

**ENVIRONMENTAL ASSESSMENT AND  
FINDING OF NO SIGNIFICANT IMPACT**

**Project Title: Molalla Late Successional Reserve (LSR) Habitat Enhancement**

**EA Number: DOI-BLM-OR-S040-2012-0002-EA**

**Type of Project: Wildlife and Forest Restoration Project**

**Date: September 11, 2012**

**Location of Proposed Action:** T. 6 S., R. 4 E.; T. 6 S., R. 5 E.; T. 7S., R. 3E.; T. 7S. R. 4E.; T. 7S. R. 5E.; T. 8S. R. 5E.; W.M. Clackamas County, Oregon. Within the Molalla Late Successional Reserves, Molalla River Watershed

**Name and Location of Preparing Office:** USDI - Bureau of Land Management  
Cascades Resource Area, Salem District, 1717 Fabry Road SE  
Salem, OR 97306

**Responsible Official:** Leanne Mruzik, Acting Field Manager at (503) 315-5969

**For further information, contact:** Jim England at the Salem District address or at (503) 315-5913



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-12/028+1792

## Table of Contents

<b>1.0</b>	<b>INTRODUCTION</b> .....	<b>5</b>
1.1	<i>Purpose of and Need for Action</i> .....	5
1.1.1	Need for Action.....	5
1.1.2	Purpose (Objectives) of the Project.....	6
1.1.3	Decisions to be Made / Decision Factors.....	7
1.1.4	Summary of Proposed Action, Project Location, and Land Use Allocations.....	7
1.2	<i>Conformance with Land Use Plan, Statutes, Regulations, and other Plans</i> .....	7
1.2.1	Relevant Statutes/Authorities.....	8
1.3	<i>Scoping and Identification of Relevant Issues</i> .....	8
1.3.1	Scoping.....	8
1.3.2	Relevant Issues.....	9
<b>2.0</b>	<b>ALTERNATIVES</b> .....	<b>10</b>
2.1	<i>Alternative Development</i> .....	10
2.2	<i>No Action Alternative</i> .....	10
2.3	<i>Proposed Action</i> .....	10
2.3.1	Proposed Treatments.....	10
2.3.2	Connected Actions.....	13
2.3.3	Project Design Features.....	14
<b>3.0</b>	<b>AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS</b> .....	<b>17</b>
3.1	<i>Vegetation and Terrestrial Habitat</i> .....	17
3.1.1	Alternative 1 - No Action Alternative.....	19
3.1.2	Alternative 2 – Proposed Action.....	20
3.1.3	Cumulative effects.....	21
3.2	<i>Wildlife</i> .....	22
3.2.1	Alternative 1 – No Action Alternative.....	23
3.2.2	Alternative 2 – Proposed Action.....	24
3.2.3	Cumulative Effects.....	26
3.3	<i>Wild and Scenic River, Visual Resource Management and Recreation</i> .....	27
3.3.1	Alternative 1- No Action Alternative.....	29
3.3.2	Alternative 2 – Proposed Action.....	29
3.3.3	Cumulative Effects.....	30
3.4	<i>Cultural Resources</i> .....	30
3.4.1	Alternative 1 - No Action Alternative.....	31
3.4.2	Alternative 2 – Proposed Action.....	31
3.4.3	Cumulative Effects.....	31
3.5	<i>Air Quality, Fire Risk, and Fuels Management</i> .....	31
3.5.1	Alternative 1 – No Action Alternative.....	34
3.5.2	Alternative 2 – Proposed Action.....	34
3.5.3	Cumulative Effects.....	36
3.6	<i>Review of Elements of the Environment Based On Authorities and Management Direction</i> .....	37
3.7	<i>Compliance with the Aquatic Conservation Strategy</i> .....	39
3.8	<i>Review of Alternatives with Regard to the Decision Factors</i> .....	42
<b>4.0</b>	<b>LIST OF PREPARERS</b> .....	<b>43</b>
<b>5.0</b>	<b>CONTACTS AND CONSULTATION</b> .....	<b>43</b>
5.1	<i>ESA Consultation</i> .....	43
5.1.1	US Fish and Wildlife Service (USFWS).....	43
5.1.2	National Marine Fisheries Service (NMFS).....	44
5.2	<i>Cultural Resources: Section 106 Consultation with State Historical Preservation Office</i> .....	44
5.3	<i>EA Public Comment Period</i> .....	44
<b>6.0</b>	<b>FINDING OF NO SIGNIFICANT IMPACT</b> .....	<b>45</b>

**7.0 LITERATURE CITED..... 48**  
**8.0 TREATMENT TABLE AND MAPS..... 50**

# ENVIRONMENTAL ASSESSMENT

## 1.0 INTRODUCTION

This EA will analyze the impacts of the proposed project and connected actions on the human environment. The EA will provide the decision-maker, the Cascades Resource Area Field Manager, with current information to aid in the decision-making process. Section 1 of this EA provides a context for what will be analyzed in the EA by describing the purpose and need for the proposed actions, describing plan conformance, and identifying issues, and the criteria that would be used for selecting the alternatives.

### 1.1 Purpose of and Need for Action

#### 1.1.1 Need for Action

##### **Late-Successional Habitat Restoration**

Lands within the Late Successional Reserve (LSR) land use allocation (LUA) are designated to protect and enhance conditions of late successional and old-growth forest ecosystems, which serve as habitat for late successional and old-growth related species, including the northern spotted owl (RMP<sup>1</sup> p. 15). Data analysis and field examinations by BLM staff have identified over 5,000 acres of young stands in the Molalla LSRs that provide little to no habitat for late successional species. These early-seral forest stands, including upslope and riparian areas, currently lack stand and vegetative diversity. They also lack snags and down coarse woody debris. They were clearcut logged, broadcast burned, and replanted to create plantations with the primary objective of timber management prior to the implementation of the Northwest Forest Plan.

High stocking densities have reduced stand vigor and resiliency, prolonging development of late-successional forest characteristics. Non-forest types and areas with historically low tree stocking levels, (e.g. meadows and rocky areas) have been re-stocked with trees. High stocking levels have also reduced early seral open habitat needed for big game forage, small mammals, migratory birds and raptors. There is a need to reduce the number of trees per acre to levels that would optimize growth rates, increase forest stand diversity, and accelerate late-successional forest development.

##### **Riparian Habitat Restoration**

Lands within the Riparian Reserve LUA are designated for restoring and maintaining the ecological health of watersheds and aquatic ecosystems (RMP p. 5), and for providing habitat for terrestrial species (RMP p. 9). Previously clearcut young stands, as described above, also occur within the Riparian Reserve land use allocation. These stands provide poor instream large wood recruitment potential. Additionally, the existing low structural and species diversity offers low quality habitat for wildlife using the riparian corridors. Therefore, there is a need to promote instream large wood recruitment within the drainage as well as to provide a diversity of species and canopy layers to facilitate dispersal for wildlife.

---

<sup>1</sup> Salem District Resource Management Plan (RMP 1995)

### **1.1.2 Purpose (Objectives) of the Project**

The Bureau of Land Management specifically designed the Molalla LSR Habitat Enhancement project to: 1) accelerate the development of late-successional forest conditions within younger (<40 years) stands; 2) protect and maintain current late-successional stands in the Molalla Late Successional Reserves; and 3) provide economic opportunities for the sale of special forest products when demand is present, consistent with management actions/direction for Late-Successional and Riparian Reserves (RMP p. 49)

This project has been designed under 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. The Molalla LSR project area is within the Late successional and Riparian Reserve land use allocations. The Salem RMP describes Management Actions/Direction that may be applied to developing timber stands to attain Late Successional Reserve resource objectives. Specifically, the objectives of this project by land use allocation are to:

#### **Late Successional Reserve Land Use Allocation (RMP pp. 15-19):**

- Apply silvicultural treatments in LSRs that are beneficial to the creation of late-successional habitat (RMP p.16). These include treatments to develop large conifers for structural diversity, snag creation, and stocking control to achieve desired vegetation characteristics and diversity of vegetation;
- Manage the late successional reserve in common with the Table Rock Wilderness in accordance with the approved wilderness plan (RMP p. 15);
- Design projects to improve conditions for wildlife and recovery of threatened or endangered species (RMP p.18);
- Restore non-forest types and areas with historically low tree stocking levels, (ie meadows and rocky areas).
- Offer special forest products as a by product of thinning when demand is present. Prior to selling special forest products, ensure resource sustainability and protection of other resource values such as special status plant or animal species (RMP p. 18).

#### **Riparian Reserve Land Use Allocation (RMP pp. 5-6, 9-12):**

- Develop large conifers for future large tree components, recruitment of large coarse woody debris, snag habitat and in-stream large wood (RMP p. 5, 11);
- Maintain and restore spatial diversity and temporal connectivity within and between watersheds (RMP p. 6);
- Control stocking (stand density) to acquire desired vegetation characteristics and improve diversity of vegetation within the Riparian Reserve land use allocation (RMP p. 6, 11);
- Provide habitat for special status, SEIS special attention and other terrestrial species (RMP p. 9).

### **1.1.3 Decisions to be Made / Decision Factors**

#### ***1.1.3.1 Decision to be Made***

The following decisions will be made through this analysis:

- To determine at what level, where, and method to manage plantation stands in the Molalla LSRs; and
- To implement or not implement the proposed actions.

#### ***1.1.3.2 Decision Factors***

In choosing the alternative that best meets the purpose and need, the Cascades Resource Area Field Manager will consider the extent to which each alternative would:

1. Reduce competition-related mortality and increase tree vigor and growth; and
2. Increase structural and species diversity.

### **1.1.4 Summary of Proposed Action, Project Location, and Land Use Allocations**

The BLM proposes to thin up to 2,000 acres of previously managed stands (plantations less than 40 years old) over the next five years. This is a multi-year project expected to occur over 3-5 years. The project would take place within the Molalla Late-Successional Reserves, which is within the Molalla River 5<sup>th</sup> field watershed, approximately 12 miles southeast of the town of Molalla, Oregon. (See EA section 8.0 for a map of the project area).

## **1.2 Conformance with Land Use Plan, Statutes, Regulations, and other Plans**

The proposed action is in conformance with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP); *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl*, April 1994 (the Northwest Forest Plan, or NWFP); and *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*, January 2001, as amended by July 2011 Settlement Agreement.

In addition to the documents cited above, project planning drew on information and recommendations from the following:

- (1) *Molalla Watershed Analysis (1999)*;
- (2) *North-Willamette Late-Successional Reserve Assessment (1998)*;
- (3) *REO Exemption Memo: Criteria to Exempt Specific Silvicultural Activities in Late-Successional Reserves and Managed Late-Successional Areas from Regional Office Review (1996)*;
- (4) *Revised Recovery Plan for the Northern Spotted Owl (June 2011). Recovery Action 6, pages III-19-20.*

The above documents are available for review in the Salem District Office. Additional information about the proposed activities is available in the Molalla LSR habitat Enhancement EA Analysis File, also available at the Salem District Office.

## **Survey and Manage Review:**

Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement (IM-OR-2011-063, July 2011). The Settlement Agreement acknowledged the existing exemption categories at the time, otherwise known as the 2006 Pechman Exemptions. The proposed project meets Exemption 1 of the Settlement Agreement: “Thinnings in forest stands younger than 80 years of age (BLM-IM-OR-2011-063).”

### **1.2.1 Relevant Statutes/Authorities**

This section is a summary of the relevant statutes/authorities that apply to this project.

- **National Environmental Policy Act (NEPA) 1969** – Requires the preparation of EAs or EISs on federal actions. These documents describe the environmental effects of these actions and determine whether the actions have a significant effect on the human environment.
- **Endangered Species Act (ESA) 1973** – Directs Federal agencies to ensure their actions do not jeopardize threatened and endangered species.
- **Federal Land Policy and Management Act (FLPMA) 1976** – Defines BLM’s organization and provides the basic policy guidance for BLM’s management of public lands.
- **Archaeological Resources Protection Act (ARPA) 1979** – Protects archeological resources and sites on federally-administered lands.
- **Clean Water Act (CWA) 1987** – Establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation’s water.
- **Clean Air Act (CAA) 1990** – Provides the principal framework for national, state, and local efforts to protect air quality.
- **National Historic Preservation Act (NHPA) 1966** – Expands protection of historic and archaeological properties to include those of national, State and local significance and directs Federal agencies to consider the effects of proposed actions on properties eligible for or included in the National Register of Historic Places.

Additional authorities and management direction are described in EA section 3.6, Table 6.

## **1.3 Scoping and Identification of Relevant Issues**

### **1.3.1 Scoping**

External scoping (seeking input from people outside of the BLM) for this project was conducted by means of a scoping letter sent out to approximately 51 federal, state and municipal government agencies, nearby landowners, tribal authorities, and interested parties on the Cascades Resource Area mailing list on February 8, 2012. Four comment letters/emails/postcards were received during the scoping period. EA section 1.3.2 addresses the topics raised in the comments. Internal scoping was conducted by the Interdisciplinary Team (IDT) through record searches, field reviews and the project planning process.

### **1.3.2 Relevant Issues**

Based on input from the public and the Interdisciplinary Team plus information contained in the RMP, the following issues were identified. These issues provide a basis for comparing the environmental effects of the proposed project and aid in the decision-making process.

***Issue 1: Young stands are structural simplified with low species diversity; and late-successional habitat is spatially fragmented throughout the project area. How would forest thinning and density management actions improve long term late successional habitat?***

Addressed in EA section 3.1

***Issue 2: How would low density thinning patches affect spotted owl and other wildlife (late seral and early seral) habitat?***

Addressed in EA section 3.2

***Issue 3 How would variable density management effect stand structure including snags and down CWD?***

Addressed in Sections 3.1, 3.2

***Issue 4: Use variable density management prescriptions including creation of gaps (heavy thinning areas) and skips (untreated areas).***

Addressed in EA sections 2.3, 3.1, 3.2.

***Issue 5: The Effects of Management Actions on Air Quality, Fire Risk and Fuels Management***

Addressed in EA sections 2.3 and 3.5.

***Issue 6: Low density thinning areas. One commentor said “2 to 3 acres” and “make them as large as possible.” Another commentor said “5 acres seems too large, unless area doesn’t support forests...”***

Addressed in EA section 2.3

***Issue 7: Limit treatments to human created plantations.***

Treatments are limited to human created plantations. Addressed in EA Section 2.3.

***Issue 8: Seed disturbed areas with native seed...plant with native shrubs.***

Addressed in EA section 2.3

***Issue 9: Use removal of commercial forest products to defray the costs of the project.***

Addressed in EA section 2.3.2.2

## **2.0 ALTERNATIVES**

### **2.1 Alternative Development**

Pursuant to Section 102 (2) (E) of the National Environmental Policy Act (NEPA) of 1969, as amended, Federal agencies shall "...study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." ;

For the Molalla LSR project areas, no unresolved conflicts concerning alternative uses of available resources (section 102(2) (E) of NEPA) were identified by the Interdisciplinary Team (IDT), or the public. The North Willamette LSR assessment and RMP provide objectives and guide management actions for treatments in late-successional reserves. Given the restrictions imposed for actions in the LSR, no alternatives were identified that would meet the purpose and need of the project. In addition, given the directions and restrictions, the team did not identify alternatives that would have meaningful differences in environmental effects. Therefore, this EA will analyze the effects of the "Proposed Action" and the "No Action" Alternative.

