocations within the Mary’s River watershed. Revision of a resource management plan necessarily involves a transition from the application of the old resource management plan to the application of the new resource management plan. A transition from the old resource management plan to the new resource management plan avoids disruption of the management of BLM-administered lands and allows the BLM to utilize work already begun on the planning and analysis of projects.

The 2008 ROD allowed for such projects to be implemented consistent with the management direction of either the 1995 resource management plan (1995 RMP) or the 2008 RMP, at the discretion of the decision maker.

This project meets the requirements designated in the 2008 ROD for such transition projects:

1. A decision was not signed prior to the effective date of the 2008 ROD.
2. Preparation of National Environmental Policy Act documentation began prior to the effective date of the 2008 ROD.
3. A decision on the project will be signed within two years of the effective date of the 2008 ROD.
4. Regeneration harvest would not occur in a late-successional management area and no harvest would occur in deferred timber management area.

There would be no destruction or adverse modification of critical habitat designated for species listed as endangered or threatened under the Endangered Species Act.

**6. Comment:** *“While out hiking in this area we noted native uncommon forbs/bulbs and heard many types of birds when the back ground ATVers were further away. I wondered if these understory plants are rare such as Calypso Orchid, and could the BLM plan to be salvaging these species and relocating them in stands without these species diversity/presence?”*

**Response:** The EA page 17 says “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. No SSS wildlife species are known to occur within the planned harvest areas”. No design features to protect specific plants or animals within the project area were included within the EA.

**7. Comment:** *“We wonder how long it will take to reestablish this same mixture of age class and forest structure if it is cleared as regeneration removal logging for profit by one purchaser for a one time deal.”*

**Response:** Re-establishing the same mixture of age class and forest structure is not the goal for the LUA where this project is located. Having said that, the following list of design features were targeted to mitigate effects on age class and structure in the regeneration harvest area:

- ü Within the regeneration harvest unit, between 9 and 11 trees per acre will 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), will be retained to provide for structural diversity and wildlife values in the post-harvest stand. Preference in green tree selection will 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 will 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) will 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) will be retained to provide for post harvest wildlife habitat diversity. All other hardwoods will be felled and could be removed.
- ü Within the regeneration harvest unit, all existing down logs in decay class 3 to 5 (see Figure 1) will be retained where possible. Down logs in decay class 1 and 2 that are greater than 20 inches DBHOB on the large end will be retained.
- ü Within the regeneration harvest unit, all existing snags greater than 12 inches DBHOB will 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 will 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 will be retained.

**8. Comment:** *“Recreationally this entire basin area is under siege by multiple types of gas powered ATV. Do the fees or permit payments stay in the area they are paid from to use again to keep this sale from being regenerated/cleared?”*

**Response:** The BLM does not collect fees from ATV users.

**9. Comment:** *“ATV users are actively able to continue and encourage the region wide spread of all types of weeds as they move and erode the entire watershed as they use the system on private and public land three days a week.”*

**Response:** The effects of ATV use throughout the watershed are beyond the scope of this project.

**10. Comment:** *“Topographically this sale is hummocked by small micro slides, depressions, berms and man skid ditches. Or are these soils unstable at low slope angles and need vegetation*

*to stabilize them, and if the area is geologically unstable, perhaps the next regeneration plantation here may have a harder time establishing on land that is always moving geologically.*

**Response:** Soil stability has not been identified as a management concern for the project area. The EA (page 22) states, “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.”

**11. Comment:** *“I hope aquatic species who are using and presently housed within the watersheds of Beaver Creek and Rickard Creek are not adversely impacted by this sale as more sediment may entire these drainage way. Native eel, amphibians, herps may be impacted with timber removal/regeneration mg.”*

**Response:** See response to comment #26 of this document.

**Francis Stillwell**

**Received April 15, 2008**

**Comment:** *The Rickard Creek timber sale is an artist’s paradise and should not be cut considering the present real estate slump. The BLM should delay all cutting in the Oregon Coast Range until the final plan for managing the Oregon Coast Range until the WOPR has been approved.*

**Response:** About 90 percent of the BLM managed lands within the Mary’s Peak Resource Area are protected by management as Late-Successional Reserves or Riparian Reserve land use allocations where the objectives are to develop and enhance late successional forests and aquatic habitat. See Table 4 for a comparison of land use allocations within the Mary’s River watershed between 1995 RMP and 2008 RMP. The Rickard Creek timber sale project occurs within the Matrix land use allocation where the objectives are to contribute to both the immediate and long-term sustainable supply of timber and other forest products which will contribute to local and state economic diversity while maintaining future forest management options and protecting other resource values.