### **2.2 No Action Alternative**

The No Action alternative serves as a baseline or reference point for evaluating the environmental effects of the proposed action , i.e. the existing conditions in the project area and the continuing trends in those conditions if the BLM does not implement the proposed project. Consideration of this alternative also answers the question: "What would it mean for the objectives to not be achieved?"

Under the No Action alternative no vegetation treatments would occur in younger stands to promote their development towards late-successional forest habitat; no riparian treatments would occur in previously managed stands to enhance their conditions; no fuels treatments to reduce hazardous fuels build-up would occur; and no special forest products would be removed. This alternative would continue existing conditions and trends.

### **2.3 Proposed Action**

Stands selected for treatment are identified by aerial photography, G.I.S. (Geographic Information Systems), stand exams and field reconnaissance, and meet the guidelines described in Tables 1 and 2. Candidate stands are listed in Table 7 and are shown on the project map in EA section 8.0. Alternative stands other than those identified in EA section 8.0 that meet Table 1 and 2 guidelines may be substituted for stands initially identified for treatment, based on further field verification of stand conditions.

#### **2.3.1 Proposed Treatments**

##### ***2.3.1.1 Variable Canopy Pre-commercial Thinning***

The BLM proposes to thin up to 2,000 acres of previously managed stands (plantations less than 40 years old) over the next three to five years. Currently, these stands have 200 to 2,000 trees per acre. Stands would be thinned to approximately 80 to 120 trees per acre.

The proposed action would retain all trees greater than fourteen inches in diameter breast height (DBH). Thinning would be completed with use of chainsaws and hand tools, No heavy machinery would be used.

Spacing of trees in the unit would average 21 feet; however, spacing within the unit would be variable with a 50% variation to the 21 foot spacing. Untreated areas within units and no treatment riparian buffers would be retained for diversity. To further increase unit diversity, low density precommercial thinning patches (described in EA section 2.3.1.2, below) may be created within the pre-commercial thinning units. Structural diversity would be encouraged by leaving trees with forked or broken tops, branchy, open grown trees and other trees with unusual form or structure. In addition, standing snags may be created by girdling in the units.

Species diversity would be maintained by favoring minor tree species including Chinquapin, cedar, pine, true fir, and big leaf maple.

### **Stands to Be Treated**

Table 1 shows the guidelines that would be used to determine whether a stand would benefit from Variable Canopy Pre-commercial thinning, as described above.

<b>Table 1: Guidelines for Selecting Forest Stands that would Benefit from Variable Canopy Pre-commercial Thinning To A Residual Tree Density Of 80 to 120 Trees Per Acre</b>
<b><i>Is the Stand:</i></b>
<ul style="list-style-type: none"> <li>• A conifer plantation less than 40 years old</li> <li>• Displaying lack of diversity in spacing with few tree species</li> <li>• Lacking understory development or diversity in one or more canopy levels</li> <li>• Simple forest structure with few snags</li> <li>• Outside of a designated Wilderness or inventoried area with Wilderness Characteristics</li> <li>• Outside of lands classified as Visual Resource Management Class I</li> </ul>
<b><i>Does the Stand have:</i></b>
<ul style="list-style-type: none"> <li>• Tree densities more than 200 trees per acre</li> <li>• An average diameter of less than 12 inches</li> <li>• Patches of tree regeneration or tall shrubs in the understory that would benefit from being released</li> </ul>

#### ***2.3.1.2 Low Density Pre-commercial Thinning***

Low density pre-commercial thinning would occur within stands treated with variable canopy thinning (described above) 1-5 acre patches would be thinned to 20 trees per acre (TPA); tree spacing in these units would average 47 feet. Low density thinning would be applied to approximately 10% of the acres treated with Variable Canopy Pre-commercial thinning (approximately 200 acres). Areas targeted for low density pre-commercial thinning would be along ridge tops, areas with historically low tree stocking (i.e meadows and rocky areas), low gradient slopes, preferably south/west aspects near water, and not visible from existing roads (Table 2). These stands were planted primarily with Douglas-fir. Minor tree species would be targeted for leave, which include cedar, pine, true fir, Chinquapin, red alder and big leaf maple. Structural diversity would be encouraged by leaving trees with forked or broken tops, branchy, open grown trees and other trees with unusual form or structure.

In addition, some standing snags may be created by girdling in the patchess. The proposed action would retain all trees greater than fourteen inches DBH.

Following treatment, the cut vegetation in units may be piled and burned to facilitate development of grasses, forbs, and hardwoods. Fuel treatments would also reduce fuel hazard, protecting both the treated and adjacent timber stands. Disturbed areas lacking a grass seed source may be seeded with native grass seed. Low density patches may be planted with native shrubs.

**Stands to Be Treated**

Table 2 shows the guidelines that would be used to determine whether a stand would benefit from Low Density Pre-commercial Thinning, as described above.

<b>Table 2: Guidelines for Selecting Stands that would Benefit from Low Density Pre-commercial Thinning To A Residual Tree Density of 20 Trees Per Acre</b>
<i>Is the Stand</i>
<ul style="list-style-type: none"> <li>• Within the plantations proposed for variable canopy pre-commercial thinning described in EA section 2.3.1.1</li> <li>• On less than a 35 percent slope</li> <li>• Not visible from open roads</li> <li>• Preferably on a south or west facing aspect, near water</li> <li>• Near or adjacent to known existing big game travel corridors</li> <li>• Outside of an Eligible or Suitable Wild and Scenic River corridor</li> <li>• Outside of lands classified as Visual Resource Management Classes I and II</li> </ul>
<i>Does the Stand have</i>
<ul style="list-style-type: none"> <li>• Non-forest types or historically low tree stocking levels, (ie meadows and rocky areas)</li> </ul>

**2.3.1.3 Riparian Treatments**

The need for thinning treatments within Riparian Reserves would be based on local stand/vegetation conditions and would be designed to be consistent with ACS objectives. Vegetation within Riparian Reserves with similar tree densities and young stand structures as the uplands would receive a similar treatment. These treatments seek to diversify stand conditions and expedite large tree development for wildlife habitat and future instream large wood recruitment.

A no treatment streamside buffer (SPZ) would be implemented along streams to retain primary shade and protect stream water temperatures. Table 3 displays streamside buffers based on tree height and hillslope. The prescribed widths follow recommendations in the *Northwest Forest Plan Temperature TMDL Implementation Strategies* (2004).

**Table 3: Minimum Streamside Buffers on Streams (feet) based on Slope (percent) and Tree Height (average height of stand in feet)**

Tree Height	Width of Primary Shade Zones/ Streamside Buffers on Perennial Streams (feet)		
	< 30 % Hill Slope	30 to 60 % Hill Slope	>60 %Hill Slope
Trees < 20 ft	12	14	15
Trees 20 to 60 ft	28	33	55
Trees >60 to 100 ft	50	55	60

## 2.3.2 Connected Actions

### 2.3.2.1 Fuels Treatments EA Section 3.5

Post treatment fuels hazard surveys would be conducted and site-specific fuels treatments would be recommended. Fuel treatment strategies would be implemented in selected areas to reduce the potential for human caused wildfire ignition, to reduce the potential for wildfire to cross property lines between BLM, private, and U.S. Forest Service land, and to reduce both the intensity and severity of potential wildfires in the long term (after fuels reduction has occurred).

**Table 4: Fuels Treatment Methods**

Township & Range	Section	Proposed Treatments
T.6S., R.4E. T.6S., R.5E.	1, 2, 3, 4, 9, 10, 11 30, 32	- Handpile, cover and burn piles along roads or property lines.
T.7S., R.3E. T.7S., R.4E.	13, 14, 22, 23, 24, 25 7, 8, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 36	- Handpile, cover and burn piles within low density variable thinning areas.
T.7S., R.5E. T.8S., R.5E.	4, 5, 6, 7, 8, 18, 19, 30, 31 6	- Fuel Reduction Corridor construction along roads or property lines..

Fuels treatments may include:

- Handpile construction, covering, and burning. Construct small piles of small to medium size fuels (< 6” diameter and 6’ long) by hand and cover with .004 mil. black plastic.
- Fuel reduction corridor construction including:
- Slash pullback. Pull slash less than 6 inches in diameter back 25 to 100 feet from roadsides and property lines, or other high hazard fire risk areas.
- Slashing: Cut all brush and residual whips greater than 1 foot in height.
- Lopping and scattering: Cut and lop slash less than 6” diameter in diameter into 6’ or shorter lengths. Slash shall be scattered so that the depth does not exceed 1’ measured from the ground.
- Firewood cutting: Allow unmerchantable wood along the road or in piles to be cut for firewood.

In lieu of burning, slash along roads may be removed to be used as mulch to cover roadbeds during stabilization projects, or slash may be offered as a Special Forest Product for firewood.

The total amount of debris expected to be handpiled in the low density variable thinning areas (approximately 200 acres) is estimated to be between 3000 and 5000 tons. The total amount of debris expected to be handpiled along roads, and private property lines (approximately 150 acres) is estimated to be between 2000 and 4000 tons.

### **2.3.2.2 Special Forest Products (SFP)**

To support local contractors and economies some units proposed for variable canopy thinning, fuels treatments, and low density thinning could be available for SFP (*e.g.*, fuel wood, boughs) harvesting/collection. Units would be assessed for access and economic feasibility; forest products in units found to be practical and feasible could be made available for removal and utilization, depending on demand.

Product removal would focus on areas within 300 feet of roads. Forest product removal would not occur within the streamside buffer guidelines specified in Table 3, nor within riparian vegetation treatment units (within 200 feet of channels) within 1 mile of spring Chinook and winter steelhead habitat.

It is anticipated that less than 400 acres (about 20% of total treatment acres) could be identified for special forest product utilization such as firewood and boughs. SFP harvesting/collection would be permitted only to the extent consistent with the stand treatment and silvicultural objectives.

All actions would utilize existing roads. No skid trails or landings would be constructed for product removal. Firewood material could be winched or cabled to existing roads.

### **2.3.3 Project Design Features**

The following Project Design Features (PDFs) are included in the design of the proposed actions. These PDFs are a set of the Best Management Practices (BMPs) identified in the Salem District RMP, the LSR assessment as well as and resource protection measures identified by the EA interdisciplinary team.

#### **Fisheries, Water Quality and Aquatic Habitat**

1. No density management would occur in no treatment buffers as described in Section 2.3.1.3.
2. Retain, brush, hardwoods, and ground cover.
3. No skid trails, roads or landings would be constructed.
4. Thinning would be completed with the use of hand tools and chainsaws; no heavy machinery would be used.
5. Equipment would utilize existing roads.

#### **Wildlife**

6. Northern spotted owl: Seasonal restriction of activities that cause disturbance above ambient noise levels from March 1 to July 15th within ¼ mile of known spotted owl sites. This seasonal restriction may be waived if non-nesting is determined. If any new owls are discovered during treatment, activities would stop until mitigation options can be determined.
7. Northern spotted owl: Pile burning would not occur between March 1st and July 15th within ¼ mile of known spotted owl sites. This seasonal restriction would be waived if non-nesting is determined.
8. Protect other raptor nest sites with a seasonal restriction on activities within ¼ mile of nest site from March 1 to July 31.
9. Maintain green vegetated buffers up to 50 feet wide along some main roads to reduce sight distances, visibility and disturbance to wildlife.
10. Reserve large residual green trees and snags (>20") and protect from fuel treatments.
11. Maintain large pre-existing large CWD (>20") and protect from fuel treatments.
12. Maintain all snags >14", except those that need to be felled for safety reasons. The snags that must be felled for safety, would be left on site.
13. Ground opened up by the treatments may be seeded or planted with native grasses and shrubs.

### **Special Status Plants**

14. For special status botanical species, the size of the no treatment protection buffer would be determined on a case-by-case basis, depending on the species and its habitat requirements but would be a minimum of a 20' radius for sensitive species.

### **Cultural Resources**

15. Known cultural sites would be buffered out prior to project implementation. No treatment would occur in the buffered areas.
16. If any cultural and/or paleontological resource (historic or prehistoric site or object) is discovered during project activities all operations in the immediate area of such discovery shall be suspended until an evaluation of the discovery can be made by a professional archaeologist to determine appropriate actions to prevent the loss of significant cultural or scientific values.

### **Invasive /Non-Native Plants**

17. Any seed and straw used for restoration, replanting, and post treatment throughout the project area would be native species and weed free to prevent the further spread of noxious weeds.

## **Fire and Fuels Management**

18. A Prescribed Fire Burn Plan would be initiated and signed by the Authorized Officer prior to any prescribed burning activity.
19. Burning would be conducted in accordance with the Salem District RMP, Oregon State Implementation Plan and Oregon Smoke Management Plan as administered by the Oregon Department of Forestry and would comply with the provisions of the Clean Air Act. It would be conducted under good atmospheric mixing conditions to lessen the impact on air quality in Smoke Sensitive Receptor Areas.
20. Temporary fire gates may be installed on minor roads and closed during periods of high fire danger to reduce the risk of human caused fires. No gates would be installed on mainline roads.
21. Prescribed burning may include swamper burning, or handpile construction and burning and may be used individually or in combination in areas where fuel loading is heavy or the fire risk is determined to be high.
22. Large woody debris greater than six (6) inches in diameter would not be piled.
23. Handpiles would be located as far as possible from large snags, green trees, and other reserved trees to minimize damage. In addition, handpiles would not be constructed on stumps or existing coarse woody debris (CWD).
24. Handpiles would be covered with .004 mil thick black polyethylene plastic. The plastic shall not exceed one hundred (100) square feet in size and would be placed and anchored to help facilitate the consumption of fuels during the high moisture fall/winter burning periods.
25. Lopping and scattering of fuels would be incorporated where fuel loading is relatively heavy but not heavy enough to warrant burning.
26. Pullback of fuels would be incorporated where fuel loading is relatively light (especially along roads and property lines) and not heavy enough to warrant burning.

## **Wild and Scenic Rivers/ Visual Resource Management**

27. No treatment will be proposed within the segment of the Molalla River found 'Suitable' for inclusion into the National Wild and Scenic River System.
28. No units would be proposed within the Riparian Reserves of the Eligible segment of the Table Rock Fork of the Molalla River.
29. No low density thinning would occur within the segment of the Table Rock Fork of the Molalla River found 'Eligible' for inclusion into the National Wild and Scenic River System.
30. Variable canopy pre-commercial thinning within the Eligible portions of the Table Rock Fork of the Molalla River would be designed to conform with VRM 3 classification and maintain at least 100 trees per acre to protect visual qualities.
31. No units are proposed within VRM I. Units within VRM II would be limited to variable canopy pre-commercial thinning that maintains canopy cover. No low density thinning would be proposed in VRM II.

### **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS**

This section of the EA describes the current condition and trend of the affected resources and the environmental effects of the alternatives on those resources. The interdisciplinary team of resource specialists (IDT) reviewed the elements of the human environment, required by law, regulation, Executive Order and policy, to determine if they would be affected by the proposed action (BLM Handbook H-1790-1: p. 137), [40 CFR 1508.27(b)(3)], [40 CFR 1508.27(b)(8)] (EA section 3.3.10), as well as the issues raised in scoping (EA section 1.3).

After internal and external review of the proposed project the team identified the following resources potentially affected: Vegetation and Forest Stand Characteristics; Wildlife; Air Quality and Fire Hazard/Risk; Recreation; Visual and Cultural Resources.

#### **General Setting**

The Molalla LSR Enhancement Project area is located in the Molalla River 5th field watershed. The project identified about 5,000 acres in the Molalla River 5th field watershed meeting the young stand criteria shown in Table 2. The watershed is 129,300 acres in size and is located in Clackamas County. The Molalla Watershed Analysis (MWA 1999) was completed in 1999. The Bureau of Land Management (BLM) manages about 33 percent of the Molalla River Watershed, and the U. S. Forest Service (USFS) manages 2 percent. The remainder of the watershed is managed primarily by Private Industry. The major tributaries of the Molalla River Watershed include the main Molalla River Corridor, the Table Rock Fork, the Copper Creek Fork, and the North Fork Molalla. Prominent features include Rooster Rock and Table Rock contained within the Table Rock Wilderness Area.

### **3.1 Vegetation and Terrestrial Habitat**

#### ***Affected Environment***

Terrestrial habitat in the project area consists largely of forest vegetation in various successional stages, associated constituents of snags and down wood, and special habitat features such as rock outcrops, talus and meadows across the watershed. The proposed project would affect early to mid seral stands between the ages of 20 and 40 years of age. The affected environment analysis describes current forest stand and habitat conditions. The environmental effects analysis presents how the proposed action would influence vegetation composition, patterns, and densities.

#### **Forest Vegetation**

The areas proposed for treatment range in elevation from 1500-4000 feet. All stands are "second-growth" in nature, reforested primarily through seedling planting following clear-cut logging. The stands range in age from 20-40 years old. Based on stand data and observations, these even-aged plantations typically lack species diversity, snags, down logs, understory layers, ground cover and large remnant overstory trees.

There is a shift in coniferous species occurrence and plant association at around 3,000 feet in elevation. Plant associations below 3,000 feet are in the western hemlock plant association, while Pacific silver fir associations become dominant above this elevation. Most of the proposed units in the Pacific silver fir associations have a significant noble fir component. Plant association typically varies with aspect in this transition-zone area.

Some of the older stands (40 years old) would have been aurally seeded, at a time when off-site Douglas-fir seed was commonly used. Most sites were hand-planted, with Douglas-fir until about 1980, when noble fir, and minor amounts of western hemlock and western redcedar were added to the planting stock mix. Any other species presence in these areas can be attributed to natural regeneration. Given the variation in elevation, site quality and treatment histories, growing conditions vary widely.

In general, tree growth for these stands is limited by the availability of soil nutrients, which become less rich as elevation increases. The availability of water and sunlight is generally not limiting for these stands, until an overstocked stand condition has developed.

Another facet of treatment history that has resulted in disparate growing conditions is whether or not stocking control has been achieved through a pre-commercial thinning (PCT) treatment. Again, the current situation is varied, with PCT'd units having current stocking levels of 170-302 trees per acre (TPA). TPA numbers in the untreated areas with western hemlock stocking could be as high as 2,000 TPA, since it is very common for western hemlock regeneration to seed in heavily.

Based on stand exams and field observations, all proposed units have a current canopy closure greater than 70 %. Overall, the proposed stands have high tree densities with little species or canopy variability.

### **Terrestrial Habitat**

Variation in forest stand conditions within stands and at the landscape level have been identified as a key factor in providing habitat for a diversity of forest organisms (Hayes et.al. 1997; Muir et.al., 2002). Structural and compositional aspects that have been found to be important contributors to habitat diversity and species richness include dead wood in the form of snags and down logs, remnant live trees, and vertical and horizontal diversity in tree and understory canopies. Also, hardwood trees and shrubs in particular have been found to be important contributors to forest biodiversity in otherwise coniferous forest, providing habitat substrate, food sources, foraging, and nesting opportunities. These key habitat features are lacking in the managed stands proposed for thinning.

The presence of snags, coarse wood debris (CWD), and special habitats is based on stand exam data, aerial photos, and field review by specialists. Based on the data, there are no residual old-growth trees present in the proposed Molalla units.

CWD that would meet RMP management direction (240+ linear feet per acre of material in decay classes 1 or 2, at least 20" in diameter at the large end, and 20 feet in length) is currently absent in all of the proposed units. CWD in decay classes 3-5 is lacking, but can be found in small numbers throughout the proposed units and are usually remnants of old-growth "cull" trees that were not removed after harvest.

These logs provide valuable habitat for a whole host of CWD associated wildlife species (O’Niell et.al. 2001), and they persist for many decades before passing through advanced decay classes to become unrecognizable as down logs. The less-decayed logs in smaller size classes are mostly the result of recent self-thinning in crowded overstocked stands from suppression mortality.

These small logs are much less useful to forest floor-associated animal species for cover because they have less volume, and persist for shorter time spans (usually less than two decades) than the larger material, thus they are less useful for wildlife.

In determining existing snag habitat, the assessment uses a diameter of 14+ inches as most wildlife species that utilize snags are associated with snags greater than 14.2 inches (Rose et.al. 2001). On average, hole nesting birds use Douglas-fir snags over 23.6 inches in DBH and over 50 feet tall for foraging and nesting (Mannan et al., 1980).

There are little to no large snags within units identified for treatment; snag habitat does not meet the 40 percent of maximum population densities requirement (RMP, p.21) for the five woodpecker species throughout most of the project areas. Most of the snags are small and/or highly decayed. In general stands throughout the project areas are in a condition in which there is a long-term (three to six decades) snag deficit.

## ***Environmental Effects***

### **3.1.1 Alternative 1 - No Action Alternative**

#### **Forest Vegetation**

Identified stands for treatment would maintain simple structure and limited diversity. Researchers have recognized that stands initiated and managed are not “equivalent” to similar-aged unmanaged, natural stands. Regeneration of old-growth unmanaged stands occurred over a prolonged period, and trees grew at low density with little self-thinning.

Conversely, young stands following harvest may develop with high density of trees with similar ages and considerable self thinning (Tappeiner et. al. 1997). Because of the prolonged stand establishment stage and other disturbance over time, old-growth stands were found to have ages of 100 to 420 years old, while plantations had trees that usually varied in age by 5 to 10 years old. (Tappeiner et. al. 1997).

Under the no action, stands would take 40-70 years to develop late successional habitat conditions and remain less diverse for a longer period of time. Plantations would decrease in vigor and develop small crowns as a result of competition. Growth would slow and suppression mortality would occur resulting in an increase of smaller diameter snags. Variable densities would occur naturally, but diameter growth would not accelerate as fast as in thinned stands.

#### **Terrestrial Habitat**

Trees would grow more slowly, and material available for snags and CWD recruitment would develop as suppression mortality and self-thinning occurs. Average tree diameter would likely develop into smaller than optimal size due to high stocking levels.

CWD habitat conditions would likely be delayed without the addition of new large woody material to replace existing well-decayed material that would eventually disappear.

Snags and CWD created by self thinning mortality would be material with limited benefits for snag/CWD associated species. The material would not be large enough to meet RMP standards for another 40 to 80 years when suppressed co-dominates achieve these diameters.

Understory and ground cover development are expected to develop in isolated patches following a disturbance, creating canopy openings. Breaks in the canopy due to suppression mortality would develop over time under the current young dense stand conditions.

Some non-competitive mortality (wind events, insects, disease, etc.) would occur which would help create some heterogeneity and structural diversification (Lutz, 2005). However, these dense stands with reduced vigor and growth could become more susceptible to catastrophic disturbance events such as insect attacks, disease infestations, windthrow, snowbreak, and fire. Stands that are heavily stocked are especially vulnerable to windthrow and snowbreak. Stand replacement fires are not common in this area, but may occur when a confluence of environmental conditions favorable for fires is present; which would typically be in the fall of the year.

### **3.1.2 Alternative 2 – Proposed Action**

#### **Forest Vegetation**

Variable Density Management of 80 to 120 residual trees per acre; and low density thinning areas with 20 residual trees per acre is proposed in treatment areas. All trees over 14" DBH would be retained. Another ten percent of the acres would receive no treatment and typically includes untreated riparian reserves, portions of units with low conifer stocking, or leave patches within units.

This mosaic of thinning, low density thinning patches, and leave islands creates a variable density/variable canopy thinning effect. Collectively these treatments lead to both stand structural and landscape horizontal structural diversity that is currently lacking.

Species diversity would also increase. Unit canopy closure in these stands after treatment would decrease from over 70 percent to 20-40 percent. Canopy cover is expected to recover at a rate of 0.7 percent per year in the first ten years after thinning to 100 TPA. In the short term (3-5 years), tree felling and fuels treatments would reduce brush and understory vegetation. In the long term, thinning and low density thinning patches would increase light and nutrient availability, releasing understory vegetation, including conifers and hardwoods in the intermediate and/or suppressed crown classes. Grasses and forbes are also expected to increase with greater light reaching the forest floor.

Thinning these stands would accelerate growth rates of residual conifer and hardwood trees over the next 5-100 years. Reducing competition and density would increase growing space resulting in greater diameter, height, and live crown ratio development. Associated with increased growth and vigor would be an increase in stand resiliency to insects and disease.

The canopy breaks would allow more light to reach the forest floor, stimulating understory vegetation. In the long term, ground vegetation would become re-established due to increased light to the forest floor and the breaks in the canopy would begin to close.

## **Terrestrial Habitat**

Research found that it is possible to develop desired structural and compositional diversity in young managed stands through specific actions (Bailey and Tappeiner 1997, Chan et.al.2006). Variable density thinning forest stands produces what has been described as “cascading ecological effects” (Hayes, Weikel and Huso, 2003) that result from reduced competition between overstory trees and increased availability of solar radiation to the forest floor. Growth, size, branch diameter, and crown ratio of the remaining trees would increase, stimulating and development of understory and ground cover vegetation. These changes effectively increase structural complexity and habitat quality.

**Snags:** Project design features include retention of trees and existing snags over 14 inches DBH. Some of the smaller diameter/taller snags (<12 inches diameter and >25 feet tall), would be felled for safety reasons, or fall incidental to thinning operations. These snags are less important for wildlife species than the larger material over 14 inches (Rose et. al., 2001).

Applying the proposed thinning treatments to these stands would reduce the number of small diameter (less than 14 inches DBH) snags over the next 20 to 40 years. The actions intend to remove the smaller suppressed and intermediate trees most likely to die from suppression mortality and become snags within that time period.

**Coarse Wood Debris:** Thinning would increase residual tree growth; and larger trees would be available sooner to contribute additional large snags and CWD. The RMP guidelines for snags (40 percent maximum population densities) and CWD (240+ linear feet per acre of material in decay classes 1 or 2, at least 20” in diameter at the large end, and 20 feet in length), could be met in three to six decades.

Except in areas designated for fuel reduction, the proposed action retains existing CWD. Fuels treatments in 10-20% of the units in low density thinning areas and adjacent to roads would result in the loss of some downed wood. However, down wood adjacent to fuel treatment areas and untreated areas, would provide habitat for dead-wood associated species. Further, burning piles may kill up to 10 % of the residual trees in the low density thinning patches, increasing the number of snags in the near term.

### **3.1.3 Cumulative effects**

This analysis assumes that private lands would continue on a rotational harvest schedule resulting in early to mid aged stands. On BLM lands, an additional 300 acres of forest vegetation treatment is proposed under the planned commercial thinnings. No other forest vegetation actions are anticipated within the LSR. Treatments proposed under commercial thinnings are similar to intent and treatment as those proposed in the Molalla LSR Habitat Enhancement project. Specifically all actions proposed within the LSR aim to improve long term terrestrial habitat conditions. Due to the beneficial nature of actions proposed in the Molalla LSRs, no adverse cumulative effects to terrestrial habitat is anticipated.

## Snags and CWD

Design features would retain existing CWD and snags 14+ inches diameter. There would be less recruitment of small snags from suppression mortality in proposed treatment areas. Suppression mortality would have been comprised of trees smaller <14" DBH. Due to the presence of untreated young stands within the project area and on adjacent private lands, the reduction in future recruitment of small snags would have minimal effect on snag habitat over the 5th field watersheds. Less than 1% of the 5th field watershed is proposed for treatment. Therefore, there would be no cumulative effects on snags and CWD in the watershed because of snag retention, and the small percentage of the total acreage that would be treated.

Beneficial cumulative effects to CWD, snag habitat and associated species may occur as a result of implementing the projects, since larger trees would be available for recruitment sooner than without the proposed thinning to contribute additional large snags and CWD in future stands.

## 3.2 Wildlife

### *Affected Environment*

The increase in structural complexity and habitat quality would improve wildlife habitat by providing more opportunities for foraging, nesting/breeding, and cover habitat for a variety of species in the forest environment, including invertebrates, songbirds, and small mammal species. These changes are beneficial since there is an abundance of simplified structure habitats in the vicinity of the project area (MWA Chp. 5, pp.60-61).

**Federally Listed Species - Northern Spotted Owls:** The proposed thinning units provide capable and dispersal habitat in the Molalla Watershed. There are 12 known spotted owl sites in the vicinity of the Molalla LSR Project Area. These sites were located during the late 1970's and early 1980s, and have been surveyed consistently since that time. There have been barred owl responses since about 1990.

No suitable nesting, foraging and roosting habitat is proposed for thinning inside or outside the provincial home range of any known spotted owl sites. The units are not located in Critical Habitat designated in 2008, but are located in Late Successional Reserves (LSRs) and critical habitat that was designated in 1992.

**Special Status, Survey and Manage, and other Species of Concern:** Vegetation surveys indicate that most of the stands proposed for thinning are lacking in habitat elements that support diverse populations of wildlife species, especially CWD, residual old-growth trees, snags, deciduous understory and ground cover vegetation, or deep accumulation of leaf litter.

**Cascades axetail Slug:** Habitat consists of leaf litter under bushes in mature conifer forest, typically at elevations over 2,000 feet. The salamander slug has been found at 15 sites in the Cascades Resource Area, ranging from unharvested or unthinned late-successional forest, to a 45 year old stand that originated after regeneration harvest. There are 5 Cascades axetailed slug sites in the Molalla area, all in older forest stands.