Market fluctuations (high or low) have not historically influenced the marketability of timber sales within the BLM Salem District. Considering the project will be offered for sale with a three year contract period and that BLM Salem District timber sales have a historical high rate of being sold and awarded, we believe the Rickard Creek Timber Sale will be successfully sold in June of 2009 and implemented within a three year contract period. The deferral of the project would not meet the purpose and need of the project (EA Section 1.6).

**Howard Stokes**

**Received April 15, 2008**

**Comment:** *As a long time resident within the Beaver Creek area I have watched the local forest being cut and turned into tree plantations. The Rickard Creek area is a checkerboard of public and private land and the BLM should set-aside some mature forest and thin the younger stands. This area has more value to the public as a mature forest than another overstocked plantation.*

**Response:** See table 2 on page 8 of this document for a comparison of land use allocation acreages within the Mary’s River watershed under the 1995 RMP and the 2008 RMP. Under the

1995 RMP, the Rickard Creek timber sale project occurs within the Matrix land use allocation where the objectives are to contribute to both the immediate and long-term sustainable supply of timber and other forest products which will contribute to local and state economic diversity while maintaining future forest management options and protecting other resource values.

We clearly understand the importance of late successional forest on the landscape. As stated on page 39 of the EA, “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 1995 RMP). 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).”

**C.L. Plotner**

**Received April 15, 2008**

**Comment:** *As a native Oregonian I have seen environmental degradation caused by clearcut harvest activities. The herbicide use, landslides and the dramatic impact on wildlife species is difficult to witness. Please protect a healthy forest ecosystem for future generations by dropping the proposed Rickard Creek timber sale project.*

**Response:** Since adoption of the 1995 RMP about 90 percent of the BLM managed lands within the Marys Peak Resource Area have been protected by management as Late-Successional Reserves or Riparian Reserve land use allocations where the objectives are to develop and enhance late successional forests and aquatic habitat.

Currently the only application of herbicides within BLM managed lands is to control non-native plants. The control of non-native plants is extremely beneficial in restoring forest habitats.

As stated in the Rickard Creek Timber Sale EA (p. 27) the proposed road system is located in a stable geologic landform and there is no risk of road related landslides. Historically, landslide frequency has been low. As noted in the EA (p. 43), The Benton Foothills Watershed Analysis stated “although harvest activities are expected to increase due to the land use allocation, substantial increases in land sliding rates are not expected (p. 4)”. The EA (p. 46) states 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.

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 special status wildlife species are known to occur within the planned harvest areas.

**Mahogany Aulenbach**

**Received April 13, 2008**

**Comment:** *The Rickard Creek proposed timber sale area contains potential nesting habitat for northern spotted owls. The BLM needs to set aside forests for stressed species such as northern spotted owls, marbled murrelets, and red tree voles. With so much of the adjacent private land*

*being cut, the public forests need to be protected for endangered species, clean air, global warming and mature forests.*

**Response:** As stated in the EA (p. 34) “the vicinity of this project area including the proposed harvest areas and adjacent owl sites has been surveyed for northern spotted owls with nearly complete annual coverage since 1990. No northern 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 northern spotted owls, but did locate a nest site of a breeding pair of barred owls within the proposed regeneration harvest area”. There is no known special status or threatened and endangered wildlife species known to occur within the planned harvest areas.

As noted in the EA (p. 37) 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.

See response # 7 for effects to climate change.

Since adoption of the 1995 RMP, about 90 percent of the BLM managed lands within the Marys Peak Resource Area have been protected by management as Late-Successional Reserves or Riparian Reserve land use allocations where the objectives are to develop and enhance late successional forests and aquatic habitat to benefit late successional species and their habitats.

See Table 4 for a comparison of land use allocations within the Mary’s River watershed between 1995 RMP and 2008 RMP.

## 11.0 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.