**Red Tree Vole:** The red tree vole is an arboreal vole associated with conifer forests west of the Cascades summit, below about 3,500 to 4,500 feet in elevation. The project area is within the “Northern Mesic Zone” of the range identified for the species. The red tree vole survey protocol indicates surveys are required within the Northern Mesic Zone when: the stand has an estimated quadratic mean diameter >16 inches or an average mean diameter >14 inches; the stand contains mature or old-growth conditions, or are older mixed-age conifer forests with multi-layered canopies; and/or activities are likely to have a significant negative impact on the species (Biswell et al 2002).

None of the stands currently proposed for thinning meet the stand-level criteria as described above. The plantations are all younger than 40 years old are unlikely to provide suitable red tree vole habitat.

**Bats:** Five bat species of concern are suspected to occur in the Molalla Area (fringed bat, silver-haired bat, long-eared myotis, long-legged myotis, and Yuma myotis). These species are associated with caves and mines, bridges, buildings, cliff habitat, or decadent live trees and large snags with sloughing bark. Decadent live trees and large snags, particularly ones with bark attached that extend above the tree canopy, are used variously as solitary roosts, maternity roosts, and hibernacula by these species, and other bat species associated with Douglas-fir forests (Christy and West 1993, Weller and Zabel 2001, Waldien et.al. 2000). Old-growth and tall snags with sloughing bark are very rare in the proposed treatment areas and bats are likely to be present in low numbers.

**Migratory and Resident Bird Species:** Research found a correlation between stand level bird species richness with habitat patchiness, densities of snags, and conifers size-class (Hagar et al 1996, Hansen et al 2003). Even-aged conifer stands support a relatively high number of birds but few species. Further, the light-limited understory of unthinned stands does not provide for a diverse community of shrub and ground cover plant species that are important in providing insect and plant food resources (Hagar 2004). The proposed thinning units are structurally simple and characterized by an even-aged, single-layered, closed-canopy with poor understory development, and are low in landbird species richness.

**Big Game:** Big game species that are found in the project areas include Roosevelt elk (*Cervus elaphus roosevelti*) and black-tailed deer (*Odocoileus hemionus*). The project areas are in early-mid seral stands which provide hiding and low quality thermal cover. There is no critical winter or summer range in the project areas.

## *Environmental Effects*

### **3.2.1 Alternative 1 – No Action Alternative**

#### **Wildlife**

**Northern Spotted Owl:** There would be no immediate change in spotted owl habitat and no effect to spotted owls caused by management action. Habitat conditions would remain as described in the Affected Environment, and would continue to develop slowly over time for reasons stated above. In unthinned areas, it would take 40 to 80 years to develop suitable habitat conditions.

**BLM Special Status Species and Survey and Manage:** In the short term, there would be no immediate change in current habitat conditions for Survey and Manage and BLM Special Status Species. In the long term (10 to 100 years):

- Habitat for cavity nesting wildlife and species which utilize CWD would develop as suppression mortality and self-thinning occurs. Trees available for recruitment Average tree diameter of trees available for recruitment would likely be smaller than optimal size due to high stocking levels.
- Optimal red tree vole habitat conditions, presumed to be older forest conditions, would develop more slowly without thinning.

**Migratory and Resident Birds:** Species richness of bird communities would reflect the simple single storied early-mid seral stages for a longer period of time; overall bird species richness is less than expected in a structurally diverse stand. Legacy features in the future stand would likely be smaller and less persistent, especially those that provide habitat for cavity-nesting species.

**Big Game:** In the short term (less than 5 years), there would be no disturbance effects due to the proposed action. Thermal and hiding cover quality would remain the same as current conditions. There would be no increase in vegetative forage due to a lack of light resources to the forest floor. In the long term (5+ years), thermal and hiding cover quality would gradually decrease as overstocked stands mature hindering mobility. Forage quantity would continue to decrease over time as less light reaches the forest floor. Wet meadows and other open areas would continue to experience heavy use by big game which could cause deterioration of habitat.

### 3.2.2 Alternative 2 – Proposed Action

#### Wildlife

The proposed thinning improves habitat conditions for wildlife by accelerating development of late successional forest stand characteristics, including the Riparian Reserves. The benefits include larger trees for a large green tree component, future recruitment of large standing dead and down wood, and multi-layered stands with multiple species that include hardwoods and other minor species. At the landscape level, connectivity for many species, including the spotted owl, is expected to improve as late successional conditions develop within the Riparian zones.

The increase in structural complexity and habitat quality would improve wildlife habitat by providing more opportunities for foraging, nesting/breeding, and cover habitat for a variety of species in the forest environment, including invertebrates, songbirds, and small mammal species. These changes are beneficial since there is an abundance of simplified mid seral habitats in the vicinity of the project area (MWA Chp. 5, pp.60-65).

**Northern Spotted Owl:** Thinning opportunities were identified for 5,000 acres in capable and dispersal habitat in the Molalla Watershed. The thinning treatments maintain current spotted owl habitat conditions in all of the proposed units.

No suitable habitat would be downgraded or altered as a result of the proposed thinning. The functionality of the habitat used by spotted owls would remain intact post treatment.

Seasonal restrictions on habitat modification activities (felling, yarding, and burning) would minimize the risk of disturbance to any northern spotted owls during the critical nesting season and delay habitat modification activities later into the nesting season when spotted owls are less sensitive to disturbance. Disturbance associated with thinning (burning, noise etc.) may have temporary effects on the presence or movement of spotted owls. However, thinning would maintain dispersal habitat, maintaining the ability of the habitat to accommodate movement of birds.

The proposed thinning would accelerate the development of suitable habitat characteristics. As thinned stands mature, habitat conditions are expected to improve. Canopy closures would increase and these stands would attain suitable habitat conditions within 30 to 60 years.

Residual trees would increase in size and be available for recruitment and/or creation of snags, culls and CWD for prey species and nesting opportunities for spotted owls. In addition, thinned stands would facilitate development of foraging and nesting structure.

Treatments could possibly disturb nesting owls during critical nesting period. Project design features include treatments outside the critical nesting period of March 1st to July 15<sup>th</sup> within disturbance distance of known spotted owl sites, greatly minimizing potential disturbance.

**Red Tree Vole:** Marginal habitat (habitat less than 40 years of age) would be disturbed during thinning operations. No red tree vole habitat would be removed as a result of this proposal, and habitat conditions for red tree voles would gradually become more suitable as the stands continue to mature and develop older forest characteristics.

**Bats:** Old-growth forests provide higher quality roost sites than younger forests and many species prefer older forests (Thomas and West 1991, Perkins and Cross 1988). No older forests are proposed for thinning. Optimal snags for bat species are very rare to non-existent within the units. All existing snags in all sizes over 14 inches DBH would be reserved. Any old-growth/large snags and decadent green trees would be left standing after treatment.

Bat activity appears to be higher in thinned versus unthinned stands. Structural changes in stands caused by thinning may benefit bats by creating habitat structure in young stands that bats are able to use more effectively (Humes, Hayes, Collopy 1999).

**Migratory and Resident Birds:** Unintentional take of nests, eggs, nestlings and nesting failure are likely if operations occur during active nesting periods. Most of the treatments would occur during the late summer/early fall, late during the nesting season after young of the year have fledged. Any impacts would be short term, involving loss of nests and unintentional take during one nesting season. These short term disturbances would not reduce the persistence of any bird species in the watershed or populations at the regional scale. Some individual birds may be displaced during thinning operations in the project area due to disturbance. Adjacent untreated areas and areas where active operations are not occurring would provide refuge and nesting habitat, which would help minimize short term disturbance.

Changes in habitat structure are expected to create a variable effect depending on bird species. Thinning densely-stocked conifer plantations would enhance habitat suitability for species which prefer a less dense conifer canopy, and reduce habitat suitability for species that prefer continuous conifer canopies.

**Big Game:** The proposed thinning would temporarily disturb big game species during implementation. Equipment noise and human presence may cause animals to avoid or disperse from the project areas temporarily. Increases in slash and debris in treated areas could impede big game movement. Fuels treatments such as piling, burning and scattering would help mitigate these effects.

Thermal and hiding cover quality would decrease in the short-term as a result of variable density thinning, (Cole, et al. 1997, Trombulak and Frissell 1999, USDA (PNW) 2006). In the long term (5+ years), thermal and hiding cover quality would increase as stands mature and increase canopy cover. As a result of increased light, forage quantity would increase providing feed for species such as elk and deer

The increase in primary production is anticipated to create more and higher quality forage for big game. Vegetative forage such as saplings, shrubs, grasses and forbs would increase as a result of the proposed thinning. Low density tree retention combined with fire are expected to create a rich herbaceous layer.

### **3.2.3 Cumulative Effects**

#### **Northern Spotted Owl**

The proposed project would not contribute to cumulative effects to spotted owls because dispersal habitat within and between known owl sites would be maintained, and no suitable habitat would be removed or downgraded within known owl sites. Overall habitat conditions within the provincial home range of the 12 known spotted owl sites would improve as a result of thinning. Silvicultural prescriptions that promote multi-aged and multi-storied stands may increase the quality of spotted owl habitat over time (LOC p. 20).

#### **BLM Special Status Species and Survey and Manage**

The proposed thinning would not contribute to the need to list any Bureau Sensitive species under the Endangered Species Act (BLM 6840) because habitat for the species that is known to occur in the project areas would not be eliminated, habitat connectivity would not be changed, any habitat alteration would have only short-term negative effects, and long-term effects would be beneficial.

No adverse cumulative effects to red tree vole habitat are expected because no late successional habitat over 80 years of age would be lost or altered and the proposed thinning stands would expedite older forest conditions sooner as a result of the density management thinning project.

#### **Migratory and Resident Birds**

The proposed action would not reduce the persistence of any bird species in the watershed or populations at the regional scale.

Habitat changes resulting from the proposed action would not eliminate any forest cover type, change any habitat or patch size, and therefore would not contribute to fragmentation of bird habitat. The proposed thinning would not contribute to a fundamental change in the species composition of existing bird communities within the watershed. Therefore, no adverse cumulative effects would occur to migratory birds.

Creation of 1 to 5 acre low density thinning patches should create a variety of different habitats. In the long term the watershed may have higher bird species richness because of these unique and differing habitat patches.

### **Big Game**

No adverse cumulative effects to big game species populations are expected. The proposed action would not fundamentally change or eliminate any forest cover type or change any habitat patch size. Therefore, thermal and hiding cover present before treatment would be maintained after treatment.

Creation of low density thinning patches would increase the early seral plant communities. This should create more forage opportunity for big game. This would reduce the current pressure on wet meadows that are experiencing higher than normal use by elk. The conditions in these unique habitats have been altered by higher than normal foraging. Over all the proposed action should create more forage opportunity for big game across the watershed therefore lessening the impacts on any one area.

## **3.3 Wild and Scenic River, Visual Resource Management and Recreation**

### *Affected Environment*

#### **Wild and Scenic River**

The project area includes two segments that have been evaluated for inclusion into the National Wild and Scenic River System.

#### **Wild and Scenic Rivers – Molalla River Segment B**

A 13.2 mile section of the mainstem Molalla was found ‘suitable’ for inclusion into the National System. A ‘suitable’ finding is made only after a detailed assessment by the BLM and constitutes a recommendation that the river be designated under the 1968 Wild and Scenic Rivers Act. None of the proposed units are within the river segment identified as ‘Suitable’.

The segment, referred to as Molalla River Segment B, extends from the confluence of the mainstem Molalla with the Table Rock Fork of the Molalla River downstream to Glen Avon Bridge. It includes 2,988 acres of BLM-administered lands.

Molalla River Segment B has been given a preliminary classification of **Recreational**. This indicates the river is readily accessible by road, has some shoreline development and may have undergone some impoundment or diversion. Outstandingly Remarkable Values were identified as **Scenery, Recreation and Geology**. A Resource Assessment for this segment was completed during the land use planning process and contained an analysis of the river’s suitability for WSR designation (it is available for review at the Salem District Office).

The following descriptions of the Outstandingly Remarkable Values are summarized from the 1992 Resource Assessment:

*Scenery:* Wide range of colors and textures. The river's character ranges from deep clear pools to riffles and cascading whitewater. Many rock outcrops and cliffs descend directly into the river. Human influences detract slightly from the view in many areas, but the overall impact is not significant.

*Recreation:* Opportunities include day hiking, fishing, dispersed camping and whitewater boating. The area attracts visitors originating from within and outside the area. Ease of access and diverse opportunities add to the value of this river corridor.

*Geology:* Geological value of this segment is considered unique and rare in the region. A series of horizontal columnar basalt rosettes occur near the middle of the segment. This feature is especially unusual because it has been exposed by erosion processes of the river itself.

### **Wild and Scenic Rivers- Table Rock Fork**

A 13.4 mile section of the Table Rock Fork of the Molalla River was found 'eligible' for inclusion into the National System. The segment extends from its headwaters downstream to its confluence with the mainstem Molalla River. It includes 1,385 acres of BLM administered land which are a mix of Public Domain and O&C lands. Some of this acreage already falls within the boundaries of the Table Rock Wilderness.

The Table Rock Fork was given a preliminary classification of **Recreational** during the eligibility determination process. Outstandingly Remarkable Values were identified as **Cultural**.

The following descriptions are summarized from the 1990 Eligibility Assessment:

*Cultural:* There is a high site density within this river corridor; five cultural sites are currently recorded. A National Register of Historic Places eligibility has not been completed.

### **Interim Management of Suitable and Eligible Wild and Scenic Rivers**

Until such time as these river segments are designated under the National Wild and Scenic Rivers Act or released from consideration, the BLM is required to provide interim protection of the river's free flowing characteristics and potential Outstandingly Remarkable Values. For Recreational rivers, this includes exclusion of timber harvest within the Riparian Reserves.

### **Visual Resource Management**

The Salem RMP assigned a visual resource management (VRM) category I through IV for all lands in the district. Lands within the project fall within three VRM categories (VRM II-IV):

**VRM I** (Table Rock Wilderness and adjacent land in T7S R4E, Section 17): No units are proposed in the VRM I classification.

**VRM II:** to be managed for "low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer"( Salem RMP pg 37) The VRM II guidelines would apply to areas in T7S R4E, Section 17 and in the immediate vicinity of Joyce Lake.

**VRM III:** to be managed for moderate levels of change to the characteristic landscape. Management activities may be seen but should not dominate the view of the casual observer (Salem RMP pg 37). VRM III classifications can be found within and adjacent to the Table Rock Fork of the Molalla River.

**VRM IV:** management actions may dominate the view and may be the focus of viewer attention. Most of the proposed units fall within this classification.

### **Recreation**

The project area is located within the Molalla River-Table Rock Special Recreation Management Area (SRMA). SRMAs are administratively designated during the land use planning process and indicate areas where recreation use is known to occur and requires an additional level of management attention. The SRMA boundary being used for this effort was proposed in the Molalla River-Table Rock Recreation Area Management Plan, but has not been incorporated into a land use plan.

The Molalla River-Table Rock Special Recreation Management Area (SRMA) offers a wide variety of recreation opportunities including dispersed camping, picnicking, swimming, angling, horseback riding, mountain biking, hunting, day-hiking, non-motorized boating and recreational shooting all within an hour's drive of the Portland and Salem metropolitan areas. Current recreation use is primarily unstructured and dispersed in nature with limited facility development.

Visitor data is collected along the Molalla Access Road by BLM indicates between roughly 60,000 to 70,000 visitors use the Molalla River-Table Rock area each year. Traffic counter data from upland road systems indicates visitor use is moderate and relatively low compared with the mainline Molalla Access Road, with an estimated 5 to 10% of visitors accessing these upland areas. Popular activities include dispersed camping, day hiking, target shooting and hunting.

### ***Environmental Effects***

#### **3.3.1 Alternative 1- No Action Alternative**

Under the No Action Alternative vegetation treatments would not occur. Therefore, there would be no effects to the eligible and or suitable Wild and Scenic River segments, visual resources or recreation use.

#### **3.3.2 Alternative 2 – Proposed Action**

##### **Wild and Scenic Rivers**

None of the proposed units are within the Suitable corridor of the mainstem Molalla River and the proposed action will have no effects on its free flowing characteristics or Outstandingly Remarkable Values.

The proposed units within the Eligible corridor of the Table Rock Fork of the Molalla River would not affect the segment's free flowing characteristics because of a lack of instream work. The proposed action is also not expected to impact the segment's Outstandingly Remarkable Values, identified as cultural (see Section 3.3). The proposed action would also not impact the preliminary classification of the river (Recreational).

### **Visual Resource Management**

A forested setting would be maintained and changes to the landscape character are expected to be low for proposed treatment units within all VRM classes. Given the retention of tree canopy cover across treatment areas, inclusive of 1-5 acres low tree retention, the treatments would not generate conditions uncharacteristic of the landscape. All units would have a minimal to moderate change to the view. Across all VRM classes, the treatments are expected to accelerate a change in visual texture from fine younger stands to coarse older stands.

No units are proposed within VRM I. Units within VRM II have been limited to variable canopy pre-commercial thinning that maintains canopy cover. No low density features will be included within this VRM class, reducing visual impacts and maintaining the characteristic landscape.

Within VRM III and IV, the low density treatment units may attract the attention of the casual observer from several viewpoints such as the Table Rock Wilderness and Peachuck Lookout, but will not dominate the view.

### **Recreation**

The proposed action will have negligible effects to recreational use within the Molalla River-Table Rock SRMA. The lack of new road construction and the location of low density gaps off of existing roadways reduces the likelihood of unauthorized off-highway vehicle activity. Recreational access may be temporarily restricted in areas of active operations, or during periods of high fire danger when temporary fire gates are closed, but these restrictions are expected to be short term (days or weeks) and effect isolated geographic areas such as minor roads. No temporary fire gates would be installed on mainline roads.

### **3.3.3 Cumulative Effects**

No adverse cumulative effects to Wild and Scenic Rivers, visual resources or recreation use are expected.

## **3.4 Cultural Resources**

### ***Affected Environment***

Cultural resources are the material remains of past human activities and/or occupation that remain on the landscape in the form of historic artifacts or buildings or archaeological artifacts or features. The National Historic Preservation Act of 1966 requires federal agencies to identify and consider impacts to resources that are listed or eligible for the National Register of Historic Places.

There are four recorded cultural sites located within the proposed treatment units. Both historic and archaeological site types are represented in and near the project areas. All of the sites were recorded or last visited more than two decades ago documenting their condition. Past road building and logging activities have impacted the sites to varying degrees.

### *Environmental Effects*

#### **3.4.1 Alternative 1 - No Action Alternative**

The No Action Alternative would result in the continuation of current natural processes within the proposed project area. The proposed activities would not occur and stands would continue their current trajectory. Since no ground disturbing activities would take place cultural resources would not be affected.

#### **3.4.2 Alternative 2 – Proposed Action**

Trees that are hand cut and left in place are unlikely to displace or harm archaeological resources as no ground disturbing activities would occur. All identified cultural resources would be buffered out of project activity areas. The project would avoid damage and disturbance to artifacts and archaeological sites by conducting pre-project cultural surveys to identify new sites and verify the location of previously recorded sites prior to treatment.

Likewise, historic structures would be identified, flagged and buffered in order to avoid tree falling and slash burning on or near the structures. By taking these actions there should be no adverse impacts to cultural resources under this alternative.

#### **3.4.3 Cumulative Effects**

Prior to project implementation cultural resource inventories will be conducted to identify new sites and verify known sites. Identified sites would be flagged and buffered out of project activity areas. The buffers will protect sites from adverse impacts so there would be no direct or indirect effects to cultural resources. Therefore, the project would not generate cumulative effects.

### **3.5 Air Quality, Fire Risk, and Fuels Management**

*Source Incorporated by Reference: Molalla LSR Enhancement Air Quality, Fire Risk, and Fuels Management Specialist Report, Mortensen (Fuels Report)*

#### ***Affected Environment***

##### **Air Quality**

The major source of air pollutants within the Molalla LSR Enhancement analysis area would come from potential wildfire starts and from associated resource management activities including prescribed burning (handpiles), and dust from the use of natural-surfaced roads in association with proposed project activities.

The Willamette Valley experiences periods of air stagnation. When this occurs during winter months, cold air often becomes trapped near the valley floor with slightly warmer air aloft, creating temperature inversion conditions. The combination of cold, stagnant air and restricted ventilation causes air pollutants to become trapped near the ground. Wintertime temperature inversions contribute to high particulate levels. Stagnant periods in the summertime contribute to increases in ozone levels, causing the local air quality to deteriorate. The Willamette Valley has been designated by the State of Oregon as a Smoke Sensitive Receptor Area.

### **Fire Risk**

The climate in Northwest Oregon is generally mild and wet in the winter. In the North Cascade mountain range, snowfall will remain at higher elevations for an extended period of time. Summers are warm with periods of dry weather usually during the months of July, August, and September. Summer temperatures during this period average approximately 60° F with high temperatures reaching the mid to upper 90s, and occasionally topping 100° F for short periods of time. During average weather years the conditions under the forest canopy remain relatively moist.

Fire is a natural disturbance process in the analysis area. Fire effects on forested areas are influenced by fire frequency, fire duration, and fire intensity (Van Wagner 1965). These factors vary with forest type, depending on fuel type and structure, topography, and weather variables. Fire can influence vegetation, nutrient cycling, successional pathways, fish and wildlife habitat, vegetative species composition, age, and structure, and insect and disease susceptibility.

The main cause of wildfires across the analysis area is people. Dry lightning (lightning that has no accompanying moisture) that occurs during the summer months is rare in Northwest Oregon. Within the Oregon Department of Forestry's Northwest Oregon Area - North Cascades District - Molalla Unit over the last ten years one fire start is attributed to lightning while forty-two are human caused. The average size of these fires is approximately one half acre. (<http://oregon.gov/ODF/FIRE/HLCause.pdf>). The analysis area is accessible to the public via rocky roads year round. It receives increased use during the summer recreation season when the State of Oregon has implemented Regulated Use Restrictions for fire season, and especially during hunting season immediately after the close of fire season when fuels are often still ignitable.

### *Fire Regime and Condition Class (FRCC)*

The Fire Regime classifies the role fire would play across the landscape in the absence of modern human intervention. The Condition Class classifies the amount of departure from the natural fire regime. The modeling predictions for fire regime and condition class come from the LANDFIRE Rapid Assessment Vegetation Models located at: ([http://www.fs.fed.us/database/feis/fire\\_regime\\_table/fire\\_regime\\_table.html](http://www.fs.fed.us/database/feis/fire_regime_table/fire_regime_table.html)) The model identifies the analysis area as falling within the Pacific Northwest Forested landscape. The analysis area's potential natural vegetation group is listed as Douglas-fir-western hemlock (dry mesic) and Douglas-fir-western hemlock (wet mesic), and it falls within two different Fire Regimes<sup>1</sup>.

Fire Regime III is characterized by a moderate to low fire return interval with a mixed severity and is associated with south and west facing slopes. Fire Regime V is characterized by a low fire return interval with a high severity and is associated with north facing slopes. More than 80% of fires are characterized as mixed or low severity. The timber stands in the analysis area generally fall within Condition Class<sup>1</sup> 2 or 3 with species composition and structure functioning outside their natural (historical) range due to overstocking and past harvest treatments. Variably thinning these young stands would not significantly change the Condition Class in the short term, but would move the stands toward Condition Class 2 or 1 within the treated areas.

Management of the surrounding private land affects the Condition Class to such an extent that actions on BLM land alone are unlikely to change the Condition Class rating across the landscape.

### *Timber Stand and Fire History*

The fire history of the Molalla LSR Enhancement analysis area is not well documented, although it is known that Native Americans burned within the Willamette Valley, to what extent this burning extended into the valley foothills and up the river corridors is not specifically known. Fire does play a major role as a natural disturbance agent, as do people. Cadastral survey notes beginning in 1852, and further notes from 1857, 1868, and 1882 document that much of the timber had been destroyed in Township 6 South, Range 2 East, and Township 7 South, Range 3 East. Older photos indicate that fires in the area were typically driven by east winds and were more intense on ridges that run east to west. In photos taken in 1956 and 1967 areas of historic fires can be identified by stands of younger trees. Tree cores and fire scars collected throughout the Willamette Province from trees harvested from 1950 to 1980 provide evidence that historic fire return intervals in the analysis area range from 50-150 years in the lower elevations and south facing aspects, and up to 300 years in the higher elevations and north aspects. The average fire return interval increased following the advent of fire suppression in 1910 (Fuels Report).

The analysis area has experienced numerous management activities over the past 100 years. Many stands were harvested or had salvage removed in the 1940's, but the majority of the young stands identified for potential treatment in the analysis area were established following clearcut harvesting that took place from the mid-1970's to the late 1990's. Approximately 40% of the units identified for treatment were broadcast burned following harvest, both for hazard reduction and for site preparation.

It has been several decades since the most recent man-caused disturbance (logging) occurred, and although fire has been excluded from the landscape, the analysis area is still well within the range of a normal fire return interval.

<sup>1</sup> For a description of Fire Regimes and Condition Class see: <http://www.nwcg.gov/teams/wfewt/archive/message/FrccDefinitions.pdf>

## *Environmental Effects*

### **3.5.1 Alternative 1 – No Action Alternative**

#### **Air Quality**

In the short term (0-1 year) there would be no variable density thinning or any need for prescribed burning and no localized effects to air quality. In the long term (1-100 years) as the young timber stands continue to grow, the stocking density would cause the stands to become more susceptible to a stand replacement fire event.

#### **Fire Risk**

The analysis area would continue on its current trend. The current risk of a fire start would remain low. There would be a slow increase in the coarse woody fuel load (1000 hour fuels<sup>1</sup> / < 14 inch DBH), and in the smaller size fuel classes, (1, 10, and 100 hour fuels<sup>1</sup>) in these young timber stands as stress-induced mortality within the stands increases. Ladder fuel densities would increase as trees are suppressed in the understory, shade tolerant species seed in, and dominant trees grow larger. The potential for these stands to eventually succumb to a wildfire would continue to increase as they near the maximum fire return interval and the condition class departs further from the natural fire regime.

### **3.5.2 Alternative 2 – Proposed Action**

#### **Air Quality**

Travel would occur over BLM and other roads. Dust created from vehicle traffic from proposed project activities on gravel or natural-surface roads would contribute short-term (during project work) effects to air quality. None of these management activities would create dust above threshold levels (the intensity level that is just barely perceptible). These effects would be localized to the immediate vicinity of the operations.

Following treatment, the fuel load will increase. Post treatment fuels surveys would be conducted and the Stereo Photo Series for Quantifying Forest Residues in Coastal Forests (General Technical Report PNW-GTR-231) would be used to help identify areas with increased fuel loads. If these methods determine that an increased fire hazard exists prescribed burning would be conducted and smoke would be generated.

Handpile construction and burning in the low density thinning areas, and along roads or property lines would be targeted for treatment because human activity and the risk of ignition is greatest in these areas. Approximately 350 acres could be treated with prescribed fire. This would remove approximately 20 tons of slash per acre or approximately 7000 total tons from the highest risk areas within the project.

<sup>1</sup> For a description of Fuel Models and Size Classes see:  
[http://www.fs.fed.us/rm/pubs\\_int/int\\_gtr122.pdf](http://www.fs.fed.us/rm/pubs_int/int_gtr122.pdf)

All prescribed burning would require a project level Prescribed Fire Burn Plan that would address adherence to smoke management and air quality standards, meet the objectives for land use allocations, and maintain or restore ecosystem processes or structure. The burn plan would comply with the NWOR Fire Management Plan for the Eugene District BLM, Salem District BLM, Siuslaw National Forest, and the Willamette National Forest dated May 20, 2009. All burning would be coordinated with the local Oregon Department of Forestry office, and would be conducted in accordance with the Oregon State Implementation Plan and Oregon Smoke Management Plan. These plans limit or prohibit burning during periods of stable atmospheric conditions.

Burning would be conducted when the prevailing winds are blowing away from SSRAs (Smoke Sensitive Receptor Areas) in order to minimize or eliminate the potential for smoke intrusions. The potential for smoke intrusion would be further reduced by burning under atmospheric conditions that favor good vertical mixing so that smoke and other particulate matter is borne aloft and dispersed by upper elevation winds.

Prescribed burning would cause short term impacts to air quality that would persist for one to three days within one-quarter to one mile of units. None of the treatment units are sufficiently close to any major highways that motorist safety would be affected. The overall effects of smoke on air quality is predicted to be local and of short duration. Activities associated with the proposed action would comply with the provisions of the Clean Air Act.

### **Fire Risk**

Proposed variable density thinning activities would occur in previously pre-commercially thinned stands as well as stands that were not thinned. Smaller diameter trees would be cut. Low density thinning areas of 1- 5 acres as well as untreated areas would be incorporated into units.

Following treatment the fuel load, risk of a fire start, and the ability to control a fire, would all increase as a result of the proposed action, and would be greatest during the first season following treatment when needles dry but remain attached to tree limbs. All treatment areas would see a short term (0-5 year) increase in fire ignition potential because of the increase in fine dead fuels. The modeling predictions for fire behavior based on the National Fire Danger Rating System (NFDRS) fuel models would move the variable density thinning stands from a Fuel Model 8 (Closed timber litter) to Fuel Model 11 (Light logging slash), in the variable density thinning areas, or Fuel Model 12 (Medium logging slash) in the low density thinning areas.

Thinning trees would lessen the amount of potential ladder fuels and decrease the forest canopy bulk density<sup>1</sup>. A relative density<sup>2</sup> of 35-45% basal area or lower has been identified as the point where canopy bulk density is unlikely to sustain a high intensity crown fire (Agee, 1996). The silvicultural prescription for all of the units in the analysis area falls within or below this range.

<sup>1</sup> The Forest Canopy Bulk Density (CBD) layer describes the density of available canopy fuel in a stand.

<sup>2</sup>Relative density is an expression of how existing density relates to either a biological maximum density for the species (Curtis 1982, Drew and Flewelling 1979), or to a normal density (MacLean 1979) that represents an “average-maximum” level of competition (Curtis 1970, Ernst and Knapp 1985).

The first strategy to reduce the risk of a fire is to reduce the fuel load in areas that are accessible to people. The increased surface fuels will be reduced in strategic locations such as along roads, property lines, and within low density thinning areas. The proposed fuels treatments would reduce surface fuels resulting in lower fire intensity, rates of spread and flame lengths. In addition, gates may be installed on minor roads, or spur roads to reduce the amount of vehicle and public use during the summer recreation season when the State of Oregon has implemented Regulated Use Restrictions for fire season, and especially during hunting season immediately after the close of fire season when fuels are often still ignitable.

Surface fuel reduction would further reduce the risk of fire in accessible areas.

The Oregon Department of Forestry has responsibility for fire protection on BLM managed land in western Oregon. Their ability to successfully control wildfires in the fuels treatment areas as small, low intensity, ground fires would remain high. For the short term (0-5 years), the fire risk would increase in variable and low density treatment areas, however due to decreased crown density and reduction in ladder fuels, containment of wildfires at less than 10 acres in size should continue to be attainable during initial attack.

Cumulative Effects

There would be no cumulative effects to these resources, as the effects from the project would be local and of short duration, and there would be no other uses affecting this resource. Based on past experience with handpile burning in this and other similar areas there are no expected cumulative effects on air quality from the planned fuels treatment under this proposal.

There would be an increase in fuel loading and resultant fire hazard in the short term (0-1 year). In the variable density thinning areas, along roads, and property lines, the hazard and risk would be mitigated by the use of fuels reduction treatments. The localized increase in fire risk would diminish to background levels over time. There would be positive benefits to the thinned stands in the longer term due to the wider spacing between tree crowns and the removal of most of the ladder fuels that are conducive to the spread of fire into the tree canopy. When looked at from a watershed scale, the thinning of approximately 2,000 acres of forest habitat would have very little effect overall but would reduce the long term potential of the treated stand to carry a crown fire.

### 3.6 Review of Elements of the Environment Based On Authorities and Management Direction

**Table 5: Elements of the Environment Review based on Authorities and Management Direction**

<b>Element of the Environment /Authority</b>	<b>Remarks/Effects</b>
Aquatic Conservation Strategy	EA section 3.7 shows how this project meets the Aquatic Conservation Strategy.
Air Quality (Clean Air Act as amended (42 USC 7401 et seq.)	This project is in compliance with this direction because the proposed action would comply with the Clean Air Act and the State of Oregon Air Quality Standards by adhering to Oregon Smoke Management guidelines. Addressed in Text (EA Section 3.5).
Cultural Resources (National Historic Preservation Act, as amended (16 USC 470) [40 CFR 1508.27(b)(3)], [40 CFR 1508.27(b)(8)])	This project is in compliance with this direction and the project would have no effect on this element because cultural resource inventories of the proposed project area would precede management actions that include any ground disturbing activities that could potentially damage cultural resources.
Ecologically critical areas [40 CFR 1508.27(b)(3)]	This project would have no effect on this element because there are no ecologically critical areas present within the project area.
Energy Policy (Executive Order 13212)	This project is in compliance with this direction because neither the action nor the affected environment contains energy resources (Executive Order 13212).
Environmental Justice (E.O. 12898, "Environmental Justice" February 11, 1994)	This project is in compliance with this direction because project would have no effect on low income populations.
Fish Habitat, Essential (Magnuson-Stevens Act Provision: Essential Fish Habitat (EFH): Final Rule (50 CFR Part 600; 67 FR 2376, January 17, 2002)	This project is in compliance with this direction because all actions seek to improve aquatic conditions and would follow the NMFS guidelines for restoration.
Farm Lands, Prime [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because no prime farm lands are present on BLM land within the Cascades RA.
Floodplains (E.O. 11988, as amended, Floodplain Management, 5/24/77)	This project is in compliance with this direction because the proposed project would not change or affect floodplain functions.
Hazardous or Solid Wastes (Resource Conservation and Recovery Act of 1976 (43 USC 6901 et seq.) Comprehensive Environmental Response Compensation, and Liability Act of 1980, as amended (43 USC 9615)	This project would have no effect on this element because no Hazardous or Solid Waste would be stored or disposed of on BLM lands as a result of this project.
Healthy Forests Restoration Act (Healthy Forests Restoration Act of 2003 (P.L. 108-148)	This project is in compliance with this direction because the proposed treatments would decrease the risk of fire and help restore forests to healthy functioning condition (EA Section 3.5)
Migratory Birds (Migratory Bird Act of 1918, as amended (16 USC 703 et seq)	This project is in compliance with this direction because it improves habitat diversity for a variety of species.
Native American Religious Concerns (American Indian Religious Freedom Act of 1978 (42 USC 1996)	This project is in compliance with this direction because no Native American religious concerns were identified during the scoping period (EA section 1.3).
Noxious weed or non-Invasive, Species (Federal Noxious Weed Control Act and Executive Order 13112)	With project design features in place, it is not anticipated that the proposed project would contribute measurably to the cumulative effects of invasive/non-native species in western Oregon
Park lands [40 CFR 1508.27(b)(3)]	The project would have no effect on this element because there are no parks within or adjacent to the project area.

Element of the Environment /Authority	Remarks/Effects
Public Health and Safety [40 CFR 1508.27(b)(2)]	No project design elements have been identified that would affect health and safety.
Threatened or Endangered Species (Endangered Species Act of 1973, as amended (16 USC 1531))	This project is in compliance with this direction because the it has met consultation requirements with the USFWS and NMFS. For fisheries, see the following paragraphs.
Water Quality –Drinking, Ground (Safe Drinking Water Act, as amended (43 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.) *	This project is in compliance with this direction because project complies with all State water quality management plans, and would maintain water quality within Oregon State standards. Water Quality is further described in the following paragraphs.
Wetlands (E.O. 11990 Protection of Wetlands 5/24/77) [40 CFR 1508.27(b)(3)]	This project is in compliance with this direction because no wetlands are within the project area and adjacent wetlands would be protected by buffers.
Wild and Scenic Rivers (Wild and Scenic Rivers Act, as amended (16 USC 1271) [40 CFR 1508.27(b)(3)])	This project is in compliance with this direction because None of the proposed units are within designated as, or Suitable for Wild and Scenic. Project design features would protect values, and not impact the preliminary classification (Recreational) of the Eligible portion of the Table Rock Fork.
Wilderness (Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.); Wilderness Act of 1964 (16 USC 1131 et seq.))	This project is in compliance with this direction because there are are no units proposed within the Table Rock Wilderness.

**Fisheries** – Both resident and anadromous fish, including federally threatened Upper Willamette River winter steelhead trout and spring Chinook salmon inhabit the Molalla watershed of the project area. Most of the stands proposed to be treated are > 1 mile upstream of salmon and steelhead habitat, but treatments are proposed within 1 mile of steelhead habitat in Lukens Creek, and within 1 mile of salmon and steelhead habitat in the North Fork Molalla River watershed, and the upper Molalla River watershed (between the Copper Creek and Table Rock Fork confluences). All proposed actions would comply with the National Marine Fisheries Service’s (NMFS) Aquatic Restoration Biological Opinion (2008) for fish restoration activities.

The proposed actions inclusive of project design features, as disclosed in EA section 2.0, would not affect stream sedimentation or water temperature. Spawning, rearing and holding habitat of resident and anadromous fish would be protected and maintained because there would be no change to either water temperature or physical habitat. Therefore, project effects to fish species or populations are highly unlikely, and consistent with NMFS biological opinion (2008) for fish restoration activities.

**Hydrology** –Thinning would reduce canopy cover, however, treatments would maintain an overall canopy cover of 20 to 50 percent, as well as retention of brush, hardwoods, and ground cover. In addition, no roads would be constructed, and treated units would be surrounded by untreated vegetation including no treatment buffers along streams; therefore, there would neither be conditions leading to increased water availability nor routing mechanisms from the units to the channel environment. The probability of stream flow enhancement/alteration is very low because of the retention of vegetation, no road construction and the lack of routing mechanisms, described above.

**Water Quality – Sediment** - The young stand thinning would be completed with the use of chainsaws; no heavy machinery would be used. Therefore there would be little to no effect on soils from tree falling. Removal of special forest products would utilize existing roads.

Therefore, due to the use of existing roads, and no activity buffers along streams, soil detachment and transport would be very small and would not generate any off-site effects.

**Water Quality - Water Temperature**- Implementing streamside buffers as recommended in the *Northwest Forest Plan Temperature TMDL Implementation Strategies (2004)* would maintain stream shade. In the long term, thinning would increase growth rates, expediting mature stand characteristics and large tree development for large wood recruitment potential. Maintaining and improving stream shade would, therefore, protect water quality and prevent any increases in water temperature.

**Botany** - All stands proposed for treatment are less than 40 years of age and are without an old-growth or old-growth remnants overstory. Based on a known site and habitat data search of the proposed treatment area, there are no known sites for any Special Status (SSS) or Survey & Manage (S&M) Species, although suitable habitat for some species does exist within the treatment area. Based on the existing young seral habitat and the nature of the proposed project, the proposed project would not contribute to the need to list any special status or survey and manage species suspected to occur within the treatment area as Threatened or Endangered.

### 3.7 Compliance with the Aquatic Conservation Strategy

Based on the environmental analysis described in the previous sections of the EA, Cascades Resource Area Staff have determined that the project complies with the ACS on the project (site) scale. The project complies with the four components of the Aquatic Conservation Strategy, as follows:

- **ACS Component 1 - Riparian Reserves:** The project would comply with Component 1 **because** treatments in riparian reserves are expected to improve LWD and shade function, and travel corridors.
- **ACS Component 2 - Key Watershed:** The project would comply with Component 2 by establishing that the Molalla LSR Habitat Enhancement project is not within a Key watershed. (RMP p. 7).
- **ACS Component 3 - Watershed Analysis:** The project would comply with Component 3 because watershed analyses were completed and recommendations are incorporated into the project actions. Recommendations from the watershed analysis include Implement density management prescriptions to develop and maintain late seral forest stand characteristics. (Molalla WA 2002 pp. S-6; S-10, S-12).
- **ACS Component 4 - Watershed Restoration:** The project would comply with Component 4 by improving riparian conditions intended to improve long term aquatic conditions. The project identified young stands with little habitat diversity and intends to improve terrestrial and riparian habitat conditions through thinning. Thinning would accelerate large tree development, increase species diversity, and lead to multiple canopy structure. These improvements in diversity and growth rates comply with Component 4 by improving riparian conditions intended to improve long term aquatic conditions.

Cascades Resource Area Staff have reviewed this project against the ACS objectives at the project or site scale with the following results. The No Action alternative does not retard or prevent the attainment of any of the nine ACS objectives because this alternative would maintain current conditions. The proposed action does not retard or prevent the attainment of any of the nine ACS objectives for the following reasons.

- 1. ACSO 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.** Addressed in Text (EA sections 2.3; 3.1). In summary:

No Action Alternative: The No Action alternative would maintain the development of the existing vegetation and associated stand structure at its present rate. The current distribution, diversity and complexity of watershed and landscape-scale features would be maintained. Without this project, young stands in the LSR would continue to lack complex structure. Without active management, it would take longer for riparian areas in younger stands to develop late-successional habitat and forest structure.

Proposed Action: Proposed actions are consistent with the RMP and intend to increase landscape habitat diversity via increasing both species and structural diversity. This project would add forest stand structure and complexity by promoting understory development, increase species diversity, and promote multi-canopy layers. Through thinning young stands the project would release slow growing heavily stocked young forest stands. As a result spatial distribution of late successional habitat conditions would increase and would create a mosaic of stand densities with diverse structural and species composition.

- 2. ACSO 2: Maintain and restore spatial and temporal connectivity within and between watersheds.** Addressed in Text (EA sections 2.3; 3.1). In summary:

No Action Alternative: The No Action alternative would have little effect on connectivity except in the long term within the affected watersheds.

Proposed Action: Through thinning and development of riparian late successional characteristics, the project would improve travel corridors for terrestrial species.

- 3. ACSO 3: Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.** Addressed in Text (EA section 2.3). In summary:

No Action Alternative: The current condition of physical integrity would be maintained.

Proposed Action: Streamside protection buffers would maintain current integrity and riparian thinning treatments would release slow growing young stands leading to increased growth rates and long term abundance of large tree structure. Therefore, large wood recruitment to stream channel is expected to increase, improving the physical integrity to aquatic systems.

- 4. ACSO 4: Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.** Addressed in Text (EA sections 2.3, 3.6). In summary:

No Action Alternative: The current condition of the water quality would be maintained.

Proposed Action: All actions would comply with state of Oregon water quality management plans via streamside protection buffers. Through vegetative buffers, the project would not affect stream temperatures. No road building or skid trail development would occur, which prevents any mechanisms for sediment to route to stream channels. Retained streamside vegetation furthers buffers stream channels from upslope sediment routing to stream channels. Hence, the project would maintain water quality.

**5. ACSO 5: Maintain and restore the sediment regime under which aquatic ecosystems evolved.** Addressed in Text (EA sections 2.3, 3.6). In summary:

No Action Alternative: It is assumed that the current levels of sediment into streams would be maintained.

Proposed Action: Because of no road development, and riparian protection buffers, the proposed actions would not lead to sediment entering any stream channel. No road building or skid trail development prevents any mechanisms for sediment to route to stream channels. Retained streamside vegetation furthers buffers stream channels from upslope sediment routing to stream channels. Therefore the project would maintain the current sediment regime.

**6. ACSO 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.** Addressed in Text (EA sections 1.3; 2.3). In summary:

No Action Alternative: No change in in-streams flows would be anticipated.

Proposed Action: Because there would be no road building or skid trail development to capture and route water and retention of canopy to avoid increased snow pack and water availability, there would be no alterations in peak, base or annual streamflow.

**7. ACSO 7: Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.**

No Action Alternative: The current condition of flood plains and their ability to sustain inundation and the water table elevations in meadows and wetlands is expected to be maintained.

Proposed Action: No actions would occur with a floodplain.

**8. ACSO 8: Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.** Addressed in Text (EA sections 2.3; 3.1). In summary:

No Action Alternative: The current species composition and structural diversity of plant communities would continue along the current trajectory. Diversification would occur over a longer period of time.

Proposed Action: The proposed thinning, through release of young, dense fir dominated stands, would reduce competition leading to increased growth rates and late seral habitat conditions. Reducing fir densities would improve growing conditions for hardwood species and multiple canopy development. Hence, the project would increase species and structural diversity of plant communities.

**9. ACSO 9: Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species. Addressed in Text (EA sections 2.3; 3.1).** In summary:

No Action Alternative: Habitats would be maintained over the short-term and continue to develop over the long-term with no known impacts on species currently present.

Proposed Action: The project maintains and protects all late seral habitat conditions. The project also retains hardwoods and minor species found in the stands. The proposed thinning in young dense fir stands with little hardwood component and a single canopy would increase growing space leading to development of species diversity, multiple canopy layers and late successional forest characteristics.

### **3.8 Review of Alternatives with Regard to the Decision Factors**

**1. Reduce competition-related mortality, and increase tree vigor and growth.**

No Action: Stands would continue their current trajectory of suppressed growth and competition for resources.

Proposed Action: Thinning suppressed stands would increase growth rates of residual stands and reducing competition would reduce competition-related mortality.

**2. Increase structural and species diversity.**

No Action: No action would prolong development of structural diversity due to competition for resources.

Proposed Action: Reducing canopy cover in dense stands would increase light resources, facilitating multiple canopy layers including development of brush and grasses currently absent in stands.

## 4.0 LIST OF PREPARERS

Table 6: List of Preparers

Resource	Name
Writer/Editor	Jim England
NEPA Review	Carolyn Sands
Botany	Terry Fennell
Cultural Resources	Heather Ulrich
Fire/Fuels	Kent Mortensen
Fisheries	Bruce Zoellick
Hydrology/ Water Quality/Soils	Patrick Hawe
Natural Resource Staff Administrator (NRSA)	Belle Smith
Recreation, Visual Resources Management and Rural Interface	Adam Milnor
Silviculture	Clint Foster/Dugan Bonney
Special Forest Products/Timber	Jim LeComte, Chris Papen
Wildlife	Corbin Murphy

## 5.0 CONTACTS AND CONSULTATION

### 5.1 ESA Consultation

#### 5.1.1 US Fish and Wildlife Service (USFWS)

The BLM submitted the Molalla LSR Habitat Enhancement Project in March 2011 for informal consultation with U.S. Fish and Wildlife Service (USFWS) as provided in Section 7 of the Endangered Species Act (ESA) of 1973 (16U.S.C. 1536 (a)(2) and (a)(4) as amended). The Biological Assessment of NLAA Projects with the Potential to Modify the Habitat of Northern Spotted Owls Willamette Planning Province - CY 2011/2012 (BA) was submitted by to Fish and Wildlife Service in April 2011.

Using effect determination guidelines, the BA concluded that the Molalla Habitat Enhancement Project, may affect, but is not likely to adversely affect the northern spotted owl due to the modification of dispersal habitat (BA, p. 30-31). The *Letter of Concurrence Regarding the Effects of Habitat Modification Activities within the Willamette Province, FY2011-2012* (LOC) was issued in May 2011 (FWS reference # 13420-2011-I-0135). The LOC concurred that the habitat modification activities described in the BA, including the Molalla LSR Enhancement, are not likely to adversely affect spotted owls and are not likely to adversely affect spotted owl Critical Habitat (LOC, p. 34). The project would comply with the General Standards described in the LOC, including seasonal restrictions during the critical nesting season within disruption distance of known spotted owl sites (LOC, pp. 11-13).

### **5.1.2 National Marine Fisheries Service (NMFS)**

Most of the project areas are greater than one mile from Upper Willamette River (UWR) steelhead trout and spring Chinook salmon habitat. Restoration actions > 1 mile from salmon and steelhead trout habitat would have no effect on these fish, both because of the distance of restoration areas to steelhead trout habitat and because of project design criteria that prevent changes to stream temperature and minimize soil disturbance (see section 2.3).

Some units in the Lukens Creek, Table Rock Fork, and upper Molalla River (between Copper Creek and Table Rock Fork) watersheds include treatment of riparian stands (within 200 feet of stream channels) that are < 1 mile from steelhead trout and /or Chinook salmon habitat. The NMFS (2008) concluded that restoration projects with design criteria similar to those proposed for these stands (see sections 2.3), may affect, but are not likely to jeopardize the continued existence of UWR steelhead trout and spring Chinook salmon, nor are they likely to adversely modify their designated critical habitat. Consultation for restoration projects such as this are included in the *National Marine Fisheries Service Section 7 Programmatic Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington* (NMFS 2008).

### **5.2 Cultural Resources: Section 106 Consultation with State Historical Preservation Office**

Compliance with Section 106 of the National Historic Preservation Act will be completed according to Appendix A of the Protocol for Managing Cultural Resources on Lands Administered by the BLM in Oregon. In agreement with the State Historic Preservation Office cultural resource surveys will precede any ground disturbing activity. Any cultural resources identified during survey will be recorded and avoided. If the site cannot be avoided then the Salem District will consult with the State Historic Preservation Office on mitigation measures.

### **5.3 EA Public Comment Period**

For the results of project scoping, see EA section 1.3. The EA and FONSI will be made available for public review from September 19, 2012 to October 18, 2012 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 *Molalla Pioneer* newspaper. Written comments should be addressed to Leanne Mruzik, Acting Field Manager, Cascades Resource Area, 1717 Fabry Road S., Salem, Oregon 97306. Emailed comments may be sent to [BLM\\_OR\\_SA\\_Mail@blm.gov](mailto:BLM_OR_SA_Mail@blm.gov). Attention: Leanne Mruzik.

## 6.0 FINDING OF NO SIGNIFICANT IMPACT

Based upon review of the Molalla LSR Habitat Enhancement EA and supporting documents, I have determined that the proposed action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No 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 in the RMP/FEIS in the form of a new environmental impact statement is not needed. This finding is based on the following discussion:

**Context** [40 CFR 1508.27(a)]: Potential effects resulting from the implementation of the proposed action have been analyzed within the context of the project area boundaries, and the Molalla 5th field watershed. This project would thin dense forest stands in approximately 1.5 percent of the 129,300 acre 5th field watershed.

**Intensity** refers to severity of impact [40 CFR 1508.27(b)]. The following text shows how that the proposed project would not have significant impacts with regard to ten considerations for evaluating intensity, as described in 40 CFR 1508.27(b).

1. [40 CFR 1508.27(b) (1)] – *Impacts that may be both beneficial and adverse*: The effects of thinning and reducing fuel loads are unlikely to have significant (beneficial and adverse) impacts (EA section 3.0) for the following reasons:
  - Project design features described in EA section 2.3.2 would reduce the risk of effects to affected resources to be within RMP standards and guidelines and to be within the effects described in the RMP/EIS.
  - *Wildlife EA section 3.1*): Effects to this resource are not significant because only short term disturbance would occur to wildlife resources during project implementation due to noise and disturbance. Coarse wood debris and snags would be minimally affected due to design features which retains all existing snags and CWD and because units currently contain very few of these habitat elements. Proposed actions are expected to increase forest stand growth rates and reduce light resource competition. In the long term, these actions would facilitate development of multiple canopy layers leading to vegetation and habitat diversity for a variety of species.
  - In addition actions are expected to decrease time to large snag and coarse wood debris availability for wildlife species. Grass and forbes development through in the low density thinning patches are expected to increase forage for big game species as well as song/migratory bird species.
  - *Recreation and visuals (EA section 3.2)*: Effects to this resource are not significant because all actions comply with RMP VRM standards. Retention of tree canopy closure would maintain landscape characteristics and would not attract attention of the public. No actions would occur within any recreation sites or destinations.
  - *Air Quality, Fire Risk and Fuels Management (EA section 3.5)*: Effects to this resource are not significant because the fine fuels generated by variable density thinning in stands less than 40 years old would decay in the project areas within 3 to 5 years reducing the risk of a surface fire to near current levels. The thinning would decrease the risk of a canopy fire by removing ladder fuels and opening gaps in the canopy.

Prescribed burning would lessen the fuel load in gaps and along roads and the proposed action would comply with the Clean Air Act and State of Oregon Air Quality Standards by adhering to Oregon Smoke Management guidelines.

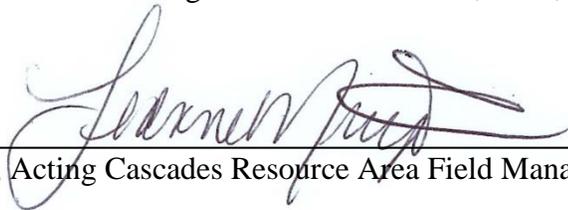
2. *[40 CFR 1508.27(b) (2)] - The degree to which the proposed action affects public health or safety:* Neither the public nor the project team identified any action that would affect public health or safety.
3. *[40 CFR 1508.27(b) (3)] - Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:* The proposed project would not affect historical or cultural resources because historical and cultural resources would be identified by pre-project surveys and buffered out of project areas that have proposed ground disturbance. The proposed project would not affect parklands, prime farmlands, wilderness, or ecologically critical areas because no actions would occur within these designations. No units were identified as potentially influencing the view along the Molalla River Corridor.
4. *[40 CFR 1508.27(b) (4)] - The degree to which the effects on the quality of the human environment are likely to be highly controversial:* The proposed project is not unique or unusual. The BLM has experience implementing similar actions in similar areas without highly controversial effects.
5. *[40 CFR 1508.27(b) (5)] - The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks:* The effects associated as a result of the project do not have not uncertain, unique or unknown risks because the BLM has experience implementing similar actions in similar areas without these risks and project design features would minimize the risks associated with the project. See # 4, above.
6. *[40 CFR 1508.27(b) (6)] - The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:* The proposed action would not establish a precedent for future actions nor would it represent a decision in principle about a further consideration for the following reasons: 1/ The project is in the scope of proposed activities document in the RMP EIS. 2/ the BLM has experience implementing similar actions in similar areas without setting a precedent for future actions or representing a decision about a further consideration. See # 4, 5, above.
7. *[40 CFR 1508.27(b) (7)] - Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:* The Interdisciplinary Team (IDT) evaluated the project area in context of past, present and reasonably foreseeable actions and determined that there is a potential for beneficial cumulative effects on wildlife.

All proposed actions and foreseeable actions are consistent with management direction for maintaining and enhancing late successional habitat within the Molalla Late Successional Reserves.

8. [40 CFR 1508.27(b) (8)] - *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:* The project would not affect these resources because there are no listed resources present in the project area. Sites that remain unevaluated for eligibility would be avoided during project implementation.
9. [40 CFR 1508.27(b) (9)] - *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973:* The proposed project is not expected to adversely affect ESA listed species or critical habitat for the following reasons:
- *ESA Wildlife - Northern spotted owl (EA Section 3.1):* The project maintains all suitable spotted owl habitat. Thinning managed stands would increase both vegetative structural and species diversity, leading to long term improvement in spotted owl habitat conditions. ESA Consultation is described in EA section 5.1.1.
  - *ESA Fish – UWR Chinook salmon, and UWR steelhead trout, (EA Sections 1.3; 5.1.2):* Effects to ESA fish are not significant because there are no expected changes to the sediment regime, water quality, or stream channel habitat. ESA Consultation is described in EA section 5.1.1.
10. [40 CFR 1508.27(b) (10)] - *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment:* The proposed project activities have been designed to follow Federal, State, and local laws (EA sections 1.2, 3.2)

Approved by:

Leanne Mruzik, Acting Cascades Resource Area Field Manager



09/14/2012

Date

## 7.0 LITERATURE CITED

- Bailey, J., and Tappeiner, J. 1997. Effects of Thinning on Structural Development in 40 to 100 Year-old Douglas-fir Stands in Western Oregon. *Forest Ecology and Management*, 108 (1998) 99-113.
- Biswell, B., Blow, M., Breckel, R., Finley, L., Lint, J. Survey Protocol for the Red Tree Vole. Version 2.1 October 2002.
- Chan, S., Larson, D., Maas-Hebner, K., Emmingham, W., Johnston, S., and Mikowski, D. 2006. Overstory and Understory Development in Thinned and Underplanted Oregon Coast Range Douglas-fir Stands. *Canadian Journal of Forest Research*, 36: 2696-2711.
- Christy, R.E., and S.D. West. 1993. Biology of bats in Douglas-fir forests. PNW-GTR-308. U.S.D.A. Forest Service, Pacific Northwest Research Station.
- Cole, E., Pope, M., and Anothony G. 1997. Effects of Road Management on Movement and Survival of Roosevelt Elk. *Journal of Wildlife Management* 61(4): 1115-1126
- Hagar, J., McComb, W., and Emmingham, W. 1996. Bird Communities in Commercially Thinned and Unthinned Douglas-fir stands of Western Oregon *Wildlife Society Bulletin* 24(2).
- Hagar, J., Howlin, S., and Ganio, L. 2004. Short Term Response of Songbirds to Experimental Thinning of Young Douglas-fir Forests in the Oregon Cascades. *Forest Ecology and Management*, v. 199, no. 2-3, p. 333-347.
- Hayes, J., Chan, S., Emmingham, W., Tappeiner, J., Kellog, L., and Bailey, J. 1997. Wildlife Response to Thinning Young Forests in the Pacific Northwest. *Journal of Forestry*, August 1997.
- Hayes, Weikel, J., and Huso, M. 2003. Response of Birds to Thinning Young Douglas-Fir Forests. Department of Forest Science, Oregon State University, Corvallis, OR.
- Humes, M., Hayes, J., and Collopy, M. 1999. Bat Activity in Thinned, Unthinned, and Old-growth Forests in Western Oregon. *Journal of Wildlife Management* 63(2): 553-561.
- Lutz, J.A. 2005. The Contribution of Mortality to Early Coniferous Forest Development. Master of Science Thesis, University of Washington.
- Mannan, W. R., Meslow, E. C., and Wight, H. M. 1980. Use of Snags by Birds in Douglas-fir Forests, Western Oregon. *The Journal of Wildlife Management*, 44(4): 787-797.
- Muir, P., Mattingly, R., Tappeiner II, J., Bailey, J., Elliot, W., Hagar, J., Miller, J., Peterson, E., and Starkey, E. 2002. Managing for Biodiversity in Young Douglas-fir Forests of Western Oregon: U.S. Geological Survey, Biological Resources Division, Biological Sciences Report USGS/BRD/BSR-2002-0006.
- Perkins, M., and Cross, S. 1988. Differential Use of Some Coniferous Forest Habitats by Hoary and Silver-haired Bats in Oregon. *Murrelet*. 69: 21-24.
- Rose, C., Marcot, B., Mellen, T., Ohmann, J., Waddell, K., Lindley, D., and B. Schreiber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management. Chapter 24 In *Wildlife Habitat Relationships in Oregon and Washington*, OSU Press, Corvallis, OR.
- Tappeiner, J.C., Huffman, D., Marshall, D., Spies, T.A., Bailey, J.D. 1997. Density, age, and growth rates in old-growth and young-growth forests in coastal Oregon. *Canadian Journal of Forest Resources*. 27: 638-648.

Thomas, D., and West, S. 1991. Forest Age Associations for Bats in the Washington Cascade and Oregon Coast Ranges. In: Ruggeiero, L., Carey, A., Aubry, K. (tech coords). Wildlife and Vegetation of Unmanaged Douglas-fir Forests. Gen. Tech. Rep. PNW-285, Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 295-303.

Trombilak, S., and Frissell, C. 1999. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. *Conservation Biology* 14 (1): 18-30

USDA, Forest Service, USDI, Bureau of Land Management. 1998. North Willamette Late Successional Reserve Assessment.

USDA, Forest Service, USDI, Bureau of Land Management. 1996. REO Exemption Memo: Criteria to Exempt Specific Silvicultural Activities in Late-Successional Reserves and Managed Late-Successional Areas from Regional Office Review.

USDA, Forest Service; USDI, Bureau of Land Management. July 21, 2011. 2011 Settlement Agreement in Litigation over the Survey and Manage Mitigation Measure in *Conservation Northwest et al. v. Sherman et al.*, Case No. 08-1067-JCC (W.D. Wash.). Instruction Memorandum No. OR-2011-063, (BLM IM OR-2011-063).

USDI, Bureau of Land Management, Salem District, Cascades Resource Area. 2002. Molalla Watershed Analysis (MWA 1999).

USDI, Bureau of Land Management. November 14, 2011. Special Status Species (SSS). Instruction Memorandum No. OR-2012-018, (BLM IM OR-2012-018).

USDI, U.S. Fish and Wildlife Service. April 2011. Biological Assessment of NLAA Projects with the Potential to Modify the Habitat of Northern Spotted Owls Willamette Planning Province – CY 2011-2012 (BA).

USDI, U.S. Fish and Wildlife Service. May 2011. Letter of Concurrence Regarding the Effects of Habitat Modification Activities within the Willamette Province, FY2011-2012, Proposed by the Eugene District, Bureau of Land Management; Salem District, Bureau of Land Management; Mt. Hood National Forest; Willamette National Forest; Columbia River Gorge National Scenic Area on the Northern Spotted Owl and its Critical Habitat (LOC); FWS Reference #13420-2011-I-0135.

USDI, U.S. Fish and Wildlife Service. June 2011. Revised Recovery Plan for the Northern Spotted Owl. Region One U.S. Fish and Wildlife Service, Portland, OR.

Waldien, D., Hayes, J., and Arnett, E. 2000. Day Roosts of Female Long-eared Myotis in Western Oregon. *Journal of Wildlife Management* 64(3):785-796.

Weller and Zabel, 2001 T.J. Weller and C.J. Zabel, Characteristics of fringed myotis day roosts in northern California, *Journal of Wildlife Management* 65 (2001), pp. 489–497.

White, J.D., Haglund, J.C., and Mellen, T.K. 1996. Early Seral Plant Communities of the Pacific Silver Fir Zone Mt Hood National Forest. USDA - Forest Service, Pacific Northwest Region.

United States Forest Service and the Bureau of Land Management. 2004. Northwest Forest Plan Temperature TMDL Implementation Strategies.

## 8.0 TREATMENT TABLE AND MAPS

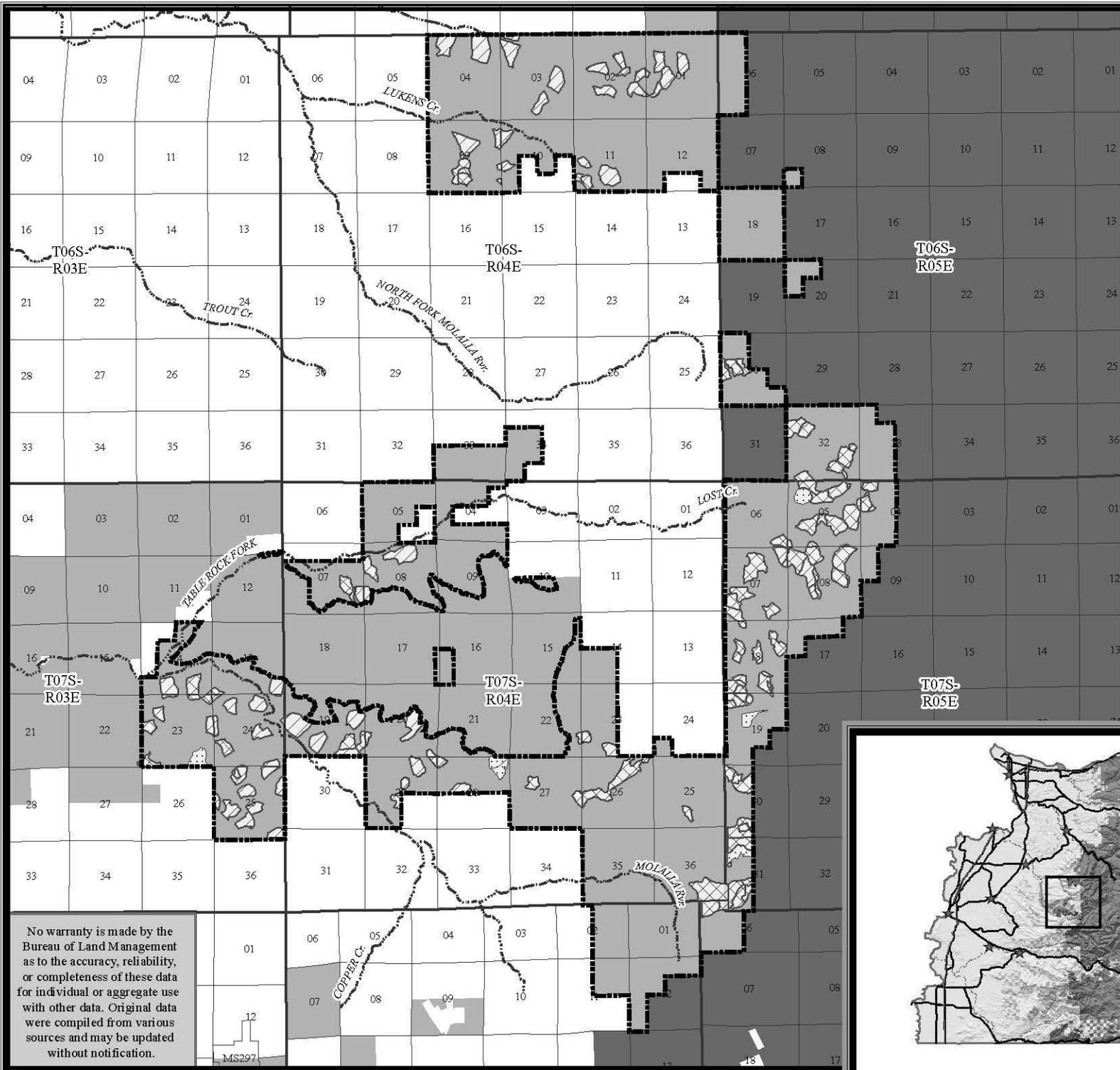
Table 7: Acres Identified for Possible Treatment over the next 5 years

Township, Range, Section, Unit	Key #	Acres	Age Class	Township, Range, Section, Unit	Key #	Acres	Age Class
06S-04E-01	941079	3	30	06S-05E-32	942581	4	30
06S-04E-01	941080	23	20	06S-05E-32	942582	20	30
06S-04E-01	941082	25	20	06S-05E-32	942584	5	30
06S-04E-01	942549	10	30	07S-03E-13	941488	25	20
06S-04E-01	943143	27	20	07S-03E-13	941498	7	30
06S-04E-01	943156	1	20	07S-03E-14	941480	28	30
06S-04E-02	941093	21	20	07S-03E-14	941518	2	30
06S-04E-02	941094	14	20	07S-03E-14	943101	31	20
06S-04E-02	942552	8	30	07S-03E-22	942970	2	30
06S-04E-02	942553	12	30	07S-03E-23	941481	8	30
06S-04E-02	943145	21	20	07S-03E-23	941604	7	30
06S-04E-02	943146	21	20	07S-03E-23	941607	33	40
06S-04E-03	943082	36	20	07S-03E-23	941608	0.2	30
06S-04E-03	943083	45	20	07S-03E-23	942607	16	30
06S-04E-03	943147	23	20	07S-03E-23	942750	14	20
06S-04E-04	943084	56	20	07S-03E-23	943108	5	20
06S-04E-04	943085	37	20	07S-03E-24	941622	5	30
06S-04E-09	941133	7	30	07S-03E-24	942611	19	30
06S-04E-09	941134	2	30	07S-03E-24	942612	10	20
06S-04E-09	942558	15	30	07S-03E-24	942833	1	20
06S-04E-09	942560	23	30	07S-03E-24	942836	2	20
06S-04E-09	942863	39	20	07S-03E-24	942885	10	20
06S-04E-09	942864	14	20	07S-03E-24	942886	19	20
06S-04E-09	942865	3	20	07S-03E-24	942887	26	20
06S-04E-10	942867	15	20	07S-03E-24	942888	22	20
06S-04E-10	942868	10	20	07S-03E-25	942613	19	20
06S-04E-10	942884	15	20	07S-03E-25	942615	18	20
06S-04E-11	942570	7	30	07S-03E-25	942616	25	20
06S-04E-11	942573	14	30	07S-03E-25	942617	9	20
06S-04E-11	943086	11	20	07S-03E-25	942708	22	20
06S-04E-11	943087	41	20	07S-03E-25	942754	15	20
06S-05E-30	941257	20	30	07S-03E-25	942755	21	20
06S-05E-30	942576	12	30	07S-03E-25	942757	21	20
06S-05E-30	942577	17	30	07S-03E-25	942758	18	20
06S-05E-32	941274	18	30	07S-03E-25	942800	5	20
06S-05E-32	941278	28	30	07S-04E-029	942640	10	30
06S-05E-32	941289	29	30	07S-04E-07	942623	22	30
06S-05E-32	941299	16	30	07S-04E-07	943112	20	20

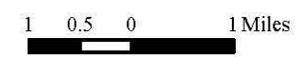
Township, Range, Section, Unit	Key #	Acres	Age Class	Township, Range, Section, Unit	Key #	Acres	Age Class
07S-04E-08	943113	24	20	07S-05E-05	941918	5	30
07S-04E-08	943114	49	20	07S-05E-05	942644	41	30
07S-04E-08	943115	12	20	07S-05E-05	942645	2	30
07S-04E-19	941790	30	20	07S-05E-05	942646	1	30
07S-04E-19	941791	13	30	07S-05E-05	942648	34	30
07S-04E-19	942630	22	30	07S-05E-05	942649	5	30
07S-04E-19	942790	22	20	07S-05E-05	942650	9	30
07S-04E-19	942835	52	20	07S-05E-06	941940	17	30
07S-04E-19	942837	30	20	07S-05E-06	943019	2	20
07S-04E-20	941815	40	20	07S-05E-07	941946	22	20
07S-04E-20	941818	1	20	07S-05E-07	941950	18	30
07S-04E-20	942440	6	20	07S-05E-07	941955	4	30
07S-04E-20	942441	6	20	07S-05E-07	941956	53	30
07S-04E-21	942950	1	20	07S-05E-07	941967	26	30
07S-04E-22	942443	6	30	07S-05E-07	941968	1	30
07S-04E-23	942445	11	30	07S-05E-07	942652	20	20
07S-04E-23	942767	21	20	07S-05E-07	942655	26	30
07S-04E-25	942923	11	30	07S-05E-08	941971	32	20
07S-04E-26	942934	89	30	07S-05E-08	941972	6	30
07S-04E-27	942943	13	30	07S-05E-08	941977	28	30
07S-04E-27	942944	16	30	07S-05E-08	941991	2	20
07S-04E-28	941869	20	40	07S-05E-08	941993	37	30
07S-04E-28	941870	18	40	07S-05E-08	941995	1	30
07S-04E-28	942634	9	20	07S-05E-08	942433	1	30
07S-04E-28	942638	21	20	07S-05E-08	942658	1	20
07S-04E-29	941875	26	20	07S-05E-08	942659	26	30
07S-04E-29	941878	6	20	07S-05E-08	942660	43	30
07S-04E-29	942639	15	30	07S-05E-08	942663	6	30
07S-04E-36	942974	76	30	07S-05E-08	942664	10	30
07S-05E-04	941893	3	20	07S-05E-18	942013	5	30
07S-05E-04	941898	16	30	07S-05E-18	942023	8	20
07S-05E-04	942642	2	30	07S-05E-18	942025	18	30
07S-05E-04	942715	17	30	07S-05E-18	942027	13	30
07S-05E-05	941903	27	40	07S-05E-18	942028	27	30
07S-05E-05	941912	21	30	07S-05E-18	942665	18	20
07S-05E-05	941913	29	30	07S-05E-18	942666	10	30
07S-05E-05	941915	3	30	07S-05E-18	942670	22	20
07S-05E-05	941916	25	30	07S-05E-18	942796	3	20
07S-05E-05	941917	25	30	07S-05E-18	942797	4	20

<b>Township, Range, Section, Unit</b>	<b>Key #</b>	<b>Acres</b>	<b>Age Class</b>	<b>Township, Range, Section, Unit</b>	<b>Key #</b>	<b>Acres</b>	<b>Age Class</b>
07S-05E-18	943119	9	20	07S-05E-30	942675	10	30
07S-05E-18	943120	4	20	07S-05E-30	943122	9	20
07S-05E-19	942034	9	30	07S-05E-31	942054	26	30
07S-05E-19	942035		20	07S-05E-31	942056	29	40
07S-05E-19	942037	2	40	07S-05E-31	942063	9	30
07S-05E-19	942671	9	30	07S-05E-31	942676	1	30
07S-05E-19	942672	19	30	07S-05E-31	942677	11	30
07S-05E-19	943121	6	20	07S-05E-31	942678	34	30
07S-05E-30	942051	40	30	07S-05E-31	942679	24	30
07S-05E-30	942673	33	30	08S-05E-06	942130	29	30
07S-05E-30	942674	13	30	08S-05E-06	942137	10	30

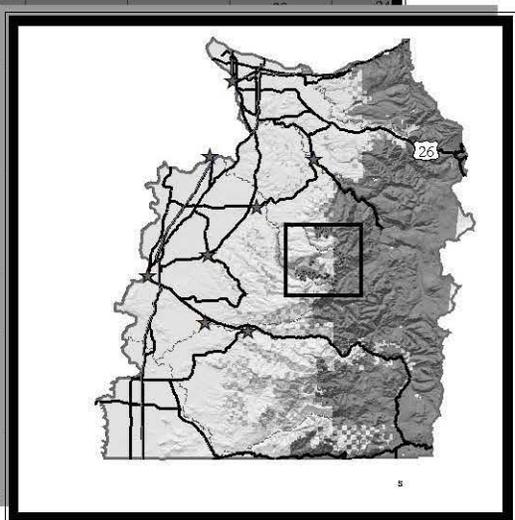
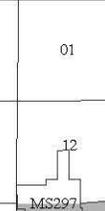
# Molalla LSR Enhancement Project Vicinity Map



- LSR Boundary
- Major Streams
- Potential Treatment Areas**
  - 20 Years Old
  - 30 Years Old
  - 40 Years Old
- Ownership**
  - BLM
  - USFS



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



Bureau Of Land Management  
Salem District Office  
Cascades Resource Area

